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ANITA F. ALLEN ASSOCIATES, INC.

**GUATEMALA 1970-1985:
A DETERIORATING STATUS QUO**

International Science and Technology Institute, Inc.



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LIST OF PERSONS INTERVIEWED

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Dr. Hernan Delgado	INCAP
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Pirie Gal	ROCAP
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Mario Anibal Gonzales	FLACSO
Dale Humphrey	USAID/Food Assistance
Lic. Enrique Lee	SEGEPLAN
Charles Lininger	ROCAP
Alfonso Martinez	USAID/Econ
John Massey	USAID/Population
Lic. Maria Teresa Menchu	INCAP
Gilberto Mendez	USAID/Education
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Silvia Negreros	SEGEPLAN
Bruce Newman	Datapro, S.A.
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Other officials provided help and information off the record.

EXECUTIVE SUMMARY

Led by a robust performance in export-oriented agriculture, the Guatemalan economy experienced fast economic growth in the 1970's, with an average per capita GDP increase of 2.8% and personal income growth of 25-30% over the decade. Despite these impressive statistics, the majority of Guatemalans did not benefit in terms of improved living conditions or economic prospects.

Indeed, evidence strongly suggests that inequalities in income and wealth worsened continually during the economic growth period 1970-1978 and during the recession which started manifesting itself in 1978. By 1981, the 5,200 richest individuals in Guatemala received a share of total income equal to that divided among the 1,800,000 poorest.

This exacerbation of the social situation is the result of the limited bargaining power of workers in the modern industrial sector and in export-oriented agriculture. Weak unions and an abundant labor force combined to limit nominal wage increases and real income dropped despite steady growth. In the traditional sector of food production, structural factors such as the small size of the properties, population growth and reduced labor requirements per acre in the more dynamic export crops have resulted in the increasing pauperization of a vast class of peasants. The number of microfincas almost doubled between 1964 and 1979, while their average size dropped by 34.3%. This trend should become a source of serious concerns, as these properties are generally considered of a size insufficient to support the average family.

Wages have remained at their traditionally low level, and at least 63% of the population is considered living under the poverty line, with almost one third being classified as extremely poor (i.e., unable to afford the basic food basket). Almost three-fourths of the population under the poverty line resides and works in agricultural activities.

Although periods of economic growth are generally conducive to a widening of economic opportunities, in Guatemala the prosperity of the 1970's actually intensified the regressive aspects of the social structure.

In the mid-1980's, Guatemala remained one of the least urbanized societies in the Western Hemisphere. Throughout the 1970's, urban population growth has remained well below the levels reached in previous decades in other countries of the region. At the beginning of the decade, Guatemala was still an agrarian

society at the very early stages of population transition as evidenced by the high population growth rate and the extremely low - by regional standards - urban unemployment rate. The explanation for the low rate of urban migration during the 1970's in spite of the levels of poverty in the countryside is to be found in the probable lack of substantial differences in their potential urban living standards and their actual conditions.

The poor educational background of large segments of the rural poor limits their economic opportunities in urban areas. Although efforts have been made in recent years to extend the educational system in the countryside, levels of illiteracy remain very high and large numbers of students do not even graduate from primary school.

High rates of chronic malnutrition as indicated by severe growth retardation among children persist in rural areas. Reported child mortality rates are improving but may substantially underestimate the actual rates.

Efforts to address these issues through health information campaigns are impeded by language barriers and the high illiteracy rate.

In summary, it may be said that the same problems present in the late 1960's in Guatemala persisted in 1987. Despite the period of prosperity in the 1970's, Guatemala society did not experience any fundamental changes. This status quo has resulted in the intensification of social inequalities within the country. Preliminary indications suggest that differences between urban and rural conditions have become such that urban migration may be accelerating and that Guatemala may be entering a period of structural change.

1-BACKGROUND

1-1. The Guatemalan economy enjoyed a period of relative prosperity and stability in the 1960's and for most of the 1970's, fueled primarily by robust prices and markets for its key commodity exports: coffee, cotton, sugar cane, bananas and meat. Exports grew by an average rate of 8.5% between 1968 and 1978, by which time their value represented 21% of the country's GDP.

1-2. Feeding off of this boom, the manufacturing, construction, commerce and services sectors all experienced solid growth, drawing as well the bulk of domestic investment. The growth of these sectors also stimulated a 16.6% annual increase in imports over the 1968-1978 period, consisting mostly of equipment and materials for manufacturing and consumer goods. This import growth fostered sustained balance of payments and current account deficits, necessitating foreign investment and public sector foreign borrowing as compensating mechanisms.

1-3. Growth in non-traditional exports, mainly manufactured goods, derived largely from the emergence of the Central American Common Market (CACM), which, along with El Salvador, benefited Guatemala more than any other country in the region. Thus, when the CACM began to unravel in the late 1970's and early 1980's, export revenues suffered. This trend was exacerbated by a severe drop in global commodity prices, which highlighted a major structural flaw in the Guatemalan economy: the lack of reinvestment in the agricultural sector and in the diversification of the export base. With the engine of economic growth thus undermined, subsequent hard times emerged in the 1980's.

1-4. The country's political development has shown recent signs of relative stability after a lengthy era of right-wing civilian and military governments dating back to a U.S.-supported invasion by rightist exiles that ousted the constitutional government of Jacobo Arbenz in 1954. Prior to that time, the Communist Party and other leftist elements had played major roles in social and economic reform movements. Consequently, left-wing political parties were officially outlawed and suppressed. The repressive political environment also entailed union activity and pro-worker movements, which have only begun to assert themselves since 1986.

The exclusion of the left from the political process fomented an insurgent movement that expanded into an open and violent guerrilla conflict, which has destroyed significant agricultural productive capacity and displaced a large segment of the rural population. It has been estimated that hundreds of thousands of rural residents were uprooted from their land and homes; tens of thousands of refugees have settled in border camps in southern Mexico.

1-5. In recent years, violence and turbulence have largely characterized the political culture, even apart from the guerrilla conflict. Under the government of General Romeo Lucas Garcia (1978-1982), violence was employed by virtually every element of the political spectrum as a means of furthering its objectives. The political uncertainty was also manifested in international relations, as Guatemala increasingly adopted an isolationist posture. Diplomatic relations were broken with the United Kingdom in a dispute over the independence of neighboring Belize.

Constitutional rule was formally ended in 1982, when a coup brought General Efraim Rios Montt into power. The Rios Montt regime undertook a widespread counterinsurgency campaign against the increasingly active guerrilla movement, implementing a program of "guns and beans" to enlist the aid of the rural population against the insurgents. Civil defense patrols were formed in rural areas, leading to charges of coercion and human rights abuses against the government by organizations such as Americas Watch.

Rios Montt alienated his military base of support, however, and was replaced in August 1983 by General Oscar Mejia Victores, who began to repair the isolationist damage to Guatemala's foreign relations and move the country toward democracy. Mejia expanded the reformist initiative begun by Rios Montt, culminating in the drafting of a constitution in 1985. Elections held in December of that year brought a moderate Christian Democrat, Vinicio Cerezo, to power.

1-6. Despite these political strides, the country's economic performance remains poor, and Cerezo faces significant obstacles to achieving improvement. Efforts to broaden the traditionally weak tax base, a legacy of the unusual (relative to the rest of Latin America) strength of the private sector in the country's industrial development, have met with stiff resistance from business leaders. The Coordinating Committee of Agricultural, Commercial, Industrial and Financial Institutions (CACIF), a politically powerful coalition, has steadfastly opposed efforts at tax or land reform. Moreover, the recent acceleration of inflation (which averaged 18.7% in 1985 and 37% in 1986) has spurred political activism by the country's labor unions.

1-7. Guatemala's main independent human rights organization, the Grupo de Apoyo Mutuo (GAM), constitutes another emerging political group and has called for the establishment of a commission to investigate the whereabouts of "disappeared" people and other alleged abuses. Fear of offending the military is likely to limit future government action for the time being. It is generally agreed, however, that the human rights situation has

improved compared to the early 1980's. Foreign aid, especially from the U.S., has been increasing in response to the government's progress.

1-8. Less success has been attained in addressing poverty, which remains widespread in rural areas that are primarily inhabited by Indians. A development communities ("polos de desarrollo") program has spearheaded the government's efforts at promoting rural resettlement and improving living conditions. Cultural and ethnic barriers and the danger posed by working in rural areas remain important obstacles to reaching this segment of the population.

1-9. The government's capacity to deliver social services in both urban and rural areas has been greatly strapped by a lack of fiscal resources, exacerbated by recent difficulties in attracting foreign investment and private and multilateral lending. Although recent trends suggest a recovery of tourism, an important source of hard currency that had dropped sharply as a consequence of the widespread unrest, revenues have not yet reached their previous peak levels.

2-POPULATION TRENDS: A LATE TRANSITION

2-1. By the mid-1970's, the total population of Guatemala amounted to slightly over six million; ten years later, it had increased to almost eight million. The annual growth rate over the decade 1975-1985 was 2.8%, approximately one-fourth above the Latin American average. Had it not been for external migration (which accounted for a net outflow of 300 thousand persons through the period), the Guatemalan population would have reached an even higher level; in fact, the natural growth rate (i.e., the difference between the gross birth rate and the gross death rate) was 3.2% per year--one-third above the regional average--ranking among the highest in the world.

2-2. An even more striking aspect of Guatemalan population trends is that general demographic growth has changed very little, if at all, over the last quarter of a century. In fact, natural growth has steadily increased not only throughout the 1960's but--unlike most Latin American countries--during the 1970's and even the 1980's. This acceleration is the result of an extremely high fertility rate declining at a very slow pace (from 6.85 in 1960 to 6.12 in 1985), combined with a much more rapidly decreasing death rate (a drop of 10.1 per thousand), which led to an 11.9-year rise in the life expectancy at birth.

2-3. Long-term trends in the main fertility indicators (global fertility rate and gross reproduction rate), which in the mid-1980's remained at levels equivalent to those prevalent on average in Latin America by the early 1960's, suggest that Guatemala is still experiencing the early stages of demographic transition. An assessment of Guatemalan urbanization, based on comparisons with regional urban and rural population data, supports this view.

2-4. Urban population in Guatemala has been estimated by CELADE at 34.4% in 1970 and 36.5% in 1980. By contrast, the rates for all of Latin America were 57.7% and 64.4%, respectively. CELADE estimates and projections for urban growth yield a constant annual rate of 3.6% for Guatemala over the period 1970-1995, while urban growth in all of Latin America falls from 3.5% to 2.8%.

IDB estimates present another picture of past and present urban growth in Guatemala: Over the period 1961 to 1986, the annual rate has been calculated as increasing from 2.2% to 3.0%, while Latin American urban growth fell from 4.1% to 3.6%. The differences between the IDB and CELADE estimates are due to methodological considerations and assumptions about the timing of the acceleration of urban growth. But, despite the discrepancies in magnitude, both sets of estimates (Table B-4b) confirm that Guatemala remains essentially a rural country at a very early stage of a shift from an agrarian society to one based on an

urban economy, a process already achieved throughout most of the region.

2-5. Findings from the censuses of 1973 and 1981 show a very slow pace of internal migration to Guatemala City. In 1973, 7.3% of the capital's population reported having moved there in the preceding five years; during the same period, 2.5% of the capital's population migrated to other areas, yielding a net rate of immigration of 4.8% from 1968 to 1973. From 1976 to 1981, the net immigration rate was only 4.3%, as 7.0% of the resident population reported having arrived during this period, while 2.7% departed.

This apparent slight decline in migration to Guatemala City, which seems to contradict other findings of an increase in urban population growth, is probably due to a statistical error: the published figures for interregional migration were not corrected to account for an increase in the percentage of omission in the two censuses of 1973 (10.32%) and 1981 (13.75%). It is likely that estimates of the migrant population are more severely affected by undercounting.

2-6. Although Guatemalan patterns of regional migration have fluctuated since the 1945-1950 period, some major trends have remained fairly constant, with the most prominent such trend being the flow of immigrants into Guatemala City and the department of Guatemala. Across the three periods--1945-1950, 1968-1973 and 1976-1981--for which figures are available, Guatemala City had the highest overall migration rate and highest percentage of total immigration in the country.

2-7. Recent immigrants to Guatemala City (1976-1981) displayed different characteristics as a group than immigrants to other parts of the country: They were primarily young, single and female, while immigrants to the southern coast and the northern (El Peten) regions consisted of more males and families. This pattern suggests a correlation between degree of urbanization in the region of destination and the proportion of females in the immigrant population, as young, single females head for urban areas to seek positions as domestic servants. Employment statistics for recent immigrants to Guatemala City (Table B-8) confirm this trend, as 65.1% of females who obtained employment did so as domestic servants.

2-8. Education plays an essential role in the urban employment prospects of immigrants of both sexes and may affect the decision to migrate as well. The 1981 Census, for example, found that the average level of education, as measured by years of schooling, was much higher among natives of three regions--the Altiplano, southeast and southern coast--who emigrated to the capital than among natives who did not emigrate. In fact, the average educational level of the migrant group was only slightly below

that of natives of Region I (Table B-7).

The relatively high educational level of these immigrants, especially the males, suggests that the majority of the recent immigrant population emigrated from urban clusters within their rural regions of origin. Males not only receive more education per se, but, in all likelihood, different patterns of instruction: Their training focuses on job-related (e.g., vocational, technical, professional) skills, while females probably acquire the language skills (i.e., Spanish) necessary to perform domestic service. The trend for females to enroll in school later and drop out earlier than males generally precludes their acquiring more advanced job skills. The relatively high skill levels of immigrant job applicants, as demonstrated by the types of positions they were able to obtain, enhances their marketability in the formal sector and may help explain why the Guatemalan informal sector has yet to register a significant portion of domestic economic activity, contrasting the tendency throughout Latin America for urban immigrants to resort to informal sector jobs.

2-9. Structural economic factors largely account for the net inflow of immigrants to the southern coast and northern (El Peten) regions and the net outflow from the southeast, Altiplano and eastern regions (with the southwestern region recently joining the latter group after having been a region of net inflows). Driven by lack of economic opportunity immigrants have steadily left the southeast, Altiplano and eastern regions over the 1950-1981 period, with Guatemala City becoming their primary destination after the drop in labor demand in the agro-export sector. The southern coast and northern regions have served as alternatives to the capital, especially for families still attracted to agriculture; the government has also promoted the colonization of El Peten to expand the nation's agricultural frontiers.

2-10. It is important to remember, however, that these migratory trends are not very significant compared to the growth of the Guatemalan population as a whole. The lack of educational opportunities available for a significant segment of the rural population has no doubt dampened the migratory proclivity among rural residents so evident throughout the region. Indications of increased migration from rural to urban areas because of a changing economic picture (i.e., the deterioration of the rural sector, as described in the next section) imply that Guatemala may well face problems associated with rapid urbanization in the next few decades, particularly in service provision and job creation for an increasingly unskilled work force. It is important to note as well the implications for the development of rural areas if the more highly qualified and educated members of the rural work force emigrate on a consistent basis because of the lack of income and employment opportunities close to home.

3-ECONOMIC GROWTH WITHOUT EQUITY: INCOME DISTRIBUTION AFTER A DECADE OF PROSPERITY

3-1. The 1970's were years of economic bonanza for Guatemala. On average, GDP grew 5.7% per year, which--given population growth--signified an annual per capita increase of 2.8%. Notwithstanding the lack of reliable statistics, it may be concluded that average personal income grew 25-30% over the decade.

However, it is likely that this remarkable performance meant very little for a majority of Guatemalans. By the end of this period of prosperity (1980 was the last year of positive growth), income distribution remained highly skewed and, most importantly, a significant share of the population (almost one-third of all families) went on living under conditions of extreme poverty.

3-2. Concentration is the word that best summarizes the structure of income distribution in Guatemala. According to the 1980 survey on Income and Expenditures¹ (which constitutes the main and most appropriate method for assessing income distribution on a national basis), the upper decile shared around 40% of total family income,² while less than 1% of all households

¹ Direccion General de Estadistica, Ministerio de Economia. The survey was executed in two stages: the first one concerned Guatemala City, where the interviews were conducted from November 1979 through November 1980; the second stage referred to the rest of the country (both urban and rural areas), where the field work went from August 1980 until August 1981.

The survey supposedly included all types of incomes (cash and in kind); there apparently was a serious attempt at measuring self-consumption but it is unclear if housing, for example, was also included.

The high level of expenditures compared to income in some brackets leads one to suspect that problems existed in the measurement of income.

² An accurate decile or percentile distribution is not available. The above-mentioned figures are authors' estimates based on published tables and, therefore, should be considered as an approximation of such a distribution. According to a breakdown by levels of annual family income, 12.6% of households shared 45.9%

received over 15% of total family income. Even more impressively, less than 0.1% of households--that is, slightly over 1,200 out of 1,335,000 families--garnered 7.4% of annual income (Table D-1).

At 1987 prices (i.e., adjusting the original figures by inflation),³ the average annual income of the upper decile amounted to Q/23,300 (approximately \$9,300), while the average of the top 1% was Q/107,000 (around \$43,000); the mean family income corresponding to the richest 0.1% reached Q/510,000 (\$204,000).

3-3. This scenario sharply contrasts with the condition of the majority. The bottom quartile (which comprises over 350,000 families) gets 7.5% of total income, a share similar to the one received by the richest 0.1%. The annual average family income of this group (at 1987 prices) was Q/1815 (\$725). Since the average family size was 5.1, it may be concluded that the per capita income of one out of four families was only Q/355 per year or Q/30 per month (less than \$12). The difference with the per capita income of the top 0.1%, which amounted to \$48,500 per year or over \$4,000 per month, was almost 350-fold. In other words, the 5,200 persons belonging to the richest families (the mean family size being 4.2) got an amount of income equal to the combined earnings of the 1,800,000 persons who constituted the bottom 25%.

The situation does not improve much when the next quartile is considered. It is estimated that the second quartile shared 13% of total income, the annual average per household being (at 1987 prices) Q/3600. This implies a per capita income of Q/679 per year (\$272) or Q/57 per month (less than \$23).

of total income, and the top 0.9% received 15.2% of this total.

³ Two problems become visible when adjusting by inflation: the first one derives from the fact that, as of March, 1983, a new CPI (based on the 1980 Income and Expenditure Survey) has been compiled and, therefore, the consumption basket is different from the one that was computed until then; second, the CPI as calculated by INE is restricted to Guatemala City, thus introducing a bias since this basket is dissimilar to those of the urban and rural areas of the rest of the country. Given that most of the families who belong to the bottom 25% live in rural areas and that, presumptively, the relative prices of staples should be lower there than in the capital, the use of Guatemala City's CPI as a general deflator may lead to an overestimate of income difference in terms of real purchasing power.

The aggregate share of the two lower quartiles was, therefore, 21% of total annual family income. This means that, by the time of the survey, the average per capita income of one out of two Guatemalans was (at 1987 prices) as low as Q/512 (\$205) per year or Q/43 (\$17) per month.

3-4. A large proportion of the population lives under conditions of extreme poverty. Based on the results of the 1980 survey, a study by SEGEPLAN estimates that almost 32% of all families, 39% of total population, could not afford to purchase a food basket (valued at local prices) sufficient for providing a daily minimum intake of 2250 calories.

Another important aspect of inequality in Guatemala may be found in the difference in average income between urban and rural areas: 73% of the population living in conditions of extreme poverty reside and work in rural areas. The same study indicates that 36% of rural households (or 44% of the total rural population) fall into this category.

3-5. The situation of the agricultural sector in Guatemala is characterized by an extremely skewed land distribution. In 1979, 59.7% of all farms were of a size of less than 2 manzanas (1.4 Ha) and controlled only 3.7% of total agricultural land. In contrast, farms classified as large (over 45 Ha), which dedicate most of their production to export crops, represented only 2.3% of total farms but occupied 67.1% of the land.

A finer breakdown of farms by size within the categories of the 1979 Census (Table C-1) indicates that 10.8% of the farms were of a size of less than one cuerda (i.e., 0.04 Ha) and only encompassed less than 0.001% of total agricultural land, while the four largest agricultural properties in the country controlled 1.8% of the land.

The degree of land concentration is best reported by the value of the Gini coefficient, which, in a report to USAID,⁴ was calculated at 0.851 (the value 1.000 representing absolute concentration).

3-6. Between 1950 and 1979, two distinct periods of changes in the structure of land ownership can be noted. In the first period (1950 to 1964), the situation of microfincas (properties of less than 1.4 Ha) remained basically stable, as did that of small and medium-sized fincas, while the number of large farms dropped slightly, mainly because of a reduction in the number of

⁴ Richard Hough et al., Land and Labor in Guatemala: An Assessment; report by USAID/Washington and Development Associates, 1982.

farms larger than 4,500 Ha. A slight decrease in the inequality of land distribution was probably occurring.

But between 1964 and 1979, the number of microfincas almost doubled and their average size decreased by 34.3%. Medium-sized farms increased their numbers and their average size. Among the large farms, increases in numbers were recorded for properties of less than 4,500 Ha along with a fall in average size, but as the number of farms of more than 4,500 Ha decreased, the average size of the very largest farms (over 9,000 Ha) increased by 20%.

As a result of these changes, the Gini coefficient for land distribution increased from 0.824 in 1964 to 0.851 in 1979, indicating an increase in inequality.

3-7. It is significant that for the 1950 Agricultural Census there was no counting of farms of less than one cuerda: their number was considered insignificant. A similar census in 1964 did not establish a lower size limit for farms and the tabulation did not separate these small plots from the rest of the categories of microfincas. In 1979, however, the Agricultural Census included all farms without size limit and the tabulations show that farms of less than one cuerda represented 10.8% of the total of farms or almost 20% of all microfincas. This category of farm, therefore, in 30 years went from being an unusual occurrence to representing a significant segment of all farms. Most of this development probably occurred between 1964 and 1979. Underlying this trend is the fact that this category of farms is probably the one experiencing the fastest growth in its numbers.

3-8. The growth in the number of microfincas and the increase in their relative importance should be a source of serious concern: These properties are generally considered too small to sustain an average-sized family.

The number of microfincas grew at an average annual rate of 4.6% during 1964-1979, a rate almost double the growth rate of all farms and substantially above the population growth rate. The division of family land to accommodate mature children only partly accounts for the increasing prevalence of this type of small property. A likely additional factor may involve the regular sale of plots to supplement annual income and repay debts.

The extremely rapid growth of the number of microfincas with less than one cuerda would seem to substantiate this indication. These small farmers are among the poorest members of the rural population and, among landowners, derive the smallest share of their annual income from their land: they would tend, therefore, to survive by selling their assets.

3-9. Of course, this survival strategy (i.e., through the sale of

land assets) is only necessary if opportunities for alternative income sources are limited. Rural income is rarely derived from one single activity but rather from a mix of different activities.

Several indicators tend to show that economic opportunities outside the family farm may be limited and shrinking. The ratio of cultivated land per gainfully employed member of the agricultural labor force dropped 5% between 1964 and 1979 (Table C-7). Therefore, in the absence of the introduction of labor-intensive techniques, opportunities for employment decreased.

In fact large farms, which by 1979 had 55% of the labor requirements in agriculture, substantially increased their capital stock in machinery over the period 1964-1979, thus probably decreasing their relative demand for labor. Since 1979, a portion of the decrease in cotton acreage has been converted into highly mechanized corn production. There appears, then, to be a trend toward less manual labor required per manzana.

In a report to PREALC it has been estimated that between 1950 and 1979, the average labor requirements per manzana have decreased by 12% mainly because modernization in large farms decreased the demand for labor.

Interestingly enough, despite the fast increase in the number of non-self-sustaining farms between 1964 and 1979, the composition of the agricultural labor force has remained stable at the national level. One would have expected that with the increase in the number of small farms, more small farmers would take up salaried positions, since they cannot support themselves on their properties. But it has obviously not happened. The stability of the composition of the agricultural labor force at a time of stress for the owners of the smallest properties may be another indication of the lack of satisfactory economic alternatives in agriculture.

3-10. A comparison of agricultural labor requirements by regions and months of the year calculated by SEGEPLAN (Table C-8) for 1979 with corresponding agricultural labor force data shows a very high labor surplus in agriculture at the national level. Even during the last quarter of the year, when harvest requirements push labor demand to its peak, only two regions (the Pacific Coast and the Central Region) had a net demand for labor. However, the labor surplus of just one region at that time--the Altiplano--could satisfy these net demands.

It was impossible to encounter data to assess the evolution of the agricultural labor surplus over time. But the decrease in the ratio of cultivated land per worker and the tendency toward increased mechanization in large farms must have constrained the

growth in demand for labor, despite the dynamism of the agricultural sector during the 1970's; meanwhile, the agricultural labor force through continued high fertility, lower mortality rates and very low rates of urban migration, grew steadily. It is therefore likely that the labor surplus in agriculture increased over the period 1964-1979.

3-11. This situation must have put a severe limit on the possibility of wage increases in agriculture. No series of actual agricultural wages was available to confirm this hypothesis.

A series of average annual salaries has been calculated by SEGEPLAN and the Social Security Institute on the basis of contributions paid by employers and workers. Because the coverage of the IGSS is reduced⁵ and uneven, great caution should be exercised when using this data in agriculture.

It is likely that large farms and their permanent workers are the most heavily represented. This data shows that in the 1970's, agricultural wages remained at around 43% of the national average: during the 1980's the reported drops in nominal wages in various sectors increased this ratio to 51%. Therefore, despite the dynamism of export-oriented agriculture, permanent workers in this subsector appear to have not been able to improve their relative income position.

The lack of an appropriate consumer price index for rural areas prevents an evaluation of the trend of real agricultural wages in comparison with urban wages.

No data could be found concerning the level of daily wages for seasonal workers and others in the traditional agricultural sectors. If the changes in the minimum wage in agriculture can be taken as an indicator of actual wage trends⁶, nominal wages

⁵ In 1986, the Social Security Institute estimated that 660,444 individuals were affiliated to the IGSS programs. The Socio Demographic Survey of the same year gave an estimate of 2,644,288 working individuals. The coverage of the IGSS is then in more than 25% of the working population.

⁶ Although the minimum wage level was used as an indicator by Guatemalan officials, questions about extent of coverage and enforcement were answered by admissions of lack of knowledge and great differences between sectors.

It is also interesting that the minimum wage level in some occasions appears to act as a ceiling rather than

remained basically stable over the period.

It is also symptomatic that Alberto Hintermeister, in his study on seasonal variations of rural activities, encountered only slight variations in the agricultural labor force over the various seasons: he explains this phenomenon by the fact that in periods of peak demand, the wages offered are below the reserve price of the non-active population. In other words, during harvest season the wages offered probably do not differ substantially from the annual average because all the demand for labor can be satisfied at the prevailing wage.

3-12. It is therefore not surprising that the Incomes and Expenditures surveys undertaken in the late 1970's indicate that gainfully employed individuals deriving their income mainly from agricultural activities are heavily concentrated among the lowest levels of income (Tables D-1 through D-4).

While 87% of employed and remunerated individuals at the national level earn less than Q/3200 per year, in agriculture the same percentage earns less than Q/2000; it is worth mentioning that the surveys included cash and other incomes.

The difference in individual incomes between agriculture and other economic activity is also evident in rural areas. However, it is worth noting that although non-agricultural workers in rural areas represented only 19.7% of total income earners, 37.7% of individuals earning less than Q/400 per year were in this category: this high rate can be explained by the occasional work and activities (e.g., weaving) undertaken by family members.

The same pattern of sharply lower incomes from agricultural activities is repeated in the tabulations of family income. It is worth keeping in mind that although at the lowest levels of family income there is apparently only little difference between the national average and the rural averages, this is the result of the heavy concentration of agricultural households in these categories.

3-13. The increasing number of fincas too small to sustain a family and the depressed levels of agricultural income at the end of the 1970's indicate that there was little trickle-down of the high income generated by the growth in agricultural production. The dynamism in agriculture was limited to a few export crops concentrated in large farms, affecting only a small percentage of the rural population.

a floor: it was reported that in the late 1970's, construction companies lobbied to have the minimum wage increased because they could not hire sufficient labor at the existing level.

The agricultural sector in Guatemala suffers from a very high dualistic structure. Its manifestations are evident in the contrasts between (1) export crops and basic food production; (2) the Pacific Coast and the rest of the country (in particular the Altiplano); and (3) the two poles of the agrarian structure, the large farms and the microfincas.

There is in essence a segmentation, with the export crop subsector absorbing the financial resources and being able to use at its convenience seasonal labor from the microfincas (where the opportunity cost of labor is very low).

Although the phenomenon of pauperization, made evident by the proliferation of microfincas, occurred during a period of growth in export-oriented agriculture, no causal relation exists between the two. They simply coexisted as two independent trends.

3-14. The pauperization in rural areas is a secular phenomenon unlikely to be substantially affected by changes in growth rates in the economy as a whole or in export-oriented agriculture. Since 1979, the trend has probably continued with only a marginal acceleration due to the recession in export crops.

The phenomenon--and, in the absence of policies aimed at stabilizing the course of events, the marginalization of a vast mass of peasants--is the consequence of (1) the inherited colonial land structure that expanded further in the late nineteenth century and (2) demographic changes.

In several stages, vast, fertile Indian lands were expropriated and the Indian population was pushed back into the remaining high altitude areas, with unfavorable land quality and much smaller plots. This process assured the large farms of an abundant source of cheap seasonal labor.

3-15. The survival strategy of the Indian population in the microfincas consists of allocating most of their land to basic food production and supplementing their annual income by occasional labor.

It is interesting to compare the allocation of land by types of crops in microfincas with the labor requirements. In 1979, 91.2% of the land in these tiny farms was dedicated to basic food production, but this activity absorbed only 37.7% of labor requirements (Table C-6). Anthropological literature indicates that this is possible because the plots are too small to require full-time work and because the major crop grown is indigenous corn planted every year from the seeds of the previous year. While this corn is not a high-yield crop, it has the advantage of having a low variance in its yields. It also requires low labor inputs, therefore freeing labor for other necessary tasks (e.g.,

the search for fuel and for occasional work).

The introduction of cash crops is hindered by the initial cash investment required and by their generally high variance in output and generated income. From the point of view of the survival strategy of the microfinca peasant, cash crops in the current situation of unavailability of credits and other types of institutional support present too high a risk.

3-16. The chronic scarcity of resources that peasants have at their disposal locks them into adopting survival strategies from which escape becomes an increasingly unlikely prospect. The microfincas cannot make the investments needed to introduce new, more profitable crops or the technologies that would improve the output of current crops. Large farms employ two main sources of funds--credit and reinvested earnings--to make such investments. Given that the microfincas do not generate sufficient earnings for reinvestment, credit thus represents practically their only source of badly needed capital.

3-17. It is clear, however, that the credit needs of these farmers are not being met. PREALC statistics show that large farms received 80% of the credit extended to the agricultural sector between 1956 and 1980. Small farmers receive credit primarily from the National Bank of Agricultural Development (BANDESA) and from cooperatives that lend their own funds.

BANDESA has fallen far short of its stated purpose of lending to small agricultural producers. Its 1983 loans (Q 34.3 million), for example, amounted to just 4% of global domestic credit and just 20% of credit extended to the agricultural sector. A more disturbing trend involves the distribution of BANDESA loans, which has served to marginalize the smallest farmers even further.

In 1983, farms of up to seven hectares in size received a combined 68.1% of the loans extended, but only 36.4% of the value of the loans (Table C-11). Overall, comprising 88% of the farms in Guatemala, this category of farms received only 7% of total agricultural credit. Farms of less than five hectares received 63% of BANDESA credits in 1973 but less than 30% ten years later, indicating a deteriorating credit situation for this sector.

3-18. A 1974 survey sponsored in part by USAID demonstrated the positive effects of credit on farm output (Table C-12). The average production of farms that obtained credit was 15% greater than that of farms without credit. The largest difference was in farms of less than one hectare, from which the value of production more than doubled. The increase in the value of output was attributed primarily to the cultivation of more profitable crops, an essential aspect of improving the incomes of small farmers directly related to access to credit.

3-19. The size of the microfinchas has always required that family members find other sources of income to survive. The reduction in the size of these tiny farms has made these alternative sources the major component of income: it has been calculated by PREALC that 63% of total income in microfinchas originates outside the family farms.

Alternative sources of employment consist mainly of construction and services, which require low skills; however, in the seasons of low employment in agriculture, these occupations do not generate enough jobs to absorb the labor surplus. Therefore there is constant pressure against a rise in wages.

Among other sources of income are the sales of weaving by women. It is difficult to know how much income on average this activity generates. A small survey in a village close to Antigua and famous for its weaving, San Antonio Aguas Calientes, indicated that in 1980 the average gross income derived from the sale of weaving by women was Q/84.2 for six months, or Q/168 per year (US \$168). This may be considered a maximum since San Antonio is located close to a major tourist attraction. Interviews conducted by an anthropologist revealed that rural women accepted full-time weaving work for between US \$0.55 and US \$0.75 per day (US \$165 to US \$225 per year), confirming the low amount of income generated by this activity. However, this source of income is only available to one class of peasants, as it requires skills and a cash investment in yarn and thread that may not be recuperated until the piece is completed and sold, sometimes months later. The poorest peasants, in particular the landless ones, supplement income from occasional labor by home production of reed mats known as petates.

3-20. As has been discussed earlier, Guatemala is one of the least urbanized countries in Latin America. By the mid-1980's, urban areas defined in a very broad sense (e.g., including any administrative center of any "municipio") represented about 41% of total population, a share only 4.5 points above 1975 and still far below the regional average. Unlike most Latin American countries and in spite of widespread extreme poverty conditions in rural areas, Guatemala has not experienced a strong internal migration process; it may be estimated that, at an annual rate slightly above 1%, migration accounted for no more than one-third of urban population growth over 1975-1985.

3-21. Obviously, this pattern has a significant influence on the labor market. Although the growth rate of the urban labor force is relatively high--about 4% per year--most of it is explained by natural population growth. Entrants to the urban labor market proceeding from the rural areas are relatively few. Mission estimates based on household surveys conducted in 1979 and 1986 suggest that over that nine-year period, less than 50,000

workers, out of an increase in the size of the urban metropolitan labor force of approximately 150,000, originated in rural areas.⁷

A corollary of this trend is that the size of the urban labor force is small, both in absolute and relative terms. According to the 1986 Household Survey, the urban metropolitan labor force amounted to 442,000 persons (i.e., only 16.1% of the Guatemalan active population). This figure is probably too low (the 1977 survey reported an urban labor force for the Department of Guatemala of 404,000), due to the fact that some areas regarded as rural are mainly urban. This conjecture is based on some survey figures that show that almost two-thirds of the workers settled in the "rural" areas of the metropolitan region are engaged in non-agricultural activities. Assuming that 75% of them are urban workers, an adjusted urban metropolitan labor force would amount to 530,000, which would still represent only 19.5% of the Guatemalan active population.⁸

Clearly, a relatively small urban labor force indicates that the bulk of the employment problem has not yet been transferred to the cities. It also points out that invisible underemployment, rather than open unemployment or visible underemployment, is the main category of labor underutilization.

3-22. Official statistics on employment and unemployment for SEGEPLAN indicate an increase in open unemployment from 2.2% in 1980 to 16.3% in 1986. According to Peter Gregory these figures were reached by using a 1980-81 baseline for employment derived from the Income and Expenditure Survey and considering employment as a direct function of sectoral outputs while assuming the relative importance of the modern and informal sectors as stable. Because of the recession since 1982 all projected increases in the labor force have been arbitrarily assigned to open unemployment, which as a consequence, shot up. SEGEPLAN also calculated a rate of underemployment based on a standard wage (equal to the basic basket of goods) for the determination of full employment of individuals. The total published official unemployment in 1986 was 45.6%. As Peter Gregory pointed out: in these conditions "any resemblance to actual labor market conditions would be purely coincidental."

7 The comparison between both surveys shows a total increase, including the rural areas, of the Metropolitan Region's labor force of almost 190,000 workers. The annual growth rate is 3.8%.

8 Another possibility, which does not necessarily exclude the previous one, is that the expansion factors are downward biased, thus leading to an underestimate of the Metropolitan labor force.

3-23. By late 1986, the National Household Survey conducted by INE showed an open unemployment rate for the Department of Guatemala of 7.3%; the rate for the capital city was 8.5%. These rates are far below those prevailing in most developed countries. However, they are much higher than in the mid-1970's: By 1979, according to the household survey conducted that year by the DGE, the open unemployment rate for the Department of Guatemala was 2.9% and the one for the capital city, 2.8%.

This increase denotes two different but confluent phenomena. On the one hand, it reflects the crisis that has affected much of the modern sector of the economy; as Peter Gregory (1987) correctly points out, "... whereas current employment in establishments with ten or more workers accounts for only 43% of the total, the unemployed whose employment was in such establishments accounts for 61% of the total." On the other hand, since open unemployment is mainly an urban problem, its increases may be seen as a by-product of the urbanization process (in contrast, an extremely low rate as shown by the 1979 survey may be understood as an indicator of a mainly traditional society). In other words, the rise in urban unemployment is a sign of the crisis, but also of modernization. Quite probably, if this process goes on (including an improvement in the--until now, low--educational profile of the labor force) a further increase (or at least a certain downward inelasticity) could be expected.⁹

3-24. The main urban employment problem is not one of an absolute lack of jobs, but neither is it one of working too few hours. In fact, the opposite is true, as urban workers report long hours worked: According to the 1986 survey, men and women worked a weekly average of 49 and 45 hours, respectively. Only 13.5% of respondents worked less than 35 hours a week, and of them over half were self-employed and unpaid family workers, with most of them being--in all probability--voluntary part-time workers. In 1977 those who worked less than a "normal workday" constituted 14.0% of the employed population, but only 9.3% of rural workers. Visible (involuntary) underemployment thus seems to be a minor problem.

3-25. The real problem is low earnings. Based on the results of the 1980 survey, SEGEPLAN estimates that 22% of the Metropolitan

⁹ Regarding the association between open unemployment and educational level, it should be noted that the former appears to be clearly correlated with the latter; that is, with the sole exception (easy to understand) of university graduates, unemployment rates are higher as one moves from the non-educated to the more educated active population.

Region's population belongs to households whose combined income is insufficient to purchase a food basket that provides a daily minimum per capita intake of 2250 calories. The annual average income of families living under conditions of extreme poverty was--by the time of the survey--26% below the cost of the minimum food basket. Additionally, another 41% of the Metropolitan Region's population could afford the purchase of such a basket, but not the purchase of one including a minimum of other basic (non-food) goods and services.

3-26. Although poverty is not a lineal function of poor employment conditions, the two tend to overlap, with the latter being, to a large extent, the main cause of the former.

A comparison of the 1986 Household Survey with a similar survey in 1979 shows that 32% of total households in 1986 earned less than Q/48 at 1979 prices against 33% in 1979. However the proportion of households having an income of less than Q/80 at 1979 prices increased from 54% to 65%.¹⁰

It appears then that the recession and its consequent poor employment opportunities have increased substantially the number of households in the low brackets of income.

3-27. Both the low absolute levels of earning and the deterioration over the period are not surprising. The average nominal wage paid in the formal industrial sector in 1986 was Q/385 (Table D-5), but for the production workers it amounted to Q/259 (i.e., slightly over \$100 a month). Even in leading private industrial firms (mostly multinational), wages were comparatively low: according to a private survey conducted by a consulting company (Table D-6), the average wage for technicians and production workers employed in those firms in 1986 was Q/434 (i.e., less than \$175 a month). It should be pointed out that the weight of skilled workers among them is relatively high.

3-28. Wages in the modern sector not only are low by international standards, but have deteriorated almost continuously since 1970. From 1970 to 1979, based on real wage rates, real wages dropped by 26% in urban areas and by 46% in rural areas. It is relevant to note, however, that 1970-1978 was a time of economic growth for Guatemala, which did not translate into an increase in real wages and standards of living.

3-29. This deterioration has continued in recent years. Following an increase that lasted until 1983 (the beginning of

CONVERSION TABLE

Q/120 (base 1986) = Q/48 (base 1979)
 Q/200 (base 1986) = Q/80 (base 1979)

the adjustment process), a drop of 18.5% in real terms occurred from 1983 through 1986 in the formal industrial sector. In multinational firms the average drop over the same period was 12.6%. As might be expected, the adjustment was even more severe in the case of production workers: their real wages sank by 20.3% in the formal industrial sector and by 18.5% in the leading industries. A note of optimism: a slight recovery of about 3% was observed in 1986. Overall, wages are still far below the levels of 1980.

3-30. All evidence points to a deterioration of the income situation in Guatemala since 1970. In the agricultural sector, a vast number of peasants found themselves worse off by the end of the 1970's than at the beginning of the decade. Although nominal wages in the industrial sector grew in the 1970's, their movement did not appear to compensate for the erosion of purchasing power, and in the first half of the present decade a further sharp drop occurred.

To complete the picture of this grim situation, two questions remain:

- 1.) What was the trend of income distribution in the period 1970-1985?
- 2.) Why did urban migration remain limited despite the income gap between urban and rural areas?

3-31. The absence of an Income Survey in the early 1970's and the lack of other relevant data does not allow for a concise statement of the trend in income distribution in Guatemala.

An argument based on a series of developments can be built to reach a qualified statement of the evolution of income distribution.

In agriculture, the increased concentration of land over the period 1964-1979 seems to point toward a higher concentration of income. In the export-oriented crops, despite the high growth rates experienced, nominal wages did not appear to increase faster than the national average, which seems to imply that workers did not succeed in maintaining their share of total income.

The increased degree of mechanization in these crops must also have increased the returns to landowners. In the traditional sector of food crops, the fast rate of pauperization of a vast class of peasants also suggests further possible income concentration.

In industry, it is significant that most of the burden of the 1980's recession appears to have been borne by production

workers: their wages dropped much more than administrative wages. It is possible to use this asymmetry and apply it to the 1970's: it would then be likely that production workers' wages did not increase as fast as administrative wages. Although this is purely speculative, the apparent decrease in urban real wages during the 1970's suggests the limited bargaining power of production workers during a time of economic expansion.

In summary, circumstantial evidence would indicate a probable worsening of income distribution during the 1970's and in the first half of the 1980's.

3-32. The concentration of poverty in rural areas and the apparent income gap with urban areas are factors which should have stimulated a fast migration from rural areas. But at least until 1979, evidence shows that such migration was limited.

The accepted explanation for this slow urban migration in the Guatemalan social science community focuses on the strength of cultural factors, such as language, attachment to a traditional lifestyle, reluctance to abandon the land, etc. The problem with this type of explanation involves the notion that these same factors must have been present in many other countries that experienced rapid urban migration. The balance between cultural stability and economic considerations was broken by the increased disparity in living standards and economic opportunities between rural and urban areas.

In Guatemala, the cause of the slow urban migration during the 1970's is most probably of an economic nature. Poor peasants did not migrate because their situation in the city would not have been substantially better than in their traditional locations.

3-33. Even though average salaries are higher in urban areas than in the countryside, there are big differences in salary by types of firms: In 1983, for example, according to the authors' estimates based on data from the Industrial Survey (Table D-7), the average salary for workers in firms of 5-9 workers was Q/98.4 per month, while for firms with over 50 workers the average salary was Q/262.8 per month. The spread for some occupations may actually be smaller, since salary figures for large firms include the earnings of administrative personnel and managers.

Nevertheless, the average salary for small firms may be considered an absolute maximum for potential urban migrants. Their high rate of illiteracy and lack of technical skills ensures low salaries. At the same time, the cost of living in the city would be greater than in the country.

It is therefore quite likely that the economic opportunities offered by the city in relation to the countryside have been

insufficient to provide an incentive for urban migration.

3-34. However, there are indications that the situation may be changing. The deterioration of the economic situation of a large class of peasants may have finally led to a point where, despite the loss of real income in the cities during the 1980's, the rural-urban income gap is sufficient to provide an incentive to migrate.

There is a widespread perception in Guatemala City that the flow of new migrants has increased substantially in the last six years. Hard data is non-existent as to the magnitude of the phenomenon, but it is significant that SEGEPLAN is starting a study on urban migration in the 1980's.

Data on potable water coverage in urban areas provides an indirect indication that urban migration may be accelerating. According to the figures, coverage dropped from 88.9% in 1980 to 70.6% in 1986. The magnitude of the change is such that it likely has been affected by a certain degree of sampling error. However, it still indicates a significant drop. Since there has not been any recent catastrophe such as another earthquake, the drop must be the result of an increase in dwellings without a supply of potable water. If only 10 percentage points are explained by an increase in dwellings, the data still indicates an acceleration of urban migration compared to the late 1970's.

3-35. Another intriguing fact about Guatemala is the very scarce amount of information available on the urban informal sector. This may be an indication that the informal sector is not as important a phenomenon as in other Central American countries.

Several factors seem to support this contention. The low level of unemployment in urban areas in the 1970's did not make it necessary for workers to resort to informal sector activities. It is also true that, despite the role played by the absorption of surplus labor by the informal sector, the activity generated by the informal sector depends on levels of income in the modern sector. The severely compressed wages evident in Guatemala in the modern sector may prevent the development of informal sector activities to the extent observed elsewhere in the region.

4-WELFARE AND POVERTY

4-1. It would be legitimate to entitle this chapter "The Art of Survival under the most adverse conditions": Available data on health and nutrition show, in fact, a very grim picture. Although continuities and trends are difficult to follow because of the diversity of the data and methodologies used to conduct surveys¹¹, it is possible to state that there has been very little change since 1965, when the baseline for all Central American countries was established.

It seems that during the past 15 to 20 years, Guatemala has been unable to address problems involving high undernourishment rates for the infant population and a generalized lack of available primary health services. The sector of the Guatemalan population most at-risk is very well-defined according to its ethnic origin, language, occupation, educational level and geographical area. This situation, even today, has not changed: it is possible to superimpose the map of infant malnutrition with any other socio-economic indicator showing extreme poverty and they will all point towards the same direction--the Altiplano.

Methodological Problems

4-2. After 1965, INCAP (The Nutrition Institute for Central America and Panama, based in Guatemala) conducted two surveys in order to measure growth deficits: one in 1976 a few months after the earthquake and the other in 1978. Both present a strong rural bias (i.e., a greater proportion of rural respondents than is present in the general population). It was not possible to find original data from these two surveys and reconstruct samples and methodologies used; however, results and comparisons between 1965, 1976 and 1978 were available at INCAP.¹²

4-3. During 1978, the first functional classification of the nutritional problem in Guatemala was conducted by the "Consejo Nacional de planificacion economica" and INCAP, again with a rural bias, selecting areas with the highest concentration of small farmers. The results highlighted the severity of the problem and where health interventions had to be targeted for maximum efficiency in reducing the magnitude of infant undernourishment. However, the publication of this document was

¹¹ A description of methodologies and samples used for the different surveys, censuses and studies can be found in Annex E.

¹² Reanálisis, bajo nuevos criterios uniformes de los datos antropométricos de las encuestas nacionales de nutrición, Guatemala 1965, 1976 and 1978.

forbidden by the government of Guatemala until 1986 and the status quo has been maintained due to the lack of interventions to reduce the intensity of the problem in those high-risk areas.

4-4. Starting in 1986, new longitudinal anthropometric data was collected in small, rural "follow-up" communities (where 20% of the population lives), and the first "height census" of first-grade school children was conducted. Considering the amount of time elapsed in between each survey, it is not surprising that they are different in terms of the samples and methodologies used to classify undernourishment. The 1965, 1976 and 1978 anthropometric surveys had to be "translated" by INCAP into Z-Scores to allow comparisons with the 1986 surveys. Data here is presented according to both classifications: the Gomez classification¹³ tends to overestimate the amount of children in the "first degree of malnutrition" category in relation to the Z-Score classification (the Gomez index here is 20-40% higher than the Z-score),¹⁴ but in general the tendencies follow the same evolution. This fact gives relatively high credibility to the 1976 and 1978 anthropometric data, no matter which criteria are used.

4-5. Infant mortality data also varies a great deal from one survey to another and different methodologies have been used for calculation.¹⁵

However, in all cases, experts from INCAP point out that there is a significant under-reporting of mortality in general for the 0-5 years age group--probably equal to 20-30% of the official rate--particularly for children under 1 year of age, for whom actual mortality rates could be as much as 80% above the official rate.

13 See Table E-1 for criteria used to classify undernourishment in children aged 0-5 years.

14 There are no "automatic" equivalencies between the Z Score and the Gomez classification. In this case the "Translation" of results has been obtained by computing again children's measurements obtained in surveys from the original tape.

15 Two different methods have been used for calculation of infant mortality:

- The direct method: No. Children born
No. Children dead
- The indirect method (also called the BRASS/TRUSSEL method) based on the mother's interview, age and estimated fertility rate: No. children born
No. children alive
at the time of the
interview.

This explains the fact that many different rates are commonly cited for similar periods.

4-6. The height census of first-grade school children is inherently biased in a country like Guatemala, where at least 40% of the school-aged children (6-9 years old) do not enroll in or attend the first grade. These children come mainly from the poorest rural areas like Alta Verapaz and El Quiche, where the cost of going to school is too high for parents. As might be expected, the highest proportion of enrolled children was found in Guatemala City. This bias certainly leads to underestimation of the prevalence of chronic malnutrition in the 6-9 year old group, especially in the rural areas where the highest prevalence of malnutrition has traditionally been found. Moreover, these rates cannot be compared with the 1965, 1976 and 1978 surveys because the first graders are already "survivors" in relation to the 0-5 year age group as a whole.

There has been no recent height/age census for the 0-5 years age group. The estimated 1986 malnutrition rate for the school-age population (37%) is very high and the actual rate for the total 6-9 year old population is probably higher, because it includes the children from the poorest families, who do not attend school.

Food Consumption

4-7. At the macro level, food consumption data is available through the food balance sheets which calculate availability for human consumption nationwide.

A common problem with these balance sheets is the quality of the data used for their computation. Often, crop production figures are based on secondary data rather than actual production surveys, and coefficients for wastage during storage and processing are not derived from specific local conditions but from international technical norms. However, given a certain methodology, trends of availability may emerge.

This type of information is of limited scope since it can be used only for computation of average consumption per capita. The skewed income distribution in Guatemala between social classes and regions is reflected by different patterns in quantity and quality of food consumption.

Also, because the survival strategy of the poor family requires an apportioning of food to members based on income-generating potential, small children may not get sufficient food to allow for normal growth.

4-8. A look at the balance sheets data provides an idea of general trends in food availability (Table E-15). For the 1978-1985 period, food availability seems to have been adequate from

1978 until 1983 (average levels were approximately 95% of the daily international requirements per capita, as recommended by the FAO) for both calories and proteins. Curiously, the 1984 data shows a substantial decline (to 83.7% of the daily requirement) that does not seem to correspond to a production problem for the year or to any other valid explanation that could justify this sharp, sudden decrease. The 1985 data is more in line with the general trend, showing a slight but continuous decrease since 1983: In 1985 food availability represented 92.5% of the daily requirement, with this slight deficit mainly attributed to smaller consumption of fats (oil, lard, etc.). Protein availability appeared to be more than adequate throughout the period, with a slight tendency to decrease but remaining above 100% of the daily requirements.

4-9. It is interesting to note that the proportions of different products in the diet have not varied at all during the 1978-1985 period: Over 75% of the proteins and over 90% of the calories are derived from vegetable products, with more than 60% of the calories from cereals, primarily corn. The proportion of protein from an animal source is very small and probably limited to the metropolitan area. The composition of the diet is limited to four main products--cereals (corn), sugar, fats and beans, in this order of importance--and accounts for the low quality of the diet's nutrients, especially in the rural areas, where the diet is more monotonous than in the urban areas.

A comparison of recent data with the 1965 baseline survey indicates that the proportions and types of food products used in the diet have hardly varied in 20 years: corn and cereals represented 50% of the diet's calories in 1965, against 60% in the 1980's. This suggests a trend toward higher dependence on a few products and an even less balanced diet. It is to be noted, however, that the share of milk products increased over the period 1965-1980.

4-10. The importance of corn as a staple is underlined by the weight this cereal has in domestic milled cereals: over 1982-1986, corn represented an average of 96.5% of annual net milled domestic production. The fast growth of milled corn imports during the same period suggests the evidence of bottlenecks either at the field level or downstream (where corn may be diverted to uses other than human consumption).

It is interesting to note that food aid imports have been roughly balanced between corn and wheat over the 1982-1986 period--corn averaged 34.1% of aid received in terms of tonnage, while wheat averaged 42.1%--despite the disparity in domestic production and intake of these two staples.

USAID Food Assistance in Guatemala

4-11. USAID/Guatemala food assistance has been based on guidelines set forth under PL-480, commonly known as the Food for Peace program. Title I of PL-480 furnishes excess supplies of U.S. agricultural commodities financed on concessional credit terms to local government agencies or private sector enterprises, which in turn use normal marketing channels to distribute the food domestically. Proceeds are to be used to increase local food production as much as possible.

4-12. The first U.S.-Guatemalan agreement was signed in August 1984 for \$7.0 million, with refined vegetable oil provided by the U.S. to be sold to consumers by INDECA at controlled prices. In 1985, a \$21.0 million agreement called for unrefined vegetable oil to be imported, refined and sold by private sector processors. Additionally, wheat and tallow were to be processed and sold by the private sector. The 1986 agreement, worth \$19.0 million, called for the importation of wheat and vegetable oil under the same arrangements as 1985, plus corn to be imported and sold by INDECA as part of a government price stabilization effort.

Under the agreements, the proceeds from domestic commodity distribution were to be used for a variety of tasks (Table H-2), including soil conservation, pest control, and other rural development and institutional strengthening projects. Although it would appear that to be effective these programs would require adequate funding over a period of several years, the emphasis between the different projects has shifted abruptly from one year to the next. For example, soil conservation received 42.9% of designated proceeds in 1984, but no funds the following two years. Many programs were funded only in one of the three years. Even more disturbingly, 94.5% of 1986 designated proceeds were for government budgetary investments, giving policymakers, in effect, free rein on where to allocate Title I revenues.

The spreading of resources over many unrelated efforts coupled with the lack of continuity may have hampered the possibility of attaining significant progress in any single area.

4-13. Another problem that dampened program results involved INDECA's slowness in commodity processing and sales and the government allocation process, which necessitated the inclusion of sales proceeds in the government budget before disbursements could be authorized. Thus, local currency from the 1984 and 1985 sales was not made available until 1986 (Tables H-3 and H-4). Also, only Q 8,540,000 was actually spent (out of Q 25,284,000 earmarked) over the two-year period, suggesting a failure of adequate resource management by the Guatemalan agency and the need for future institutional development programs.

4-14. PL-480 Title II provides food donations based on agreements with private and voluntary organizations (PVOs), government agencies and multilaterally financed food-distribution agencies. Distribution is typically carried out through four basic program areas: community health programs for mothers and infants, school feeding programs for children, food-for-work programs for unemployed adults, and local relief programs. USAID/Guatemala has been involved in Title II assistance for over 20 years, consisting primarily of Maternal-Child Health (MCH), Other Child Feeding (OCF) and Food-for-Work (FFW) programs administered in conjunction with CARE and Catholic Relief Services (CRS). Compared to Title I, efforts in this area have proven more successful.

During fiscal 1985, for example, CARE assistance reached 249,100 beneficiaries, with most of them under the MCH program (Table H-5). The MCH distribution network comprised 546 health centers and posts in all 22 Guatemalan departments. The OCF program, under which meals were prepared with Title II commodities to complement daily diets, was administered in 77 day care centers, nurseries and orphanages located in 16 departments. FFW programs included reforestation, soil conservation and rural development projects at 78 sites in eastern and western Guatemala.

CRS reached 79,500 beneficiaries in fiscal 1985, with 63,900 of them participating in the MCH program. This project employed 271 centers administered by Caritas, the Guatemala counterpart agency in charge of distribution. Rations were distributed to pregnant and lactating women and eligible mothers; 26 Caritas centers distributed rations to undernourished children under the OCF program. 56 FFW projects, emphasizing community development, were undertaken in San Marcos and Chiquimula.

Under Section 416 of Title III, agreements were reached with the Guatemalan government that provided for the distribution of 10,000 metric tons of nonfat dry milk through CARE, CRS and domestic PVOs during fiscal 1983 and fiscal 1984.

4-15. A Section 416 Sugar Quota Set Aside program was instituted in fiscal 1986 that provided commodities that could be monetized (i.e., sold) by government agencies to compensate for the loss of foreign exchange incurred by the imposition of tighter U.S. sugar import quotas. Under an agreement with the Guatemalan government, 24,000 metric tons of wheat and 3,555 metric tons of nonfat dry milk, with a value of \$6.7 million, were donated. Funds gained from monetization were to be used for improvements in the state dairy processing plant, agricultural development, and payment of transportation, loading and shipping costs. \$12.7 million worth of U.S. commodities were to be donated under the Sugar Quota Set Aside program in fiscal 1987.

Food consumption and expenditures per income levels in 1980-1981:
The National Survey on Income Expenditures

4-16. This one-time survey provides only a static picture, but, as government officials comment, "It is a good baseline for the 1980's since [the situation] probably has deteriorated a lot."

The survey gives a more approximate idea of real consumption levels by income strata and of the real cost of feeding a family in relation to their total expenditures. It clearly shows wide differences between geographic areas and income levels.

4-17. Using the expenditure data from the survey, the "minimum basket" team at SEGEPLAN has attempted to calculate the share of income and expenditures spent on food in different income strata.

A review of the results of these computations suggests that they be taken with caution (Table E-16). In the lower income classes, total family expenditures were greater than average income. Although special attention had been paid to adjusting income for self-production, it is possible that it was still underestimated. Alternatively, it is also possible that the survey overestimated expenditures. The miscalculation of average expenditures and average income per classes explains the disparity of food expenditure percentages against total expenditures or total income.

Only families at the third income level (2401-4800 quetzales per year) consume enough food to meet the daily requirements, spending 55.9% of total family expenditures in the metropolitan area and 65.3% in the rural areas. Income Levels 1 (0-1200 quetzales/year) and 2 (1201-2400), which represent approximately 65.7% of households nationwide, fall below the minimum food intake requirements, although these households spend between 54.1-55.2% (metropolitan area) and between 68.9-69.3% (rural areas) of their incomes to feed themselves.

4-18. The same study by SEGEPLAN also suggests that average caloric intake is higher in rural than urban areas. This finding contradicts a long list of studies and surveys which clearly indicate that the nutritional problem in Guatemala is most pressing in rural areas.

Another study by SEGEPLAN states that 63.3% of the households nationwide lived at the poverty level. 32% of the households were considered to be living in extreme poverty (i.e., unable to afford the minimum food basket), with over two thirds of these households living in rural areas and the rest in urban areas.¹⁶

¹⁶ La familia: perfil de la probeza en Guatemala, SEGEPLAN, 1983, Guatemala.

It is not surprising, then, to observe that this percentage matches exactly the infant undernourishment rate, as indicated by low height/age or low weight/age, in 1986: this fact also verifies the hypothesis that anthropometric measurements of small children are very effective instruments to detect the poverty pockets in a population.

Child nutritional status

4-19. Despite the methodological restrictions outlined previously, it is possible to state that the situation has improved since 1976, when malnutrition peaked (affecting 48.2% of 0-5 year olds as measured by the weight-age indicator, which is very sensitive to immediate changes) because of the earthquake. Compared to the 1965 baseline level of 36.5%, this increase amounted to almost 12% in absolute terms or 32% in relative terms. In 1986, malnutrition decreased to 34% of rural children, approximating the level found in the 1965 baseline survey.

This slight recuperation started in 1978, and the current rate of 34% of undernourished children by weight/age is a relatively low one for Central America. However, the infant malnutrition problem is more accurately measured by the height/age indicator which better shows chronic malnutrition. This measure has indicated very high rates of malnutrition since 1965 with no signs of improvements to date.

4-20. In 1978, the aftereffects of the earthquake had caused the rate to go up again (to 59.7%) after a slight decrease during the 1965-1976 period (from 60% to 57%). The 1978 functional classification shows a much higher rate of malnutrition than the 1978 INCAP survey, as measured by the Gomez Index (75.8% vs 44%, respectively), but these differences are most probably due to the different samples used. The 1978 functional survey data includes small rural communities of less than 2,500 inhabitants, where 30% of them are small farmers of less than 5 manzanas of land per family.¹⁷

Although the weight/age rates almost coincide in both 1978 surveys, the different height/age rates may reflect the greater representation of families who live under extreme poverty conditions. In fact, all departments included in the 1978 functional survey fall under the "Severe malnutrition" category (where 51% and over of the children are undernourished). Departments like Solola register as much as 82.5% of undernourished children. The classification of malnutrition by department can be found in Table E-11.

¹⁷ 1 Manzana of land = 0.7 hectares

4-21. By establishing simple correlations between the infant undernourishment rate, parental occupation and educational level and access of the household to basic services, it was possible to identify and rank the socio-economic groups according to the severity of the problem. The "most at-risk" list was established as follows:

1. Farmers with less than 1 manzana¹⁸ of land;
2. Farmers with land between 2.0 - 4.9 manzanas;
3. Agricultural wage earners (coffee and sugar cane plantations);
4. Farmers with less than 2 manzanas of land and the rest of agricultural wage earners;
5. Not gainfully employed (rural areas);
6. Unskilled workers;
7. Farmers with more than 5 manzanas of land;
8. Artesans/petty vendors;
9. Skilled workers;
10. Professional/administration.

The most at-risk areas were the Southern Coast (weight/age problem), which receives most of the seasonal agricultural workers (who during that period expose their children to higher undernourishment as a result of migration), and the Altiplano (height/age problem), where the problem is endemic and chronic. In all cases the most at-risk age is between 12 months--at which time an improper weaning diet starts the undernourishment problem--and 5 years.

4-22. There is no evidence that this distribution of malnutrition and rural poverty has changed since 1978. Neither have the causes related to infant malnutrition, such as low income, high birth rate, limited access to modern health services, potable water and sewage, and the almost non-existent level of education of the mother.¹⁹

In fact, the 1986 weight/age data, although under different classification criteria (Z-Score instead of Gomez) show that all but four departments are classified as "moderate or high" risk areas. A similar classification has been obtained using height/age indicators for 6-9 year old children. In 1986 the total undernourishment rate was 37% nationwide. Here again it is impressive that there are no departments in the "no risk"

18 Ibid.

19 Studies have demonstrated that it is only when mothers have completed at least the fifth year of basic education that they may have a positive influence in reducing the child's malnutrition and chances of early death.

category and only four of them in the "low risk" category (including Guatemala City, as might be expected). Departments like Solola and El Quiche, using the 1986 Z-Scores, remain in the "severe undernourishment" category, with rates of 64.6% and 52.9%, respectively (data for all of this section is in Tables E-10 and E-11).

4-23. All of the above allows us to justify our original statement: A chronic undernourishment has created a severe growth retardation problem among the infant and child population in Guatemala as reflected by the deficit in the height/age indicator. That problem was identified as early as 1965 and the situation has remained the same since then, especially in the rural Altiplano areas where the population is mainly indigenous or mestizo and lives in small, scattered villages.

Infant Mortality Rate

4-24. The infant (0-1 year of age) mortality rate has decreased sharply in a 20-year period: According to World Bank estimates, the decrease was equal to 39% between 1965 (109 deaths/1,000 live births) and 1985 (66/1,000).

However, this rate fluctuates substantially according to different sources and measurement techniques (i.e., direct or indirect; see Footnote No. 15). For example, INCAP estimates indicate significant underreporting of infant mortality, which could be equal to 80% above the World Bank rate. In 1985-86, using the indirect method (Infant mortality calculated as the probability of dying in the first 2 years of life), INCAP calculated a 114.4/1,000 rate for rural areas, versus 77.8/1,000 as estimated by the direct method for the same survey.

4-25. Other estimates combine to yield a confusing overall picture: In 1985, the Ministry of Health (MOH) estimated that the rate was 68.5/1,000 as a national average, which, compared to the MOH rate of 79.8/1,000 for 1984, indicates a sharp decrease nationally over the 1984-1985 period. However, the 1985 MOH rate by no means could have decreased to the official 61/1,000 rate for 1986 quoted by UNICEF (Table E-12). Meanwhile, USAID/Guatemala estimated a rate of 67/1,000 for 1984, well below the MOH 1984 estimate and slightly below the MOH 1985 estimate.²⁰

²⁰ See document: Evaluacion de las condiciones de los servicios de salud materno-infantil, MSPAS, julio-ag. 1985. It is also interesting to note that the 1983 APROFAM Survey using the indirect method in a sample nationwide (with an urban bias), found that the rate was similar (107/1,000) to INCAP rural estimates for 1985-1986.

Regardless of the estimates used, there has been a decline in the rate nationwide over the 1965-1985 period. According to official estimates²¹ Guatemala's rate is similar to that of neighboring Honduras or Nicaragua, but it is still considered high, especially among the 0-5 year olds in the rural areas.

Unofficial INCAP estimates of the infant mortality rate show a slight tendency to increase in the rural areas where the 1985-1986 and 1987 "follow-up" surveys were conducted, thus indicating a widening gap between the rural and national rates.

4-26. The most at-risk age groups are consistent with the patterns of other low income countries. The 1-4 years age group represents by itself 18.6% of the total deaths and the 28 days-1 year group represents 17.5% of the total deaths. These proportions of the child mortality rate to the overall mortality rate have changed very little since 1979. The main causes of infant and child mortality have also changed very little and reflect the lack of appropriate interventions in primary health care: Enteritis, acute respiratory diseases, measles, whooping cough, and nutritional deficiencies are responsible for most of these deaths.

4-27. Although substantial progress has been achieved in eradicating contagious diseases such as measles, polio, TB, malaria and whooping cough, the immunization coverage for children is still the lowest in Central America. A look at the coverage between 1980 and 1986 (Tables E-13 and E-14) shows that it has been extremely irregular and consistently low, particularly in 1983 and 1984. In 1986, after deployment of a systematic effort to improve coverage among children less than 1 year old, 67% of these children did not receive complete vaccinations for diphtheria and polio and 54% of them were not vaccinated against measles.

The APROFAM survey of 1983 and the 1987 "Knowledge, Attitude and Practice" (KAP) survey of mothers noted that mothers tend to have their children vaccinated later than recommended. Immunization increases with the child's age, typically between the ages of 2 and 4 years, as can be seen in Table E-13. Another major problem is that, due to the low educational level of the mother, the child all-too-often receives only the first dose of the various vaccines. The KAP survey indicated that only 54% of the mothers interviewed were considered bilingual, 54% of them knew how to read and write Spanish and that 48% did not receive any formal education at all.

²¹ See Table E-12, the Central America Report, UNICEF, 1988.

The correlation between education and the mother's acceptance of modern health services is very high, directly affecting the child's health. The baseline for the child survival project in Central America²² lists existing data from different sources indicating that only 27% of all children nationwide less than 1 year old had received complete immunization in 1985. A much lower percentage was obtained in the 1985-1986 "Simplified" rural survey, where only 2.6% of the children had received third doses of polio vaccine; 5.9% had received vaccination against measles; 2.6% against DPT (3rd doses) and 31.6% against TB.

4-28. Along with these diseases, diarrhea alone had the highest association with infant mortality. The 1987 Westinghouse maternal and child survey found that as many as 26.5% of the children in the survey had suffered from diarrhea during the past two weeks. The 1983 APROFAM survey gave the same figure and a higher one for the Indian population alone (30%). Oral rehydration salts had very low acceptance among mothers as a means of treating diarrhea. They were used in only 3.5% of the cases in the INCAP 1985-1986 "simplified" survey, in 9% of the cases in the 1983 APROFAM survey and in less than 10% of the cases in the 1987 KAP survey. No progress has been made by programs designed to increase the acceptance of this product by mothers. A high correlation was also found in 1983 and 1987 between infant mortality, diarrhea, and the source of water provided to the home; only 50% of the households had access to some source of private piped water in the 1987 survey and less than 40% of the Indian households had access to it.

Other Health-Related Issues

4-29. The maternal mortality rate is also high, ranging from 10 to 17 deaths/1,000 live births. The causes of death reflect (1) the high fertility rate, which changed very little between the 1978 and 1983 APROFAM surveys (6.1 vs. 5.8 calculated with a different methodology, indicating practically no reduction in the global fertility rate); (2) the high level of abortion (13% of the women interviewed in 1983); and (3) low levels of neo- and pre-natal attention received by mothers. The 1983 APROFAM survey shows that only 22.4% of the births occurred in a "formal" health facility and that in some rural areas, as many as 87% of the births are attended by untrained midwives. As a matter of fact, it was found throughout the same survey that the demand for "formal" health services is very low nationwide, particularly among Indian women (only 57% of the Indian women interviewed used some type of health service at the time of last pregnancy for herself and her child).

22 Child survival baseline for Central America and Panama, 1985 USAID/ROCAP, Guatemala, by Elizabeth Burleigh.

The use of a family planning method is still very reduced among women aged 15-44 years. As reflected by the 1983 APROFAM Survey, only 25% of these women used at least one method nationwide, compared to only 4.6% of the indigenous women. Overall, there was an increase in contraceptive use of 5.8 percentage points between 1978 and 1983.

Basic Services

4-30. It is difficult to obtain valid time series of basic services coverage in Guatemala and the data also varies from one source to another. However, available data (see Table F-1)²³ point to an existing large deficit in the potable water supply and sanitation coverage nationwide, most specifically in the rural areas.

Data shows that on the average water supply coverage as a percentage of the population served has remained almost constant between 1980 and 1986 (45.7% and 44.6%, respectively), with a marked tendency to decline in the urban areas (from 88.9% in 1980 to 70.6% in 1986). This trend is probably due to the population increase in the urban and especially metropolitan areas, where coverage for the 1980-1986 period was maintained at a constant level of approximately 2.4 million persons. The overall deficit in potable water coverage amounted to 29.4% in the urban areas in 1986 and to 73.5% in the rural areas (after a 7.9% increase in rural coverage between 1980 and 1986).

The same declining trend occurred with sewage coverage, which was extended by only 200,000 persons in the urban areas, thus causing the percentage of the population served to decrease slightly (from 44.4% in 1980 to 41.2% in 1986). By contrast, the percentage of the rural population served in sanitation coverage improved by 7.7% between 1980 and 1986. This gain is not only due to the relative decrease of the rural population to be served as a percentage of the entire population, but also to specific efforts to reach the rural population.

4-31. The overall deficits for sewerage coverage in the urban areas (58.8% of the population) and nationwide (66.3%) are much

²³ Data used in this analysis comes from the WASH (Water and Sanitation Health project, AID/LAC, 1987) Field Report No. 209, which used population figures obtained from the Demographic Data for Development (DDD) project (Westinghouse). These figures differ from the ones used by the USAID mission and the MOH in Guatemala, but they are consistent with the World Health Organization and IDB estimates. For 1986, the estimated coverage of people served was calculated directly based on the added coverage from ongoing projects.

higher than the deficits for potable water coverage. In the rural areas, the deficit for sanitation is similar to the potable water deficit (71.4% of the population does not have access), but this figure reflects the extension of water and sanitation coverage to approximately 500,000 additional persons between 1980-1986.

Therefore, it is possible to conclude that some progress has been achieved in expanding the coverage of these services in the rural areas. However, coverage in 1986 was still extremely low for the rural areas (a little over one quarter of the rural population had access to both potable water and sanitation), and this situation has direct implications for the health status of rural families (as outlined previously), especially on the infant mortality and child undernourishment rates.

Education

4-32. As has been noted with other social welfare indicators, data on education is scarce and varies from one source to another, but general trends follow the same direction.²⁴ Education is probably the most complex social sector in Guatemala because of the country's bicultural and multilingual composition.

Approximately 50% of the population in Guatemala is considered "Indian" and approximately 45% speaks at least one of the 23 different dialects derived from the original Mayan language. 40% of the child population that enrolls in the school system starts with no knowledge of Spanish. The overall literacy rate in Spanish is only 55% and bilingual education at the pre-school level only became institutionalized in 1984, when the "castellanization" program was expanded to include 400 schools with USAID and IBRD financial assistance.

4-33. In general, most sources of information indicate that in a 20-year period (1965 to 1985), the system has grown substantially, especially in the rural areas, and now incorporates 80%²⁵ of the school-age population.²⁶ In 1978, rural enrollment was 34% of the school-age population and in 1984 it was 46%, a 12% increase. However, this system remains highly

24 Data for this analysis comes from the "Education Sector Assessment" prepared for USAID-Guatemala in 1985 by the Academy for Educational Development (AED) and from the "Basic Education Sector Memorandum" prepared by The World Bank in 1986 (Guatemala).

25 Defined as a one-time enrollment in primary school.

26 Defined as the net enrollment rate, per age group. World Bank data, 1984.

inefficient and inequitable in terms of access and quality: Only 63% of the school-age population enrolled in primary school in 1984 and only 46% did so in the rural areas. Only 10% of the rural-enrolled children were Indians, despite the high proportion of Indians in the rural population.

Enrollment in secondary school is extremely low; only 15% of the school-age population was enrolled in 1984, and it is important to point out that only 10% of the secondary schools are located outside the urban areas. Also, the enrollment rate is lower by 20% for females, who in general tend to enroll later than males and drop out earlier.

4-34. Dropout, repetition and promotion rates changed slightly but irregularly (Table G-5) between 1979 and 1982: 1980 was an odd, non-representative year, when repetition rates increased substantially and promotion rates decreased in the first two grades (possibly as a result of military repression). But in general, repetition rates are very high in primary school, especially in the first grade; in 1984, for example, 60% of the children enrolled in rural areas and 40% in the urban areas were repeaters. Since 1979, the repetition rate has been around 50% as a national average. Also of note is the fact that 70% of the children who enroll in the first grade do so 1-2 years later than the recommended age of 6 and 15% of them start school at age 10. Dropout rates are much lower, but increase with the age and grade level (e.g., Grades 3, 4, 5) and with time (the rate increased between 1979 and 1982 for Grades 3 and 4). Promotion rates have been very low at all grades since 1979, but especially in the first grade, with less than 50% of the children enrolled passing on to the next grade.

In general, the system has been characterized by a high rate of internal failure. Only 37.5% of the children enrolled in primary school finish all grades and only 59.1% of those enrolled in secondary school graduate.

4-35. The overall literacy rate is the lowest in the region (except for Haiti): In 1981, only 56% of the population was considered literate (63% male and 50.2% female), which represents an increase of only 8.5 percentage points in 11 years. In the rural areas, however, improvement was at an even slower pace: only 6% between 1970 and 1981. This situation has a direct impact on the educational levels of the economically active population (EAP; Table G-1). 88% of the EAP, in 1981, had either no formal education at all or only a few years of primary school, versus 94% in 1973. It is important to point out that in 1981 70% of the EAP was employed in agricultural or manual labor and that only 12% of the EAP had received some secondary and/or a higher education (after a 6% increase since 1973). Therefore, less than 10% of the EAP in Guatemala occupied professional, clerical or managerial positions in 1981.

4-36. Another important educational issue involves the estimated length of time required to produce a sixth-grade graduate. An average of 9.3 years was needed to produce a graduate in urban public schools, versus 19.0 years in rural public schools and 7.7 years in urban private schools.

This data shows substantial variations in levels of efficiency between the three types of schools (Table G-2). Rural public schools are, in fact, much more likely to be overcrowded (it is common to find classrooms with more than 50 students in the first grade). The percentage of teachers without adequate training is much higher than in the urban areas, and the majority of the students (90%) are enrolled in multiple-grade classrooms.

4-37. Public expenditures in education as a percentage of GDP are the lowest in Central America, reaching just 2.4% in 1984 after a substantial increase since 1980 (Table G-3). The education sector's share of central government expenditures has been fluctuating irregularly since 1975 (within a range of 13-17%) after an increase in 1979. However, 90% of this budget is dedicated to the payment of teachers' salaries, thus leaving little funds for investment. At the household level, expenditures on education also represent a small percentage of total expenditures--only .35% in rural households and 1.20% as a national average.

ANNEX A
NATIONAL ACCOUNTS
METHODOLOGICAL PROBLEMS

NATIONAL ACCOUNTS METHODOLOGICAL PROBLEMS

An assessment of the trends in incomes and socioeconomic indicators in a country such as Guatemala requires the evaluation and comparison of data from a variety of sources. In principle, changes in national disposable income (in nominal and real terms) should be checked against findings from income and employment surveys. Under the assumption that welfare indicators such as health and nutrition are affected by changes in real income, a study of these indicators should provide additional information on the evolution of living standards.

A series of interviews at the National Accounts Division of the Banco de Guatemala have convinced this mission that serious flaws exist in the methodology for compiling national accounts. A brief summary of the main findings follows.

1.) Computation of Value Added

The main oddity in the published national accounts of Guatemala is the absence of estimates of nominal sectoral value added, and/or of sectoral price indexes. Although an estimate of GDP at current prices is published, its value is derived from the expenditures side of the national account and, as will be seen further, there are reasons to doubt its validity.

The reason for the absence of sectoral nominal value added is a direct result of the methodology used for the elaboration of the national accounts: the basis of the computation is a quantum method with 1958 used as a base year. All values for subsequent years are derived from this base year.

Notwithstanding the problems of using a base from such a distant past when the composition of goods in the economy has probably changed, the elaboration of the estimates rests on weak information. Although officials claimed that their primary data originated in surveys, it became clear that in most cases the surveys were of a qualitative rather than a quantitative nature.

A.) Agriculture

The primary data is provided by the Ministry of Agriculture and the Instituto Nacional de Estadística on the basis of surveys which yield estimates of cultivated area and intentions of producers. It is

claimed that self-consumption is included because estimates of average productivity specific to small farms and microfincas are updated regularly and that total production is derived by multiplying acreage by relevant productivity estimates.

Data from producers associations (Camaras Gremiales) are also used as inputs. Although previous experience with this type of data as to levels of production does not inspire confidence, it is most likely used to derive the estimates of the production cost breakdown published by the Agricultural Division. It would then seem that the basic elements for an estimation of agricultural value added are present.

However, the computation of value added will be very sensitive to the estimated agricultural production by crops. The validity of the production data is unclear. The surveys seem to capture mainly the intention to cultivate a certain acreage instead of actual production figures. It is also worth noting that other sources have indicated that much of the production data for main crops is actually gathered from information provided by processing companies.

There are reasons then to doubt the accuracy of agricultural value added estimates published by the Banco de Guatemala.

B.) Manufacturing

The basic data for computation of value added in industry originate in annual qualitative surveys of firms of more than five workers: managers are asked to rate their results in the semester in contrast to their expectations and actual results in the previous year.

Additional information used to calculate the industrial value added is picked up from indicators such as purchases of inputs (imported and domestic) and consumption of energy.

Despite repeated questions, it has been impossible to clarify further the methodology used for the computation of industrial value added.

It should be noted that the INE conducts annual Industrial Surveys but these cannot be used as inputs into the computation of industrial value added due to their slow processing: as an example, the 1983 Survey of Manufacturers was not published until the fall of 1987.

Several problems become apparent in this process:

- 1.) The surveys do not collect actual production or costs amounts but rather a percentage deviation from the previous period.
- 2.) The surveys in all likelihood are based on small samples and it is probable that only the largest firms are contacted. It is also unlikely that the sample used was developed according to rigorous statistical principles, and is representative of the structure of manufacturing output in the country.
- 3.) No attempt has been made to check the relative sizes of the modern industrial sector and of the informal sectors. If the latter one has been expanding, a growing share of industrial production is unaccounted.

One cannot help but think that the published figures on the industrial sector are more impressionistic than accurate.

C.) Private Services

Private Services are a mix of very different activities (transport companies, movie theaters, barber shops, etc...) provided mainly by a multitude of small firms.

This dissemination of the provision of services makes the collection of information through the type of survey used for manufacturing even more problematic than in the case of industry.

As far as could be determined no surveys are being run. The data appear to be provided by a variety of governmental agencies having some type of reporting requirements for the firms in their sector, most probably for collection purposes.

The evasive manner by which primary data inputs were described leads one to suspect that here again the final estimates of value added should be looked at with a good dose of skepticism.

D.) Banking, Public Administration

These two sectors are likely to have the best primary data for the computation of value added.

The regulatory role of the Banco de Guatemala and other bodies on the banks and financial institutions, as well as the centralized character of government operations, appears to ensure that information for these sectors is most complete and consistent.

E.) Two types of problems in using national account data for the purpose of this report have become clear:

- 1.) It is impossible to calculate national disposable income because nominal value added figures are nonexistent. The only available figure is value added at 1958 prices which is of little use since the series does not describe the evolution of real income of the population.
- 2.) Primary data for the computation of value added is extremely unreliable and the final estimates are in all likelihood of little value. The main information from the series may be an indication of direction of changes from one period to the other but the magnitude of the change cannot be considered reliable.

F.) GDP by Expenditures

Since GDP is computed on the income side only in real quetzales, all expenditure components of GDP need to be deflated to the same 1958 base year.

Public and private investment data are collected from two sources. Since there is little domestic production of capital goods, investment in equipment is computed on the basis of capital imports. One problem, which became evident in the course of the discussions, is the nature of the deflator used to convert the nominal value of these imports into 1958 quetzales. Basically, it appears that the deflator is based on a loose version of purchasing power parity involving relative inflation and exchange rates of Guatemala and the major trading partners. No attempt appears to have been made to construct an index which would reflect the changed composition of capital goods imports (such as the introduction of computers). Investment in fixed capital is calculated on the basis of data from the construction industry and permits granted by municipal authorities and deflated by an index measuring the evolution of the price of the square meter.

Government consumption data is readily available and no particular severe deflator index problem should exist.

The external sector data is picked up from the balance of payments and deflated by the same index used in the computation of total capital goods investment.

The sum of private and public investment, government consumption and net external sector deflated to 1958 prices is subtracted from real GDP to derive real private consumption.

The Banco de Guatemala also publishes the expenditure side of the national accounts in current quetzales. Nominal values for total investment, government consumption and the external sector are available. However, GDP and private consumption estimates have only been calculated in 1958 quetzales. As a result, the derivation of nominal expenditures encounters the problem of one equation with two unknowns. From the interviews, it seems that the conundrum is solved by multiplying the real value of private consumption by the consumer price index. This results in an inconsistency: since all the values should sum up to total value added, the appropriate index should be the producer price index.

In the context of this mission and during the interviews, it was impossible to review in depth the methodology underlying the computation of the national accounts of Guatemala. But available information indicates that published figures may be highly inaccurate and suffer from two sources of bias: 1.) a weak data base; and 2.) questionable methodology particularly concerning deflators.

As a result, the mission decided to include national accounts figures only as an indication of trends in the economy but not to use this data to perform an evaluation of income trends.

Finally it is to be noted that the mission has become aware of the existence of another set of national accounts documents using a different base year and a document reviewing the methodology currently used written by Raul Garcia Belgrano of CEPAL. These two documents are of extremely restricted circulation and could not be obtained. Although mission members were able to have a glance at these national accounts and saw a breakdown of national income by functions (wages, profits, rents...), its existence was flatly denied by Guatemalan officials who also dismissed the critique of the methodology by CEPAL.

TABLE A-1
GUATEMALA: ORIGIN OF GDP
(percent of GDP)

Sector	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Agriculture	28.0%	27.3%	26.3%	25.0%	25.4%	24.0%	25.0%	25.1%	25.3%	25.7%	25.0%
Mining	0.1%	0.1%	0.1%	0.2%	0.3%	0.5%	0.3%	0.4%	0.3%	0.3%	0.2%
Manufacturing	15.1%	15.6%	16.0%	16.2%	16.3%	16.7%	16.0%	15.0%	15.9%	15.8%	15.8%
Electricity	1.4%	1.4%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.8%	1.8%	1.9%
Construction	1.9%	3.0%	3.2%	3.1%	3.2%	3.2%	3.7%	3.4%	2.6%	1.8%	1.8%
Commerce	27.6%	27.9%	28.2%	28.1%	27.5%	27.0%	27.0%	26.4%	26.0%	26.0%	25.3%
Transportation	6.4%	6.5%	6.5%	6.6%	6.7%	6.9%	6.8%	6.7%	6.8%	6.9%	7.0%
Financial Services	8.5%	7.0%	7.4%	7.5%	7.9%	7.9%	8.0%	8.5%	8.7%	8.8%	9.2%
Other Services	6.0%	6.0%	5.9%	5.9%	6.1%	6.1%	6.1%	6.2%	6.3%	6.3%	6.4%
Government	5.0%	5.2%	4.8%	4.8%	4.9%	5.2%	5.4%	5.9%	6.3%	6.4%	6.6%
GDP (market prices)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SOURCE: IDB, Informe Socioeconomico de Guatemala, 1986;
Banco de Guatemala

TABLE A-2a
GUATEMALA: NATIONAL ACCOUNTS IN CONSTANT PRICES
(millions of quetzales)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Final Consumption	1926.4	2062.1	2225.0	2338.6	2441.5	2541.5	2591.4	2599.9	2477.6	2505.6	2400.9
Private	1777.9	1897.1	2048.9	2151.4	2242.9	2318.8	2350.0	2279.6	2247.7	2272.5	2254.4
Public	148.5	165.0	176.1	187.2	198.9	222.7	241.6	229.7	229.9	233.1	226.5
Gross Investment	280.9	391.2	434.5	480.3	416.8	355.4	404.8	331.3	275.2	287.7	239.4
Fixed Capital Formation	270.6	371.4	405.8	435.7	413.4	372.6	401.5	357.6	258.2	229.2	221.8
Private	210.3	276.2	295.8	329.0	288.6	223.9	202.0	198.6	152.3	161.1	159.3
Public	60.3	95.2	110.0	106.7	124.8	148.7	199.5	159.0	105.9	68.1	62.5
Change in Stocks	10.3	19.0	29.6	44.6	3.4	-17.2	1.1	26.4	17.0	50.5	17.6
Exports	497.5	530.3	509.2	562.7	619.2	651.1	562.5	510.2	454.7	449.7	451.9
Imports	352.1	457.1	499.8	521.6	482.8	441.2	420.1	334.3	267.9	284.8	248.5
j GDP (market prices)	2352.7	2526.5	2723.8	2860.0	2994.7	3106.8	3127.6	3016.5	2939.6	2958.2	2925.1

SOURCE: IDB, Informe Socioeconomico de Guatemala, 1986;
Banco de Guatemala

TABLE A-2b
(percent of GDP)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Final Consumption	81.9%	81.6%	81.7%	81.8%	81.5%	81.8%	82.6%	83.2%	84.3%	84.7%	84.8%
Private	75.6%	75.1%	75.2%	75.2%	74.9%	74.6%	75.2%	75.6%	76.5%	76.8%	77.1%
Public	6.3%	6.5%	6.5%	6.5%	6.6%	7.2%	7.4%	7.6%	7.8%	7.9%	7.7%
Gross Investment	11.9%	15.5%	16.0%	16.8%	13.9%	11.4%	12.9%	11.0%	9.4%	9.7%	8.2%
Fixed Capital Formation	11.5%	14.7%	14.9%	15.2%	13.8%	12.0%	12.8%	11.9%	8.8%	7.7%	7.6%
Private	8.9%	10.9%	10.9%	11.5%	9.6%	7.2%	6.5%	6.6%	5.2%	5.4%	5.4%
Public	2.6%	3.8%	4.0%	3.7%	4.2%	4.8%	6.4%	5.3%	3.6%	2.3%	2.1%
Change in Stocks	0.4%	0.8%	1.1%	1.6%	0.1%	-0.6%	0.1%	-0.4%	0.6%	2.0%	0.6%
Exports	21.1%	21.0%	20.7%	19.7%	20.7%	21.0%	18.0%	16.9%	15.5%	15.2%	15.4%
Imports	15.0%	18.1%	18.3%	18.2%	16.1%	14.2%	13.5%	11.1%	9.1%	9.6%	8.4%
GDP (market prices)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SOURCE: IDB, Informe Socioeconomico de Guatemala, 1986;
Banco de Guatemala

TABLE A-3
GUATEMALA: COMPOSITION AND GROWTH OF IMPORTS, 1970-1985
(percent)

	Average annual growth rates			Share of imports		
	1970-1977	1970-1981	1982-1985	1970	1981	1985
Total Imports	22.2%	9.3%	-7.7%	100.0%	100.0%	100.0%
Consumer Goods	17.0%	7.7%	-10.2%	30.1%	21.6%	19.5%
Raw Materials & Intermediate Inputs	21.0%	7.9%	-5.0%	43.0%	38.4%	42.4%
Combustibles & Lubricants	43.2%	27.4%	-4.0%	5.1%	22.1%	25.0%
Capital Goods	23.5%	2.6%	-9.9%	21.0%	17.9%	13.1%

NOTE: Calculations based on amounts in current dollars

SOURCE: IDB, Informe Socioeconomico de Guatemala, 1986;
Banco de Guatemala

TABLE A-4
GUATEMALA: COMPOSITION AND GROWTH OF EXPORTS, 1970-1985
(Percent*)

	ANNUAL RATES OF GROWTH			PERCENTAGE SHARE		
	1970-1977	1978-1981	1982-1985	1970	1981	1985
Total exports	21.4	3.9	-4.7	100.0	100.0	100.0
Coffee	30.7	-10.3	9.9	33.8	25.2	42.6
Cotton	23.3	4.9	-16.5	8.9	13.4	6.9
Bananas	4.0	37.5	8.2	6.9	4.4	6.7
Beef	16.1	2.9	-22.4	4.3	2.3	0.9
Sugar Cane	46.9	21.2	-0.6	3.1	6.6	4.4
Cardamon	42.5	13.9	23.2	1.3	2.7	5.7
Others	13.9	18.7	12.0	41.7	45.4	32.8

NOTE: * Calculated based on values in current dollars

SOURCES: IDB, Informe Socioeconomico de Guatemala, 1986;
Banco de Guatemala

ANNEX B
POPULATION

TABLE B-1
 GUATEMALA: POPULATION GROWTH, 1960-1985
 (per 1000)

Period	Gross birth rate (a)	Gross death rate (b)	Natural growth rate (c) = (a) - (b)	Net migration rate (d)	Population growth rate (e) = (c) + (d)
1960-1965	47.8	18.3	29.5	-1.2	28.3
1965-1970	45.6	15.9	29.7	-2.0	27.7
1970-1975	44.6	13.4	31.2	-3.5	27.7
1975-1980	44.3	11.9	32.4	-4.6	27.8
1980-1985	42.7	10.5	32.2	-4.0	28.2

SOURCE: SEGEPLAN--INE--Project GUA/79/P03-OIT/FNUAP,
 Estimaciones y Proyecciones de la Poblacion de Guatemala, 1950-2000

TABLE B-2
GUATEMALA: SELECTED DEMOGRAPHIC INDICATORS, 1960-1985

Indicators	Guatemala		Latin America	
	1960-1965	1980-1985	1960-1965	1980-1985
Population growth rate (%)	2.83%	2.82%	2.82%	2.32%
Fertility				
Gross birth rate (per 1000)	47.8	42.7	41.2	31.9
Global fertility rate	6.85	6.12	5.97	4.15
Gross reproduction rate	3.34	2.99	2.91	2.02
Mortality				
Death rate (per 1000)	18.3	10.5	12.4	8.2
Life expectancy at birth (years)	47.0	59.9	56.8	64.4
Natural growth rate (per 1000)	29.5	32.2	28.8	23.7
External migration rate (per 1000)	-1.2	-4.0	-0.6	-0.5

SOURCE: SEGEPLAN--INE--Project GUA/79/P03-01T/FNUAP, Estimaciones y Proyecciones de la poblacion de Guatemala, 1950-2000

TABLE B-3
GUATEMALA: FERTILITY RATES, 1960-1985

Period	Gross reproduction rate	Net reproduction rate	Global fertility rate	General fertility rate
1960-1965	3.340	2.301	6.850	217.7
1965-1970	3.220	2.343	6.600	206.8
1970-1975	3.150	2.436	6.450	201.1
1975-1980	3.120	2.517	6.400	201.1
1980-1985	2.990	2.490	6.120	195.2

SOURCE: SEGEPLAN--INE--Project GUA/79/P03-01T/FNUAP, Estimaciones y Proyecciones de la Poblacion de Guatemala, 1950-2000

TABLE B-4
 GUATEMALA: ESTIMATES OF RURAL AND URBAN POPULATION
 TOTALS AND GROWTH RATES, 1970-1995

TABLE B-4a: Population Totals

	1970	1980	1990
	----	----	----
GUATEMALA:			
Total (000s)	5,353	7,262	9,677
Urban (000s)	1,840	2,651	3,806
(percent)	34.4%	36.5%	39.3%
Rural (000s)	3,513	4,611	5,871
(percent)	65.6%	63.5%	60.7%
LATIN AMERICA:			
Urban (percent)	57.7%	64.4%	66.6%
Rural (percent)	42.3%	35.6%	33.4%

TABLE B-4b: Annual Growth Rates

	1961-70 (IDB)	1970-75 (CELADE)	1971-80 (IDB)	1975-80 (CELADE)	1980-85 (CELADE)	1981-86 (IDB)	1985-90 (CELADE)	1990-95 (CELADE)
	-----	-----	-----	-----	-----	-----	-----	-----
GUATEMALA:								
Total		3.1%		3.0%	2.9%		2.8%	2.8%
Urban	2.2%	3.7%	3.0%	3.5%	3.6%	3.0%	3.6%	3.6%
Rural		2.7%		2.7%	2.5%		2.3%	2.2%
LATIN AMERICA:								
Total		2.6%		2.5%	2.4%		2.3%	2.2%
Urban	4.1%	3.5%	3.8%	3.4%	3.2%	3.6%	3.0%	2.8%
Rural		1.2%		1.0%	0.9%		0.8%	0.6%

SOURCES: CELADE, Demographic Bulletins 28 (1981) and 30 (1983),
 as reported in the Statistical Abstract for Latin America,
 Vols 23 (1984) and 25 (1986)

IDB, Economic and Social Progress in Latin America, 1987 Report

TABLE B-5
 GUATEMALA: PERCENTAGE OF THE POPULATION
 HAVING MIGRATED IN THE PRECEDING 5 YEARS
 (population over 5 years old)

	IN	OUT	NET
TOTAL			
1968-73	3.93%	3.93%	
1976-81	3.80%	3.80%	
Guatemala City			
1968-73	7.33%	2.52%	4.81%
1976-81	7.00%	2.66%	4.34%
Central			
1968-73	5.82%	5.94%	-0.12%
1976-81	5.94%	4.67%	1.27%
South East			
1968-73	2.61%	8.06%	-5.45%
1976-81	2.17%	8.12%	-5.95%
Altiplano			
1968-73	0.89%	2.46%	-1.57%
1976-81	1.00%	2.29%	-1.29%
Coast			
1968-73	4.94%	6.14%	-1.20%
1976-81	4.15%	5.41%	-1.26%
North			
1968-73	5.07%	2.52%	2.55%
1976-81	5.75%	2.53%	3.22%
North East			
1968-73	3.95%	4.64%	-0.69%
1976-81	2.86%	6.05%	-3.19%

TABLE B-6
 GUATEMALA: INTERNAL MIGRATIONS, 1968-73 AND 1976-81
 (population over 5 years old)

FROM	TOTAL	Guatemala TO City	Central	South East	Altiplano	Coast	North	North East
TOTAL								
1968-73	167690	68860	27535	12905	12146	13497	18677	14070
1976-81	186437	75968	33027	11724	15769	13067	25878	11804
Guatemala City								
1968-73	23659							
1976-81	28907		9575				3171	
Central								
1968-73	28108							
1976-81	25959	14370					2757	
South East								
1968-73	39762							
1976-81	43757	21758	8085		851	1710	7480	3873
Altiplano								
1968-73	33581							
1976-81	36160	19736	7294	752		5632	2384	362
Coast								
1968-73	16756							
1976-81	17047	6050	4376				1265	
North								
1968-73	9304							
1976-81	11373	4681	1910					
North East								
1968-73	16520							
1976-81	23234	9373	1787				8821	

SOURCE: DGE, Population Census, 1973 and 1981

TABLE B-7
 GUATEMALA: COMPARISON OF EDUCATIONAL PREPARATION OF IMMIGRANTS
 TO DEPARTMENT OF GUATEMALA VERSUS NON-IMMIGRANTS,
 BY REGION AND DEPARTMENT OF ORIGIN, 1976-1981

Region*/Department of Origin	Average years of study	
	Immigrants to Guatemala	Non- Immigrant
Region III		
El Progreso	4.5	2.3
Santa Rosa	4.1	2.1
Jalapa	4.4	1.7
Jutiapa	4.7	1.9
Region IV		
Quetzaltenango	5.6	2.7
San Marcos	4.6	1.7
Huehuetenango	5.8	1.2
Totonicapan	3.6	1.3
El Quiche	4.3	1.2
Solola	5.4	1.0
Region II		
Escuintla	4.4	2.1
Sacatepequez	5.0	3.3
Chimaltenango	4.6	1.7
Guatemala		
Native Population	5.7	

NOTE: *--Regional delineations based on DGE population maps

SOURCE: DGE, 1981 Population Census, Guatemala 1985

TABLE B-0
 GUATEMALA: EMPLOYMENT AMONG IMMIGRANTS IN GUATEMALA CITY
 OVER 15 YEARS OF AGE, BY SEX AND OCCUPATIONAL GROUP, 1978-1981

Occupational Group	Total	Volume		Percentage		
		Males	Females	Total	Males	Females
Total	78,026	33,869	44,157			
(1) Total Employed	44,932	25,787	19,145	100.0%	100.0%	100.0%
(2) Professional/Technical	3,553	2,314	1,239	7.9%	9.0%	6.5%
(3) Industrial, Commercial, Managerial	1,134	965	169	2.5%	3.7%	0.9%
(4) Office workers	2,767	1,645	1,122	6.2%	6.4%	5.9%
(5) Sales, Vendors (excluding Ambulatory)	3,267	2,151	1,116	7.3%	8.3%	5.8%
(6) Ambulatory vendors	568	378	190	1.3%	1.5%	1.0%
(7) Agriculture, Fishing, Hunting, etc.	1,484	1,432	52	3.3%	5.6%	0.3%
(8) Mining/Quarrying	17	17	--	--	--	--
(9) Transportation	1,529	1,512	17	3.4%	5.9%	0.1%
(10) Artesans, Other skilled workers	7,805	6,871	1,014	17.5%	26.6%	5.3%
(11) Manual laborers, Daily workers	1,733	1,511	222	3.9%	5.9%	1.2%
(12) Personal services, including Domestic	6,279	5,270	1,009	14.0%	20.4%	5.3%
(13) Domestic service	12,754	287	12,467	20.4%	1.1%	65.1%
(14) Unspecified occupations	1,962	1,434	528	4.4%	5.6%	2.8%
(15) Unemployed	33,094	8,082	25,012	42.4%	23.9%	56.6%

SOURCE: DGE, 1981 Population Census, Guatemala 1985

TABLE D-9
 GUATEMALA: ORIGIN OF SHORT-TERM INTERNAL MIGRATION IN REGIONS
 OF NET IMMIGRATION, 1976-1981

Region of Origin	Regions of Net Immigration			Regions of Net Immigration		
	Value			Percentage		
	Guatemala	Southern coast	North	Guatemala	Southern coast	North
Total	75,968	33,027	25,070	100.0%	100.0%	100.0%
Guatemala	---	9,575	3,171	---	29.0%	12.2%
Southern coast	14,370	---	2,757	18.9%	---	10.7%
Southeast	21,750	8,085	7,480	28.6%	24.5%	29.9%
Altiplano	19,736	7,294	2,304	26.0%	22.1%	9.2%
Southwest	6,050	4,376	1,265	8.0%	13.2%	4.9%
North (El Peten)	4,681	1,910	---	6.2%	5.8%	---
East	9,373	1,787	8,821	12.3%	5.4%	34.1%

SOURCE: DGE, 1981 Population Census, Guatemala 1985

ANNEX C
STRUCTURE AND USE OF
LAND OWNERSHIP



TABLE C-1
GUATEMALA: DISTRIBUTION OF FARMS AND LAND BY SIZE OF FARMS
1950, 1964, 1979

	Total			percentage		Average size	Index of size
	number	area	average	number	area		
Total							
1950	348687	5315475	15.24	100.00%	100.00%	15.24	100.0
1964	417344	5654039	13.55	100.00%	100.00%	13.55	88.9
1979	605037	6741969	11.14	100.00%	100.00%	11.14	73.1
Microfincas							
1950	165850	175899	1.06	47.56%	3.31%	1.06	7.0
1964	183741	192516	1.05	44.03%	3.40%	1.05	6.9
1979	288083	248726	0.86	47.61%	3.69%	0.86	5.7
1979 (c)	361489	253073	0.70	59.75%	3.75%	0.70	4.6
a/ < 1 manzana							
1950	74269	40821	0.55	21.30%	0.77%	0.55	3.6
1964	85083	46683	0.55	20.39%	0.83%	0.55	3.6
1979 (a)	166732	79186	0.47	27.56%	1.17%	0.47	3.1
1979 (b)	73408	4347	0.06	12.13%	0.06%	0.06	0.4
b/ 1 to < 2 manzanas							
1950	91581	135077	1.47	26.26%	2.54%	1.47	9.7
1964	98658	136326	1.33	23.64%	2.41%	1.38	9.1
1979	121351	164451	1.36	20.06%	2.44%	1.36	8.9
Small fincas							
2 to < 5 manzanas							
1950	99779	302987	3.04	28.62%	5.70%	3.04	19.9
1964	129116	394027	3.05	30.94%	6.97%	3.05	20.0
1979	128587	412742	3.21	21.25%	6.12%	3.21	21.1
Medium farms							
5 to < 64 manzanas							
1950	75485	998202	13.22	21.65%	18.78%	13.22	86.7
1964	95679	1302730	13.62	22.93%	23.04%	13.62	89.3
1979	101307	1559245	15.39	16.74%	23.13%	15.39	101.0
a/ 5 to 10 mz							
1950	42444	282730	6.66	12.17%	5.32%	6.66	43.7
1964	52023	346904	6.67	12.47%	6.14%	6.67	43.7
1979	51798	343060	6.62	8.56%	5.09%	6.62	43.4
b/ 10 to < 32 mz							
1950	26916	444164	16.50	7.72%	8.36%	16.50	108.2
1964	37025	637949	17.23	8.87%	11.28%	17.23	113.0
1979	40378	711226	17.61	6.67%	10.55%	17.61	115.5
c/ 32 to < 64 mz							
1950	6125	271309	44.30	1.76%	5.10%	44.30	290.6
1964	6631	290726	43.84	1.59%	5.14%	43.84	287.6
1979	9131	404511	44.30	1.51%	6.00%	44.30	290.6

TABLE C-1
(continued)

Large firms							
1950	7573	3838387	506.85	2.17%	72.21%	506.85	3324.9
1964	8808	3764766	427.43	2.11%	66.59%	427.43	2803.8
1979	13654	4521256	331.13	2.26%	67.06%	331.13	2172.2
a/64 to < 650 mz							
1950	6488	1161803	179.07	1.86%	21.86%	179.07	1174.7
1964	7859	1307256	166.34	1.88%	23.12%	166.34	1091.2
1979	12297	1831220	148.92	2.03%	27.16%	148.92	976.9
b/650 to < 1300 mz							
1950	569	506100	889.46	0.16%	9.52%	889.46	5834.7
1964	561	493913	880.42	0.13%	8.74%	880.42	5775.4
1979	880	765185	869.53	0.15%	11.35%	869.53	5704.0
c/1300 to < 3200 mz							
1950	358	707869	1977.29	0.10%	13.32%	1977.29	12970.7
1964	294	552990	1880.92	0.07%	9.78%	1880.92	12338.5
1979	388	716734	1847.25	0.06%	10.63%	1847.25	12117.7
d/3200 to < 6400 mz							
1950	104	468070	4500.67	0.03%	8.81%	4500.67	29523.7
1964	56	242495	4330.27	0.01%	4.29%	4330.27	28405.9
1979	75	324504	4326.79	0.01%	4.81%	4326.79	28383.1
e/6400 to < 12800 mz							
1950	32	280476	8764.88	0.01%	5.28%	8764.88	57496.2
1964	30	254926	8497.53	0.01%	4.51%	8497.53	55742.5
1979	15	126661	8444.07	.00%	1.88%	8444.07	55391.8
f/ 12800 and more							
1950	22	714069	32457.68	0.01%	13.43%	32457.68	212917.4
1964	9	229896	25544.00	.00%	4.07%	25544.00	167564.7
1979	4	122319	30579.75	.00%	1.81%	30579.75	200598.5

Notes: (1) the 1950 Census eliminated all farms of less than one cuerda (0.04 ha)
the 1964 Census established no lower limit
the 1979 Census recorded all farms irrespective of si
(a) does not include the farms of less than one cuerda
(b) includes only farms of less than one cuerda
(c) includes farms of less than one cuerda
(2) all sizes in Manzanas (0.7 hectares)

SOURCE: AGRICULTURAL CENSUS, 1950, 1969, 1970

TABLE C-2a
GUATEMALA: DISTRIBUTION OF FARMS BY SIZE AND REGIONS
1950, 1964, 1979

	Total	Central	South east	Coast	Altiplano	North east	North
Total							
1950	348687	56115	56028	39643	126265	28078	42548
1964	417344	63546	59432	45660	164156	31518	53032
1979	605037	93594	83954	63982	225439	52340	85723
Microfincas less than 2 manzanas							
1950	165850	28019	19778	27700	63095	11429	15829
1964	183741	28817	21054	30343	76051	10353	17117
1979	361489	65990	41055	46864	144338	27056	36186
Small fincas 2 to < 5 manzanas							
1950	99779	16439	19948	6721	32738	9564	14369
1964	129116	20205	21630	7767	47119	11861	20534
1979	128587	15556	24076	8681	47400	11982	20892
Medium farms 5 to < 64 manzanas							
1950	75485	10260	14202	4134	29093	6296	11500
1964	95679	12890	14416	6083	39695	8298	14297
1979	101307	10265	16598	6915	32850	11938	22741
Large farms 64 manzanas and over							
1950	7573	1397	2110	1088	1339	789	850
1964	8808	1634	2332	1461	1291	1006	1084
1979	13654	1783	2225	1522	851	1364	5909

SOURCE: AGRICULTURAL CENSUS, 1950, 1969, 1970

TABLE 1-1b
GUATEMALA: DISTRIBUTION OF FARMS BY SIZE AND REGIONS
1950, 1964, 1979

	Total	Central	SouthEast	Coast	Altiplano	NorthEast	North
Total							
1950	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1964	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1979	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Microfincas less than 2 manzanas							
1950	42.6%	49.9%	35.3%	69.9%	50.0%	40.2%	32.2%
1964	44.0%	45.3%	35.4%	66.5%	46.7%	37.0%	32.3%
1979	59.7%	70.5%	40.9%	77.2%	64.0%	51.7%	42.2%
Small fincas 2 to < 5 manzanas							
1950	30.6%	29.3%	35.6%	17.0%	25.9%	19.1%	13.0%
1964	30.9%	11.0%	36.4%	17.0%	29.7%	17.6%	30.7%
1979	21.3%	16.6%	20.7%	13.6%	21.0%	22.9%	24.4%
Medium firms 5 to < 64 manzanas							
1950	21.6%	18.3%	25.3%	10.4%	23.0%	22.4%	27.0%
1964	22.9%	20.3%	29.3%	13.3%	24.2%	26.3%	27.0%
1979	16.7%	11.0%	19.0%	10.0%	14.6%	22.0%	26.5%
Large firms 64 manzanas and over							
1950	2.2%	2.5%	3.0%	2.7%	1.1%	2.8%	2.0%
1964	2.1%	2.6%	3.9%	3.2%	0.8%	3.2%	2.0%
1979	2.3%	1.9%	2.7%	2.4%	0.4%	2.6%	6.9%

SOURCE: AGRICULTURAL CENSUS, 1950, 1969, 1970

TABLE 1-2c
GUATEMALA: DISTRIBUTION OF FARMS BY SIZE AND REGIONS
1950, 1964, 1979

	Total	Central	SouthEast	Coast	Altiplano	NorthEast	North
Total							
1950	100.0%	16.1%	16.1%	11.4%	36.2%	8.1%	12.2%
1964	100.0%	15.2%	14.2%	10.9%	39.3%	7.6%	12.7%
1979	100.0%	15.5%	13.9%	10.6%	37.3%	8.7%	14.2%
Microfincas less than 2 manzanas							
1950	100.0%	16.9%	11.9%	16.7%	38.0%	6.9%	9.5%
1964	100.0%	15.7%	11.5%	16.5%	41.4%	5.6%	9.3%
1979	100.0%	18.3%	11.4%	13.0%	39.9%	7.5%	10.0%
Small fincas 2 to < 5 manzanas							
1950	100.0%	16.5%	20.0%	6.7%	32.8%	9.6%	14.4%
1964	100.0%	15.6%	16.8%	6.0%	36.5%	9.2%	15.9%
1979	100.0%	12.1%	18.7%	6.8%	36.9%	9.3%	16.2%
Medium firms 5 to < 64 manzanas							
1950	100.0%	13.6%	18.8%	5.5%	38.5%	8.3%	15.2%
1964	100.0%	13.5%	15.1%	6.4%	41.5%	8.7%	14.9%
1979	100.0%	10.1%	16.4%	6.8%	32.4%	11.8%	22.4%
Large firms 64 manzanas and over							
1950	100.0%	18.4%	27.9%	14.4%	17.7%	10.4%	11.2%
1964	100.0%	18.6%	26.5%	16.6%	14.7%	11.4%	12.3%
1979	100.0%	13.1%	16.3%	11.1%	6.2%	10.0%	43.3%

SOURCE: AGRICULTURAL CENSUS, 1950, 1969, 1970

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TABLE C-3
GUATEMALA: AVERAGE SIZE OF FARMS BY REGIONS
1950, 1964, 1979

	Total	Central	South east	Coast	Altiplano	North east	North
Total							
1950	15.2	19.8	17.4	19.2	7.4	20.8	22.3
1964	13.5	17.6	16.9	17.7	6.7	19.7	18.9
1979	11.1	12.0	12.4	14.1	4.9	13.8	21.3
Microfincas less than 2 manzanas							
1950	1.1	1.0	1.3	0.9	1.0	1.2	1.3
1964	1.0	1.1	1.2	0.8	1.0	1.1	1.5
1979	0.7	0.6	0.7	0.5	0.8	0.6	0.7
Small fincas 2 to < 5 manzanas							
1950	3.0	3.0	3.0	3.2	3.1	2.9	3.0
1964	3.1	2.9	3.1	3.1	3.1	2.9	3.0
1979	3.2	3.6	2.9	3.1	3.3	3.0	3.1
Medium farms 5 to < 64 manzanas							
1950	13.2	13.1	14.6	17.1	11.9	14.7	12.7
1964	13.6	15.0	15.6	18.3	12.1	14.6	12.0
1979	15.4	18.8	14.7	16.0	14.6	16.7	14.6
Large farms							
1950	506.9	642.8	324.2	590.7	313.8	573.2	872.2
1964	427.4	510.1	293.3	444.6	309.4	451.3	686.6
1979	331.1	469.7	314.5	486.7	429.9	345.3	238.0

SOURCE: AGRICULTURAL CENSUS, 1950, 1969, 1970

TABLE C-4
GUATEMALA: PERCENTAGE OF CULTIVATED LAND

	Total	Central	South East	Coast	Altiplano	North East	North
Total							
1950	28.5%	30.4%	29.6%	43.2%	31.1%	18.7%	16.5%
1964	47.2%	58.9%	54.7%	74.3%	35.2%	35.8%	24.9%
1979	47.2%	66.3%	50.3%	80.9%	40.6%	40.0%	23.9%
Microfincas							
1950	0.0%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1964	99.9%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1979	91.4%	92.4%	107.8%	105.0%	80.3%	112.7%	93.2%
Small fincas							
1950	83.7%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1964	82.6%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1979	77.1%	66.9%	95.3%	107.8%	65.6%	91.7%	72.8%
Medium farms							
1950	37.8%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1964	46.3%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1979	45.7%	57.7%	52.9%	100.6%	32.7%	42.1%	35.9%
Large farms							
1950	17.8%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1964	41.1%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1979	42.5%	67.0%	42.3%	76.2%	28.1%	32.6%	60.8%

Note: Values greater than 100% may be due to the practice of joint crops as well as the possibility of two crops per year

SOURCE: Agricultural Census

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TABLE C-5
GUATEMALA: CULTIVATED LAND USE,
1964 AND 1979

	TOTAL		MICROFINCAS		SMALL FINCAS		MEDIUM FARMS		LARGE FARMS	
	1964	1979	1964	1979	1964	1979	1964	1979	1964	1979
TOTAL	100.0%									
Basic Foods	41.3%	37.4%	91.2%	87.4%	90.1%	84.6%	68.0%	64.5%	14.4%	13.7%
Corn	36.9%	32.3%	85.5%	78.3%	82.0%	73.7%	60.4%	55.5%	12.2%	11.4%
Beans	1.4%	2.2%	1.9%	3.0%	3.6%	4.7%	2.8%	4.2%	0.4%	1.0%
Wheat	2.0%	1.4%	2.6%	4.2%	3.0%	4.2%	3.1%	2.3%	1.3%	0.3%
Others	0.9%	1.5%	1.1%	1.9%	1.5%	2.0%	1.7%	2.5%	0.5%	1.0%
Agroindustry	21.7%	27.4%	7.5%	10.7%	7.2%	12.3%	11.1%	15.7%	30.7%	36.2%
Coffee	12.4%	12.0%	4.7%	7.2%	4.9%	7.2%	7.7%	8.5%	16.8%	14.6%
Cotton	4.8%	6.3%	0.0%	0.0%	0.0%	.0%	0.3%	0.1%	8.2%	10.4%
Sugar Cane	2.2%	4.8%	0.5%	0.5%	1.0%	0.7%	1.8%	1.5%	2.9%	7.2%
Sorghum	0.9%	1.4%	2.0%	1.8%	1.0%	2.3%	0.6%	1.1%	0.9%	1.4%
Others	1.3%	2.9%	0.2%	1.3%	0.4%	2.1%	0.6%	4.6%	2.0%	2.6%
Fruit	1.4%	2.3%	1.0%	1.4%	1.1%	1.7%	1.5%	3.4%	1.4%	2.2%
Pastures	35.6%	32.9%	0.4%	0.4%	1.5%	1.4%	19.4%	16.5%	53.5%	48.0%

SOURCE: Agricultural Census, 1964 and 1979

TABLE C-6
GUATEMALA: LABOR FORCE REQUIREMENTS IN AGRICULTURE
1950 AND 1979
(Thousands of man/days)

	TOTAL		MICROFINCAS		SMALL FINCAS	
	1950	1979	1950	1979	1950	1979
TOTAL	102291.1	192031.9	17208.5	26479.0	18143.3	23041.7
AGRICULTURE	65440.2	121444.9	9472.4	11579.5	11450.8	15313.8
Basic Foods		45913.6		9992.2		12683.0
Corn		39433.3		8911.5		11056.4
Beans		1826.4		216.2		461.8
Wheat		1768.4		453.2		631.2
Vegetables		1873.1		248.2		319.1
Others		1012.4		163.0		214.5
Agroindustry		68258.0		1470.4		2437.6
Coffee		43433.2		1009.3		1444.0
Cotton		8544.1		1.1		4.8
Sugar Cane		8767.4		55.2		111.6
Sorghum		1569.7		232.0		497.0
Cardamon		2107.0		44.5		103.3
Sesame		1080.4		51.9		133.3
Rubber		1239.4		0.6		0.0
Others		1516.8		76.6		143.5
Fruit		3512.5		112.2		174.6
Pastures		3760.8		4.7		18.6
CATTLE	10909.2	25119.2	1433.8	2432.2	1613.6	2330.4
FORESTS	9434.2	20421.2	4312.1	8530.3	2594.3	2806.7
ADMINISTRATION	16507.5	25046.5	1990.2	3937.1	2394.7	2590.8

	MEDIUM FARMS		LARGE FARMS	
	1950	1979	1950	1979
TOTAL	25074.5	41928.4	41864.7	100582.7
AGRICULTURE	14152.1	25619.5	30274.9	68932.2
Basic Foods		16806.0		6432.3
Corn		14250.2		5215.2
Beans		795.3		353.1
Wheat		574.0		109.9
Vegetables		816.0		489.7
Others		370.5		264.3
Agroindustry		7733.1		56617.0
Coffee		4820.8		36159.1
Cotton		16.6		8521.8
Sugar Cane		597.3		8003.3
Sorghum		402.9		437.8
Cardamon		4780.0		1479.2
Sesame		727.7		167.5
Rubber		73.4		1166.0
Others		614.4		682.3
Fruit		649.2		2576.5
Pastures		431.3		3306.3
CATTLE	3130.5	6195.9	4731.3	14160.7
FORESTS	1803.4	2181.1	724.5	6903.1
ADMINISTRATION	5988.5	7932.0	6134.1	10586.7

SOURCE: SEGEPLAN, "Agricultura, Poblacion y Empleo en Guatemala", 1987

TABLE C-7
 GUATEMALA: LAND PER WORKER
 BY REGION, 1964 AND 1979
 (manzanas)

		Total Land per worker	Cultivated Land per worker
TOTAL	1964	7.75	3.66
	1979	7.42	3.50
CENTRAL	1964	7.60	4.48
	1979	6.59	4.37
SOUTHEAST	1964	9.66	5.28
	1979	8.40	4.22
COAST	1964	7.36	5.47
	1979	6.64	5.37
ALTIPLANO	1964	5.00	1.76
	1979	4.16	1.69
NORTHEAST	1964	8.43	3.01
	1979	7.60	3.04
NORTH	1964	12.72	3.17
	1979	10.04	2.40

SOURCE: Agricultural Census, 1964 and 1979

TABLE C-8
 GUATEMALA: REQUIREMENTS OF LABOR FORCE
 IN AGRICULTURE, BY MONTH AND REGION, 1979
 (thousands of man/days)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Country													
Requirement	nan/days	14454	11564	11080	17076	14957	14230	16116	11934	15572	19680	22223	22347
Active Pop.	1000mpers	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083
Available	nan/days	24909	24909	24909	24909	24909	24909	24909	24909	24909	24909	24909	24909
surplus	nan/days	10455	13345	13029	7833	9952	10679	8793	12975	9337	5229	2686	2562
		42.0%	53.6%	52.3%	31.4%	40.0%	42.9%	35.3%	52.1%	37.5%	21.0%	10.8%	10.3%
Central													
Requirement	nan/days	4251	3071	2064	2967	2696	2425	3374	2778	3478	4504	4472	5252
Active Pop.	1000mpers	188	188	188	188	188	188	188	188	188	188	188	188
Available	nan/days	4324	4324	4324	4324	4324	4324	4324	4324	4324	4324	4324	4324
surplus	nan/days	73	1253	2260	1357	1628	1899	950	1546	846	-180	-148	-928
		1.7%	29.0%	52.3%	31.4%	37.7%	43.9%	22.0%	35.8%	19.6%	-4.2%	-3.4%	-21.5%
South East													
Requirement	nan/days	1848	1733	1305	3143	2556	2527	2454	1885	1754	2843	2929	2947
Active Pop.	1000mpers	149	149	149	149	149	149	149	149	149	149	149	149
Available	nan/days	3427	3427	3427	3427	3427	3427	3427	3427	3427	3427	3427	3427
surplus	nan/days	1579	1694	2122	281	871	900	973	1542	1673	584	498	480
		46.1%	49.4%	61.9%	8.3%	25.4%	26.3%	28.4%	45.0%	48.8%	17.0%	14.5%	14.0%
Coast													
Requirement	nan/days	3254	1819	1519	2658	2542	2781	3326	2817	4631	5874	6376	6501
Active Pop.	1000mpers	153	153	153	153	153	153	153	153	153	153	153	153
Available	nan/days	3519	3519	3519	3519	3519	3519	3519	3519	3519	3519	3519	3519
surplus	nan/days	265	1700	2000	861	977	738	193	702	-1112	-2355	-2857	-2982
		7.5%	48.3%	56.8%	24.5%	27.8%	21.0%	5.5%	19.9%	-31.6%	-66.9%	-81.2%	-84.7%
Altiplano													
Requirement	nan/days	2496	2054	4406	3868	3187	2955	3369	2015	1934	2321	4587	3815
Active Pop.	1000mpers	344	344	344	344	344	344	344	344	344	344	344	344
Available	nan/days	7912	7912	7912	7912	7912	7912	7912	7912	7912	7912	7912	7912
surplus	nan/days	5416	5858	3506	4044	4725	4957	4543	5897	5978	5591	3325	4097
		68.5%	74.0%	44.3%	51.1%	59.7%	62.7%	57.4%	74.5%	75.6%	70.7%	42.0%	51.8%
North East													
Requirement	nan/days	1023	1184	1040	1558	1347	1335	1339	1038	1536	1693	1306	1364
Active Pop.	1000mpers	113	113	113	113	113	113	113	113	113	113	113	113
Available	nan/days	2599	2599	2599	2599	2599	2599	2599	2599	2599	2599	2599	2599
surplus	nan/days	1576	1415	1559	1041	1252	1264	1260	1561	1063	906	1293	1235
		60.6%	54.4%	60.0%	40.1%	48.2%	48.6%	48.5%	60.1%	40.9%	34.9%	49.7%	47.5%
North													
Requirement	nan/days	1581	1703	1545	2881	2628	2206	2254	1400	2238	2444	2553	2466
Active Pop.	1000mpers	202	202	202	202	202	202	202	202	202	202	202	202
Available	nan/days	4646	4646	4646	4646	4646	4646	4646	4646	4646	4646	4646	4646
surplus	nan/days	3065	2943	3101	1765	2018	2440	2392	3246	2408	2202	2093	2180
		66.0%	63.3%	66.7%	38.0%	43.4%	52.5%	51.5%	69.9%	51.8%	47.4%	45.0%	46.9%

notes: source SEGEPLAN
 average of 23 man/days per month (ie 270/12)
 PEA figures here do not include the additional adjustment made by SEGEPLAN
 on unremunerated family workers

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TABLE C-9
 GUATEMALA: DEGREE OF MECHANIZATION FOR PLOWING
 AND TRANSPORT, BY TYPES OF FARMS,
 1950, 1964, 1979

	OX	TRACTORS		TRUCKS		
TOTAL						
1950	56985	100.0%	765	100.0%	867	100.0%
1964	36482	100.0%	3160	100.0%	1355	100.0%
1979	37440	100.0%	8931	100.0%	2848	100.0%
MICROFINCAS						
1950	4271	7.5%	0	0.0%	0	0.0%
1964	2037	5.6%	23	0.7%	47	3.5%
1979	5875	15.7%	201	2.3%	208	7.3%
SMALL FINCAS						
1950	7026	12.3%	11	1.4%	22	2.5%
1964	4571	12.5%	79	2.5%	49	3.6%
1979	6819	18.2%	224	2.5%	152	5.3%
MEDIUM FARMS						
1950	19304	33.9%	45	5.9%	136	15.7%
1964	14011	38.4%	418	13.2%	275	20.3%
1979	15207	40.6%	1377	15.4%	717	25.2%
LARGE FARMS						
1950	26384	46.3%	709	92.7%	709	81.8%
1964	15863	43.5%	2640	83.5%	984	72.6%
1979	9539	25.5%	7129	79.8%	1771	62.2%

TABLE C-10a
GUATEMALA: ACTIVE POPULATION

	Total	Central	S.E.	Coast	Altiplano	N.E.	North
PER Total							
1964	1387477	460527	154018	187559	355664	113317	116392
1979	2080163	700812	222663	218109	547953	188640	201986
PER Agriculture							
1964	904823	167712	137014	129542	288653	85926	95976
1979	1082605	188094	149947	153029	344412	113344	201986
Patronos							
1964	24506	3339	5355	1983	7829	2801	3199
1979	30911	2563	5370	1769	6772	4031	10406
Salaried							
1964	310916	75804	35269	65188	73459	24800	36396
1979	401273	107354	41661	81451	94152	26380	50275
Cuenta Propia							
1964	393947	67758	63257	42833	138810	42048	39241
1979	476727	61009	77395	52926	167465	64707	53225
Family Workers							
1964	175454	20811	33133	19538	68555	16277	17140
1979	173694	17168	25521	16883	76023	18226	19873
Adjustment for Family Workers							
1964	218493	46947	30124	23295	70255	25771	22101
1979	303033	43841	51874	36043	91442	46481	33352
Adjusted PER Agro							
1964	1123316	214659	167138	152837	358908	111697	118077
1979	1385638	231935	201821	189072	435854	159825	167131

SOURCE: Agricultural Census, 1964 and 1979

TABLE C-10b
GUATEMALA: ACTIVE POPULATION

	Total	Central	South East	Coast	Altiplano	North East	North
PER Total							
1964	100.0%	33.2%	11.1%	13.5%	25.6%	8.2%	8.4%
1979	100.0%	33.7%	10.7%	10.5%	26.3%	9.1%	9.7%
PER Agriculture							
1964	100.0%	18.5%	15.1%	14.3%	31.9%	9.5%	10.6%
1979	100.0%	17.4%	13.9%	14.1%	31.8%	10.5%	18.7%
Patronos							
1964	100.0%	13.6%	21.9%	8.1%	31.9%	11.4%	13.1%
1979	100.0%	8.3%	17.4%	5.7%	21.9%	13.0%	33.7%
Salaried							
1964	100.0%	24.4%	11.3%	21.0%	23.6%	8.0%	11.7%
1979	100.0%	26.8%	10.4%	20.3%	23.5%	6.6%	12.5%
Cuenta Propia							
1964	100.0%	17.2%	16.1%	10.9%	35.2%	10.7%	10.0%
1979	100.0%	12.8%	16.2%	11.1%	35.1%	13.6%	11.2%
Family Workers							
1964	100.0%	11.9%	18.9%	11.1%	39.1%	9.3%	9.8%
1979	100.0%	9.9%	14.7%	9.7%	43.8%	10.5%	11.4%
Adjustment for Family Workers							
1964	100.0%	21.5%	13.8%	10.7%	32.2%	11.8%	10.1%
1979	100.0%	14.5%	17.1%	11.9%	30.2%	15.3%	11.0%
Adjusted PER Agro							
1964	100.0%	19.1%	14.9%	13.6%	32.0%	9.9%	10.5%
1979	100.0%	16.7%	14.6%	13.6%	31.5%	11.5%	12.1%

SOURCE: Agricultural Census, 1964 and 1979

TABLE C-10c
GUATEMALA: ACTIVE POPULATION IN AGRICULTURE

	Total	Central	South East	Coast	Altiplano	North East	North
Patronos							
1964	2.2%	1.6%	3.2%	1.3%	2.2%	2.5%	2.7%
1979	2.2%	1.1%	2.7%	0.9%	1.6%	2.5%	6.2%
Salaried							
1964	27.7%	35.3%	21.1%	42.7%	20.5%	22.2%	30.8%
1979	29.0%	46.3%	20.6%	43.1%	21.6%	16.5%	30.1%
Cuenta Propia							
1964	35.1%	31.6%	37.8%	28.0%	38.7%	37.6%	33.2%
1979	34.4%	26.3%	38.3%	28.0%	38.4%	40.5%	31.8%
Family Workers							
1964	15.6%	9.7%	19.8%	12.8%	19.1%	14.6%	14.5%
1979	12.5%	7.4%	12.6%	8.9%	17.4%	11.4%	11.9%
Adjustment for Family Workers							
1964	19.5%	21.9%	18.0%	15.2%	19.6%	23.1%	18.7%
1979	21.9%	18.9%	25.7%	19.1%	21.0%	29.1%	20.0%
Adjusted PER Agro							
1964	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1979	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SOURCE: Agricultural Census, 1964 and 1979

TABLE C-11
 GUATEMALA: DISTRIBUTION OF BANDESA LOANS
 BY FARM SIZE, 1983

Size of farm -----	Number of Loans -----	Percent of Loans -----	Amount of Loans* -----	Percent of Loan Amount -----
Up to 2 ha.	5,413	29.8%	3,865.4	11.3%
2 - 4 ha.	4,170	23.0%	4,257.1	12.4%
4 - 7 ha.	2,777	15.3%	4,355.9	12.7%
7 - 50 ha.	5,227	28.8%	13,696.2	39.9%
50 - 300 ha.	568	3.1%	8,133.5	23.7%
Total	18,155	100.0%	34,308.1	100.0%

NOTE: *-thousands of quetzales

SOURCE: PREALC Report #266, June 1985,
 based on BANDESA official reports.

TABLE C-12
 GUATEMALA: COMPARISON OF SMALL-FARM PRODUCTION
 BY FARM SIZE AND ACCESS TO CREDIT, 1974
 (production values in quetzales per hectare)

Size of farm -----	Farms with Credit -----		Farms without Credit -----	
	Altiplano -----	Total National* -----	Altiplano -----	Total National* -----
0 - 1 ha.	1087	1121	429	446
1 - 5 ha.	299	354	245	334
5 - 10 ha.	191	294	256	255
10 - 50 ha.	127	183	140	178

NOTE: *-excludes southern coast

SOURCE: Data from 1974 Public Sector Agricultural
 Survey published in PREALC Report #266, June 1985

ANNEX D
INCOME AND EMPLOYMENT

TABLE D-1
 GUATEMALA: INCOME DISTRIBUTION BY REGIONS AND LEVELS OF ANNUAL FAMILY INCOME, 1980
 (percent)

Levels of annual family income (Quetzales) (1)	Total republic		Metropolitan region		Rest of urban areas		Rural areas	
	H	Y	H	Y	H	Y	H	Y
TOTAL	100.0	100.0	15.3	39.8	20.6	21.8	64.1	38.4
0-1200 [0-2518]	26.3	7.5	0.6	0.3	2.9	0.8	22.8	6.4
1201-2400 [2519-5035]	38.4	21.6	2.7	1.7	7.2	4.2	28.5	15.7
2401-4800 [5036-10070]	22.7	25.0	5.1	5.9	6.9	7.7	10.7	11.4
4801-7200 [10071-15105]	6.2	11.9	2.8	5.4	2.1	4.1	1.3	2.4
7201-12000 [15106-25176]	4.1	12.4	2.1	6.8	1.2	3.4	0.8	2.2
12001-18000 [25177-37764]	1.4	6.4	1.1	5.0	0.3	1.3	..	0.1
18001-36000 [37765-75528]	0.7	5.9	0.7	5.4	..	0.3	..	0.2
36001-60000 [75529-125800]	0.1	1.9	0.1	1.9	##	##	##	##
60001 and over [125801 and over]	0.1	7.4	0.1	7.4	##	##	##	##

KEY

H = households

Y = family income

.. = less than .1%

= nil

NOTE: (1) Levels of income at 1980 prices. Bracketed figures show same levels of income, but adjusted by inflation at 1987 prices.

SOURCE: Direccion General de Estadistica, National Survey on Income and Expenditures, 1979-1981

TABLE D-2
GUATEMALA: AVERAGE FAMILY INCOME BY REGIONS AND LEVELS OF ANNUAL FAMILY INCOME, 1980

Levels of annual family income (Quetzales) (1)	Total republic		Metropolitan region		Rest of urban areas		Rural areas	
	Q/year (1)	Relative (2)	Q/year (1)	Relative (2)	Q/year (1)	Relative (2)	Q/year (1)	Relative (2)
TOTAL	3051 [6402]	100.0	7919 [16617]	259.6	3236 [6790]	106.1	1829 [3838]	59.9
0-1200 [0-2518]	865 [1815]	28.4	925 [1941]	30.3	884 [1855]	29.0	861 [1807]	28.2
1201-2400 [2519-5035]	1716 [3600]	56.2	1899 [3985]	62.2	1797 [3770]	58.9	1678 [3521]	55.0
2401-4800 [5036-10070]	3370 [7071]	110.5	3569 [7489]	117.0	3418 [7172]	112.0	3246 [6811]	106.4
4801-7200 [10071-15105]	5814 [12200]	190.6	5978 [12544]	195.9	5799 [12168]	190.1	5493 [11526]	180.0
7201-12000 [15106-25176]	9200 [19305]	301.5	9316 [19548]	305.3	9017 [18921]	295.5	9143 [19185]	299.7
12001-18000 [25177-37764]	14433 [30285]	473.1	14537 [30503]	476.5	14065 [29913]	461.0	13857 [29077]	454.2
18001-36000 [37765-75528]	24452 [51308]	801.4	24641 [51705]	807.6	26457 [55515]	867.2	18588 [39044]	609.2
36001-60000 [75529-125800]	45831 [96169]	1502.2	45831 [96169]	1502.2	--	--	--	--
60001 and over [125801 and over]	242754 [509379]	7956.5	242754 [509379]	7956.5	--	--	--	--

NOTES: (1) 1980 current prices. Bracketed figures adjusted by inflation at 1987 prices.

(2) National average = 100

SOURCE: Direccion General de Estadistica, National Survey on Income and Expenditures, 1979-1981

TABLE D-3
 GUATEMALA: INCOME DISTRIBUTION OF GAINFULLY EMPLOYED POPULATION, 1980
 (percent)

Levels of annual personal income (Quetzales) (1)	Persons	Income
TOTAL	100.0	100.0
0	0.7	--
1-399 (1-837)	10.7	1.1
400-799 (838-1676)	16.6	9.5
800-1199 (1677-2515)	18.8	9.5
1200-1599 (2516-3355)	16.6	11.7
1600-1999 (3356-4193)	9.6	8.7
2000-2399 (4194-5033)	5.9	6.5
2400-2799 (5034-5872)	4.8	6.3
2800-3199 (5873-6711)	3.7	5.7
3200-3599 (6712-7551)	2.0	3.5
3600-3999 (7552-8390)	2.1	4.1
4000-4799 (8391-10068)	2.4	5.3
4800-5999 (10069-12586)	2.1	5.8
6000-7999 (12587-16782)	1.6	5.6
8000-11099 (16783-25174)	1.3	6.4
12000-15999 (25175-33566)	0.4	3.2
16000-23999 (33567-50350)	0.3	3.1
24000-39999 (50351-83918)	0.2	3.4
40000-79999 (83919-167838)	0.1	1.8
80000 and over (167839 and over)	0.1	3.3

NOTE: (1) Current prices. Bracketed figures show same levels of personal income but adjusted by inflation at 1987 prices.

SOURCE: Mission estimates based on INE, National Survey on Income and Expenditures, 1979-1981

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TABLE D-4
 GUATEMALA: GAINFULLY EMPLOYED POPULATION, BY OCCUPATIONAL CATEGORIES
 AND LEVELS OF ANNUAL PERSONAL INCOME, 1980
 (percent)

Levels of annual personal income (Quetzales) (1)	TOTAL	Owners	Self Employed	Gov't Employees	Private Employees
TOTAL	100.0	100.0	100.0	100.0	100.0
0	0.7	0.6	0.5	1.1	0.7
1-399 (1-837)	10.7	1.2	14.7	0.7	9.0
400-799 (838-1676)	16.6	3.3	18.2	1.6	17.9
800-1199 (1677-2515)	18.8	4.9	19.3	4.1	21.2
1200-1599 (2516-3355)	16.6	10.9	15.1	10.6	19.0
1600-1999 (3356-4193)	9.6	4.5	9.4	8.6	10.1
2000-2399 (4194-5033)	5.9	2.3	6.5	4.7	5.6
2400-2799 (5034-5872)	4.8	5.8	4.3	10.6	4.3
2800-3199 (5873-6711)	3.7	4.6	2.5	13.3	3.2
3200-3599 (6712-7551)	2.0	2.2	1.3	8.6	1.6
3600-3999 (7552-8390)	2.1	4.4	1.7	8.7	1.3
4000-4799 (8391-10068)	2.4	3.3	1.7	9.8	1.7
4800-5999 (10069-12586)	2.1	6.3	1.4	7.8	1.7
6000-7999 (12587-16782)	1.6	10.5	1.5	4.1	1.1
8000-11999 (16783-25174)	1.3	11.5	1.0	3.7	0.9
12000-15999 (25175-33566)	0.4	8.8	0.3	1.1	0.3
16000-23999 (33567-50350)	0.3	6.8	0.3	0.5	0.2
24000-39999 (50351-83918)	0.2	5.7	0.2	0.3	0.1
40000-79999 (83919-167838)	0.1	1.2	0.1	0.1	..
80000 and over (167839 and over)	0.1	1.2	0.1

NOTE: (1) Current prices. Bracketed figures show some levels of personal income but adjusted by inflation at 1987 prices.

SOURCE: INE, National Survey on Income and Expenditures, 1979-1981

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TABLE D-5
 GUATEMALA: AVERAGE WAGES AND SALARIES IN THE FORMAL
 INDUSTRIAL SECTOR, BY OCCUPATIONAL STATUS, 1980-1986

Year	Consumer Price Index	General (weighted average)				Managers				Clerical workers				Production workers			
		Q/n		Index		Q/n		Index		Q/n		Index		Q/n		Index	
		Non.	Real	Non.	Real	Non.	Real	Non.	Real	Non.	Real	Non.	Real	Non.	Real	Non.	Real
		(1)	(2)														
1980	86.3	219	254	75.8	87.8	1294	1499	82.9	96.0	344	397	82.7	95.6	150	178	78.4	88.5
1981	94.8	254	268	87.9	92.7	1436	1515	92.1	97.2	390	411	93.8	98.9	179	199	89.3	94.8
1982	95.5	273	286	94.5	99.0	1495	1565	95.8	100.3	405	424	97.4	102.0	190	199	95.5	100.0
1983	100.0	289	289	100.0	100.0	1560	1560	100.0	100.0	416	416	100.0	100.0	199	199	100.0	100.0
1984	103.3	298	288	103.1	99.8	1621	1569	103.9	100.6	419	406	100.7	97.5	204	197	102.5	99.0
1985	123.1	321	261	111.1	90.3	1860	1511	119.2	96.8	473	384	113.7	92.4	215	175	108.0	87.7
1986	163.4	385	236	133.2	81.5	2011	1231	128.9	78.9	561	343	134.9	82.6	253	153	130.0	79.7

NOTES: (1) Current prices.
 (2) Adjusted by inflation at 1983 prices.

SOURCE: Mission estimates based on INE, Quarterly Industrial Survey, 1980-1986

TABLE D-6
 GUATEMALA: WAGES AND SALARIES IN SELECTED LEADING PRIVATE
 INDUSTRIAL FIRMS, BY OCCUPATIONAL STATUS, 1982-1987

Year	Consumer Price Index	General (weighted average)				Managers				Supervisors			
		Q/n		Index		Q/n		Index		Q/n		Index	
		Non. (1)	Real (2)	Non.	Real	Non.	Real	Non.	Real	Non.	Real	Non.	Real
1982	95.5	467	489	91.6	95.9	1630	1707	87.5	91.6	794	831	93.4	97.8
1983	100.0	510	510	100.0	100.0	1863	1863	100.0	100.0	850	850	100.0	100.0
1984	103.3	533	516	104.4	101.2	1956	1894	105.0	101.6	898	869	105.6	102.2
1985	123.1	617	501	121.0	98.3	2262	1838	121.4	98.6	989	803	116.3	94.5
1986	163.4	729	446	142.9	87.4	2726	1668	146.3	89.5	1177	720	138.4	84.7
1987	181.2	834	460	163.5	90.2	3167	1747	170.0	93.8	1379	761	162.2	89.5

Year	Clerical workers				Production workers			
	Q/n		Index		Q/n		Index	
	Non.	Real	Non.	Real	Non.	Real	Non.	Real
1982	483	506	93.5	97.8	259	271	91.5	95.8
1983	517	517	100.0	100.0	283	283	100.0	100.0
1984	532	515	102.9	99.6	300	290	105.9	102.5
1985	658	535	127.3	103.4	324	263	114.5	93.0
1986	776	475	150.2	91.9	377	231	133.2	81.5
1987	867	478	167.8	92.6	434	240	153.3	84.6

NOTES: (1) Current prices.
 (2) Adjusted by inflation at 1983 prices.

SOURCE: Mission estimates based on Profesionales Consultores Asociados,
 Los salarios en Guatemala: Analisis de los ultimos 5 anos, 1982-1987

TABLE D-7
GUATEMALA: INDUSTRIAL WAGES AND SALARIES

	unit	1974					1983				
		Total	size of establishment by number of workers				Total	size of establishment by number of workers			
			5 to 9	10 to 19	20 to 50	over 50		5 to 9	10 to 19	20 to 50	over 50
Numb. Establish.	1	1860 100.0%	927 49.8%	404 21.7%	296 15.9%	233 12.5%	1790 100.0%	692 38.7%	495 27.7%	383 21.4%	220 12.3%
Val. Prod.	MHQ	900.9 100.0%	16.7 1.9%	38.3 4.3%	313.5 34.8%	532.4 59.1%	1964.5 100.0%	41.3 2.1%	115.4 5.9%	738.8 37.6%	1069.0 54.4%
Average Employment	1	65731 100.0%	5547 8.4%	6858 10.4%	23171 35.3%	30155 45.9%	75779 100.0%	5079 6.7%	8013 10.6%	29674 39.2%	33013 43.6%
Wages, Salaries	MHQ	83.2 100.0%	2.4 2.9%	5.6 6.7%	25.4 30.5%	49.9 60.0%	200.4 100.0%	6.0 3.0%	15.8 7.9%	74.4 37.1%	104.1 51.9%
Other labor costs % of wage bill	MHQ (a)	11.1 13.3%	0.2 0.3%	0.7 12.5%	2.9 11.4%	7.3 14.6%	27.0 13.5%	0.6 10.0%	1.8 11.4%	9.5 12.8%	15.0 14.4%
Men/hours	M n n/hrs	123.6 100.0%	8.3 6.7%	12 9.7%	47.2 38.2%	56.1 45.4%	128.7 100.0%	7.5 5.8%	12.7 9.9%	53.3 41.4%	55.2 42.9%
ordinary	M n n/hrs	114.4 100.0%	8.1 7.1%	11.7 10.2%	43.7 38.2%	50.9 44.5%	121.8 100.0%	7.5 6.2%	12.4 10.2%	49.9 41.0%	52 42.7%
extraord.	M n n/hrs	9.2 100.0%	0.2 2.2%	0.3 3.3%	3.5 38.0%	5.2 56.5%	6.9 100.0%	0 0.0%	0.3 4.3%	3.4 49.3%	3.2 46.4%
AUTHORS' CALCULATIONS											
Average wage/hr	Q	0.67	0.29	0.47	0.54	0.85	1.56	0.80	1.24	1.40	1.89
Average hours/nth per worker	hrs	156.7	124.7	145.8	169.8	155.0	141.5	123.1	132.1	149.7	139.3
Average income/nth	Q	105.48	36.06	68.05	91.35	137.90	220.38	98.44	164.32	208.94	262.78
Current	Q	198.38	67.81	127.98	171.81	259.35	188.60	94.25	140.62	178.81	224.88
Real (1980)	Q										
Average hrs/day	hrs	7.0	5.5	6.5	7.5	6.9	6.3	5.5	5.9	6.7	6.2

NOTE: (a) According to the definitions of the survey, this item should be at least equal to 19.6% of the wage bill, and include 10% as employers' contribution to the IGSS, 1% as employers' contribution to the Instituto de Recreacion de los Trabajadores (IRTRA), 0.3% as contribution to the Instituto Tecnico de Capacitacion (INTECAP), and a monthly provision of 8.3% for the "thirteenth month" or Aguinaldo.

All these charges are mandated by law.

It is interesting to see that, across the types of firms in the survey, the percentage of other wage costs remain consistently below what is a legal minimum.

SOURCE : Industrial Surveys

ANNEX E
NUTRITION AND HEALTH

DESCRIPTION OF METHODOLOGIES AND
SAMPLES USED FOR DIFFERENT SURVEYS, CENSUSES AND STUDIES

1965: Nutritional Evaluation of the Population of Central America and Panama.

Conducted by INCAP (Instituto de Nutricion de Centro America y Panama), the Guatemalan Ministry of Health and the National Health Institute, USA (International Research), survey provides baseline data for approximately 854 children aged 0-5 years. The sample, based on the 1964 Census, includes 800 families out of 40 communities in the rural areas of the country and represents six different departments. Communities selected all have less than 25,000 inhabitants. Measurements for children are classified according to the Iowa standards, which were, much later, translated by INCAP into Gomez Index and Z-Scores for comparisons over time.

1978: Regionalization of Nutritional Problems in Guatemala.

Conducted by INCAP and the Secretaria General del Consejo Nacional de Planificacion Economica, published with USAID funding, 1980.

Sample Size: Nationwide, rural bias. Contains 114 municipalities with 355 communities of less than 2,499 inhabitants, based on the 1973 Census. Includes 3,317 families and 4,120 children, 6 to 60 months old. Regions selected had the highest concentration of agricultural workers and farmers: 30% of the population in the sample were small farmers (between 1-5 manzanas of land) and 19% were agricultural wage earners.

In Guatemala City, only urban marginal areas were selected: Anthropometric data on children is presented according to the Gomez classification and has not been adjusted to Z-Scores. This study was the first attempt to introduce the functional classification methodology in Guatemala and because of the severity of undernourishment found, publication was forbidden by the government from 1978 until 1986. At the time of the mission, it was extremely difficult to get a copy. The functional classification presents malnutrition rates of children according to the parental income, occupation and educational level; access to basic services; and geographical area of residence. It allows for the identification, with a high degree of precision, of the socioeconomic causes of child malnutrition within the household and for the targeting of program interventions to specific areas and income groups considered "most at risk".

1986: National Simplified Health and Nutrition Survey for the Child and Mother.

Conducted by INCAP and MOH of Guatemala.

Sample Size: 119 communities representative of 24 health areas within 8 departments. It is a rural survey of small communities between 500-1,000 inhabitants, where approximately 20% of the population lives.

Includes: 18,691 families
92,665 persons
9,637 children, 0-36 months old

Has been designed as a longitudinal study of mother and child: these communities are used to monitor growth (weight/age) of children on a permanent basis (1985-1986 and 1987). Anthropometric data is presented according to the Z-Score classification.

1986: First National Height Census of First Grade School Children in Guatemala.

Conducted by INCAP and the Ministry of Education (Unidad USIPE).

It is the first attempt to conduct a census nationwide of the height of all 1st-grade school children. All children aged 6-9 years and enrolled in primary school were measured by their teachers.

Sample Size: 205,956 children

6 years old = 14%	Male: 53.6%
7 years old = 38%	Female: 46.4%
8 years old = 29%	
9 years old = 19%	

Data is presented according to Z-Score classification. The census has a strong socioeconomic and urban bias, because it relies on primary school access and enrollment and therefore underestimates rural malnutrition. Details are discussed in the main text of this study.

1987: Encuesta Nacional Comunitaria de Conocimientos, Actitudes y Practicas de Salud Materno-Infantil (KAP)

Conducted by INCAP, Guatemalan Ministry of Health

Sample Size: 17,751 families
103,092 persons
43,472 children, 0-5 years old

Contains results of a series of health indicators (no anthropometric measurements) and assessments of maternal knowledge of health-related subjects.

1983: Family Planning and Maternal/Child Health Survey.

Conducted by APROFAM (Asociacion pro-Bienestar de la Familia), CDC (Atlanta), INCAP and USAID.

Survey questionnaires were translated into the five main Mayan dialects. It is principally a family planning survey, but contains results of other maternal and child health indicators, especially of immunization coverage and prevalence of diarrhea. Sample has an urban bias (e.g., the urban areas represented 31% of the total sample while comprising only 22% of the total population), especially for the Dept. of Guatemala, which is overweighted. Small rural communities of less than 1,000 inhabitants are not included. The rural areas represented 69% of the sample, but contained 78% of the total population at that time.

Sample Size: 4,775 households
 4,185 children, 0-5 years old
 3,670 women, 15-44 years old

1987: National Maternal/Child Health Survey.

Conducted by Westinghouse, Guatemalan MOH, INCAP and USAID.

Contains data similar to the APROFAM 1983 family planning survey. However, the balance between the urban and rural areas has been corrected in the sample and adjusted to the proportions found in the socio-demographic survey of the National Statistics Institute (INE), which are 36% urban and 64% rural.

Sample Size: 5,459 households
 5,160 women, 15-44 years old

Includes small rural villages of approximately 500 inhabitants.

TABLE E-1
SUMMARY OF CRITERIA USED TO CLASSIFY
UNDERNOURISHMENT IN CHILDREN AGED 0-5 YEARS

<u>Gomez Weight-for-Age Index</u>		<u>Waterlow Weight-for-Height and Height-for-Age Indices</u>		
<u>Nutritional Status</u>	<u>Weight-for-Age</u>	<u>Nutritional Status</u>	<u>Weight-for-Height</u>	<u>Height-for-Age</u>
1. Normal	90% and over	1. Normal	Normal (>85%)	Normal (>90%)
2. 1st degree	75% - 89.9%	2. Stunting (chronic undernutrition)	Low (>85%)	Low (<90%)
3. 2nd & 3rd degree	less than 75%	3. Wasting (acute undernutrition)	Low (<85%)	Normal (>90%)
		4. Wasting and stunting	Low (<85%)	Low (<90%)

Z Scores (NCHS)*

<u>Nutritional Status</u>	<u>Weight/Age, Height/Age and Weight/Height Scores</u>
1. Severe	-3.0 SD (Standard Deviation)
2. Moderate	-2.0/2.9 SD
3. Normal	+1.9/-1.9 SD
4. Over	+2.0 SD

*--Z Score classifications are based on norms developed by the U.S. National Center for Health Statistics (NCHS) according to the median (i.e., "normal") measurements of U.S. children as per their age and sex. They are based on scientific evidence that 96% of growth-related problems in infants worldwide are the product of environment and not genetics.

TABLE E-2
GUATEMALA: WEIGHT/AGE UNDERNOURISHMENT IN RURAL AREAS
AMONG CHILDREN AGED 0-5 YEARS

Year	Gomez Index	Functional classification	Z-Score Categories		Z-Score Total
			Moderate (-2.0/-2.9 SD)	Severe (<-3.0 SD)	
1965	74.4%		25.7%	10.8%	36.5%
1976	82.6%		32.6%	15.6%	48.2%
1978	77.0%	72.6%	31.5%	12.1%	43.6%
1985-1986*			34.0%	N.A.	34.0%

NOTE: *--Data from the final report, National Simplified Health and Nutrition Survey for Mother & Child, conducted by INCAP and the Guatemalan Ministry of Health in August 1986 with a rural sample of 9,637 children completely different than the 1965 sample of 854 children.

SOURCE: Data from the 1965, 1976 and 1978 INCAP National surveys. Comparisons and analysis can be found in: "Reanálisis, bajo nuevos criterios uniformes de los datos antropométricos de las encuestas nacionales de nutrición, Guatemala," INCAP, Guatemala.

TABLE E-3
GUATEMALA: NATIONAL WEIGHT/AGE CHILD
UNDERNOURISHMENT, BY AGE GROUP, 1965

Age (months)	Number of children	Z-Score Categories		Z-Score Total
		Moderate (-2.0/-2.9 SD)	Severe (<-3.0 SD)	
TOTAL	854	21.0%	9.3%	30.3%
0 - 5	66	3.0%	1.5%	4.5%
6 - 11	98	13.3%	14.3%	27.6%
12 - 23	166	34.9%	11.4%	46.3%
24 - 35	165	23.0%	15.2%	38.2%
36 - 47	185	23.2%	8.6%	31.8%
48 - 59	174	28.7%	5.2%	33.9%

SOURCE: INCAP

TABLE E-4
GUATEMALA: NATIONAL HEIGHT/AGE CHILD
UNDERNOURISHMENT, BY AGE GROUP, 1965

Age (months)	Number of children	Z-Score Categories		Z-Score Total
		Moderate (-2.0/-2.9 SD)	Severe (<-3.0 SD)	
TOTAL	791	24.6%	25.6%	50.2%
0 - 5	65	9.2%	3.1%	12.3%
6 - 11	93	18.3%	15.1%	33.4%
12 - 23	154	31.2%	37.7%	68.7%
24 - 35	147	28.6%	27.2%	55.8%
36 - 47	172	30.8%	32.0%	62.8%
48 - 59	160	30.0%	38.8%	68.8%

SOURCE: INCAP

TABLE E-5
GUATEMALA: HEIGHT/AGE UNDERNOURISHMENT IN RURAL
AREAS AMONG CHILDREN AGED 0-5 YEARS, 1965-1978

Year	Gomez Index	Z-Score Categories		Totals
		Moderate (-2.0/-2.9 SD)	Severe (<-3.0 SD)	
1965	47.6%	28.3%	31.7%	60.0%
1976	42.9%	29.6%	27.4%	57.0%
1978	44.0%	27.9%	31.8%	59.7%
1978*				75.8%

NOTE: *--Functional classification using Gomez Index.

SOURCE: INCAP

TABLE E-6
 GUATEMALA: WEIGHT/HEIGHT UNDERNOURISHMENT IN RURAL
 AREAS AMONG CHILDREN AGED 0-5 YEARS, 1965-1978

Year	Z-Score Categories		Z-Score Total
	Moderate (-2.0/-2.9 SD)	Severe (<-3.0 SD)	
1965	2.0%	0.9%	2.9%
1976	5.3%	1.2%	6.5%
1978	3.1%	0.2%	3.3%

SOURCE: INCAP

TABLE E-7
 GUATEMALA: FUNCTIONAL CLASSIFICATION SURVEY OF GOMEZ INDEX
 UNDERNOURISHMENT IN CHILDREN AGED 0-59 MONTHS, 1978

	Number of Respondents	Height-for-Age Scores				Total degree undernourish
		Normal	1st degree	2nd degree	3rd degree	
Total population	4117	27.4%	44.0%	25.0%	3.6%	72.6%
Total males	2073	26.9%	44.0%	25.3%	3.7%	73.0%
Total females	2044	27.8%	44.0%	24.7%	3.6%	72.3%

	Number of Respondents	Height-for-Age-Scores				Total degree undernourish
		Normal	1st degree	2nd degree	3rd degree	
Total population	4120	24.1%	30.9%	27.9%	17.0%	75.8%
Total males	2074	23.0%	32.8%	28.5%	15.7%	77.0%
Total females	2046	25.2%	28.9%	27.3%	18.6%	74.8%

SOURCE: INCAP and SEGEPLAN, "Regionalizacion
 de problemas nutricionales," 1978

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TABLE E-8
GUATEMALA: CHILD WEIGHT/AGE UNDERNOURISHMENT
BY AGE GROUP, 1978

Age (months) -----	Z-Score (-2.0 SD) -----
0 - 2	7.3%
3 - 5	10.6%
6 - 8	20.6%
9 - 11	32.7%
12 - 14	45.7%
15 - 17	45.0%
18 - 20	43.4%
21 - 23	42.3%
24 - 26	42.6%
27 - 29	41.0%
30 - 32	38.6%
33 - 35	41.4%

TOTAL	33.6%

SOURCE: INCAP

TABLE E-9
 GUATEMALA: FIRST NATIONAL HEIGHT CENSUS OF 1st GRADE
 SCHOOLCHILDREN (AGED 6-9 YEARS); CLASSIFICATION OF NUTRITIONAL STATUS, 1986

Nutritional status	Population in Census	
	n	%
TOTAL	205,959	100.0
Normal	129,006	62.6
Total undernourishment rate	76,953	37.4
--Moderate undernourishment	59,670	29.0
--Severe undernourishment	17,283	8.4

SOURCE: Ministerio de Educacion (USIPE) and INCAP

TABLE E-10
 GUATEMALA: FIRST NATIONAL HEIGHT CENSUS OF 1st GRADE
 SCHOOLCHILDREN (AGED 6-9 YEARS)

Classification of departments according to degree of malnutrition reported in August 1986

No risk (0%-15.9%)	Low risk (16.0%-25.9%)	Moderate risk (26.0%-35.9%)	High risk (36.0%-50.9%)	Severe undernourishment (51% and over)
None	Escuintla 25.8% Izabal 25.2% Jutiapa 25.2% Zacapa 24.1% Ciudad Capital 20.3%	Retalhuleu 34.7% Chiquimula 33.5% El Peten 29.6% Guatemala* 28.7% Santa Rosa 27.5% El Progreso 26.4%	San Marcos 45.7% Quetzaltenango 44.5% Suchitepequez 41.5% Sacatepequez 41.1% Baja Verapaz 38.4% Alta Verapaz 38.3% Jalapa 37.5%	Solola 64.6% Totonicapan 60.9% El Quiche 52.9% Chimaltenango 52.0% Huehuetenango 51.8%

NOTE: *--Department of Guatemala municipalities, excluding Guatemala City.

SOURCE: Ministerio de Educacion (USIPE) and INCAP

TABLE E-11
GUATEMALA: LEVELS OF MALNUTRITION BY DEPARTMENT, 1970 AND 1986

Classification of departments according to 1986 Z-Scores

No risk (0%-15.9%)	Low risk (16.0%-25.9%)	Moderate risk (26.0%-35.9%)	High risk (36.0%-50.9%)	Severe undernourishment (51% and over)
None	El Peten Izabal Jutiapa Zacapa	Retalhuleu Chiquimula Escuintla Alta Verapaz Sacatepequez Chimaltenango Guatemala Norte Suchitepequez Santa Rosa Guatemala Sur Amatitlan El Progreso	San Marcos Quetzaltenango Totonicapan El Quiche Baja Verapaz Solola Jalapa Huehuetenango	None

Classification of departments according to 1978 Gomez Index scores

None	None	None	None	All depts. surveyed: Guatemala Escuintla Suchitepequez El Progreso Baja Verapaz Huehuetenango Solola (82.5%) Chiquimula Jalapa Alta Verapaz
------	------	------	------	---

SOURCE: INCHP

TABLE E-12
CENTRAL AMERICAN BIRTH AND MORTALITY RATES, 1960-1986

	Birth rate (a)		Infant mortality rate (0-1 yrs) (b)		Mortality rate (0-5 yrs) (c)		Overall mortality rate (d)		Life expectancy (years)	
	1960	1986	1960	1986	1960	1986	1960	1986	1960	1986
Guatemala	43	41	125	61	230	105	20	9	46	61
El Salvador	48	38	142	61	206	83	17	7	50	67
Honduras	51	40	144	71	232	112	19	9	47	62
Nicaragua	51	42	140	64	210	100	18	8	47	63
Costa Rica	47	29	84	18	121	23	10	4	62	74
Panama	41	27	69	23	105	34	10	5	61	72

NOTES: (a) Annual births per 1,000 inhabitants

(b) Deaths per 1,000 live births

(c) Deaths per 1,000 live births

(d) Annual deaths per 1,000 inhabitants

SOURCE: Central America Report, based on UNICEF data, 1988

TABLE E-13
 PERCENTAGE OF CHILDREN UNDER 1 YEAR OF AGE WITH REPORTED
 IMMUNIZATION IN CENTRAL AMERICA, PANAMA AND BELIZE, 1980-1986

	Measles							Tuberculosis						
	1980	1981	1982	1983	1984	1985	1986	1980	1981	1982	1983	1984	1985	1986
GUATEMALA*	23%	8%	12%	9%	24%	23%	46%	36%	29%	28%	24%	33%	30%	31%
Belize	--	40%	51%	43%	44%	49%	85%	--	54%	75%	81%	82%	81%	94%
Costa Rica	60%	79%	87%	82%	75%	81%	95%	80%	81%	81%	85%	81%	85%	92%
El Salvador**	45%	44%	43%	46%	41%	71%	45%	56%	47%	46%	48%	22%	50%	51%
Honduras	31%	34%	48%	49%	44%	53%	60%	25%	41%	50%	55%	41%	65%	74%
Nicaragua	15%	20%	40%	37%	42%	49%	50%	33%	65%	82%	80%	88%	87%	95%
Panama	47%	52%	64%	60%	65%	83%	73%	68%	77%	83%	81%	77%	94%	91%

	Polio							Diphtheria						
	1980	1981	1982	1983	1984	1985	1986	1980	1981	1982	1983	1984	1985	1986
GUATEMALA*	42%	38%	45%	43%	4%	9%	33%	42%	38%	45%	43%	4%	9%	33%
Belize	--	51%	52%	61%	54%	60%	82%	--	54%	61%	59%	54%	59%	82%
Costa Rica	86%	85%	80%	84%	76%	75%	90%	86%	85%	80%	84%	76%	75%	90%
El Salvador**	42%	38%	42%	20%	31%	54%	70%	43%	42%	42%	21%	31%	54%	70%
Honduras	31%	36%	47%	51%	73%	59%	63%	28%	34%	46%	52%	41%	58%	62%
Nicaragua	21%	24%	70%	75%	72%	70%	85%	15%	23%	26%	22%	30%	35%	40%
Panama	45%	50%	61%	60%	61%	71%	70%	47%	49%	61%	61%	59%	73%	70%

NOTES: *--1980-1983 polio and diphtheria data for Guatemala represent only 2 doses.

**--1980-1982 polio and diphtheria data for El Salvador represent only 2 doses

SOURCE: UNICEF Guatemala, 1987 Annual Report

TABLE E-14
 PERCENTAGE OF CHILDREN LESS THAN 5 YEARS OF AGE WITH REPORTED
 COMPLETE POLIO, DIPHTHERIA AND MEASLES IMMUNIZATION, BY AGE OF CHILD,
 IN GUATEMALA, 1983

	TOTAL	Age of Child (yrs)				
		0	1	2	3	4
Polio	33.4%	5.3%	28.0%	43.2%	48.3%	43.5%
Diphtheria	33.0%	5.5%	28.3%	42.8%	46.7%	42.9%
Measles	53.0%	11.3%	54.4%	66.0%	69.0%	65.7%
Number of Cases (unweighted)	4,185	837	846	784	843	875

SOURCE: APROFAM/CDC--Guatemala Family Planning and Maternal
 and Child Health Survey, 1983

TABLE E-15
 GUATEMALA: PER CAPITA CALORIC AND PROTEIN AVAILABILITY, 1978-1985

	1978-1980	1981-1983	1984	1985
Calories	2200	2115	1885	2082
% of daily requirements*	97.8%	94.0%	83.8%	92.5%
Protein (grams)	52.5	52.2	47.7	50.9
% of daily requirements**	114.1%	113.5%	103.7%	110.7%

NOTES: *--Minimum daily caloric intake calculated as 2250 calories
 per person, based on INCAP recommendations adjusted
 according to the population's young age.

**--Minimum daily protein intake calculated as 46 grams
 per person.

SOURCE: Balance sheets, Instituto Nacional de Estadística (INE)
 de Guatemala, 1985 and 1986

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TABLE E-16
 GUATEMALA: ESTIMATED PER CAPITA CALORIC INTAKE
 PER INCOME LEVELS, 1980-1981

Sector	Income Levels				
	1	2	3	4	5
Urban (Metropolitan)	1,728	1,884	2,284	2,654	2,863
Other Urban Areas	1,814	2,057	2,487	2,764	3,036
Rural	1,942	2,288	2,619	2,834	3,147

ESTIMATED FAMILY FOOD EXPENDITURES AS
 A PERCENTAGE OF TOTAL FAMILY EXPENDITURES

Urban (Metropolitan)	55.2%	54.1%	55.9%	50.5%	44.6%
Other Urban Areas	N.A.	N.A.	N.A.	N.A.	N.A.
Rural	69.3%	68.9%	65.3%	59.5%	61.2%

ESTIMATED FAMILY FOOD EXPENDITURES
 AS A PERCENTAGE OF AVERAGE INCOME

Urban (Metropolitan)	81.6%	58.4%	47.7%	40.2%	31.2%
Other Urban Areas	N.A.	N.A.	N.A.	N.A.	N.A.
Rural	64.2%	58.8%	50.8%	41.5%	35.7%

NOTE: *--Yearly family income levels in quetzales (1 US\$ = 1 Quetz)

Level 1: 0 - 1200
 Level 2: 1201 - 2400
 Level 3: 2401 - 4800
 Level 4: 4801 - 7200
 Level 5: 7201 - 12000

SOURCE: National Survey on Income Expenditures, 1979-1981, Vol II,
 INE, Guatemala.

ANNEX F
WATER SUPPLY AND SANITATION

TABLE F-1
 GUATEMALA: HISTORICAL WATER SUPPLY AND SANITATION COVERAGE
 (1980-1986)

WATER SUPPLY									
Year	Total population (1)	All Areas		Urban Areas			Rural Areas		
		Pop. served (1)	Percent served	Urban pop. (1)	Total served (1)	Percent served	Rural pop. (1)	Total served (1)	Percent served
1980	7,000	3,200	45.7%	2,700	2,400	88.9%	4,300	800	18.6%
1984	7,800	3,500	44.9%	3,100	2,300	74.2%	4,700	1,200	25.5%
MOH 1984 (2)			33.8%						
1986	8,300	3,700	44.6%	3,400	2,400	70.6%	4,900	1,300	26.5%

SANITATION									
Year	Total population (1)	All Areas		Urban Areas			Rural Areas		
		Pop. served (1)	Percent served	Urban pop. (1)	Total served (1)	Percent served	Rural pop. (1)	Total served (1)	Percent served
1980	7,000	2,100	30.0%	2,700	1,200	44.4%	4,300	900	20.9%
1984	7,800	2,600	33.3%	3,100	1,300	41.9%	4,700	1300	27.7%
MOH 1984 (2)			24.0%						
1986	8,300	2,800	33.7%	3,400	1,400	41.2%	4,900	1400	28.6%

NOTES: (1) Population figures rounded to nearest thousand
 (2) MOH = Guatemalan Ministry of Health

SOURCE: Central American Water and Sanitation Health Project,
 AID/LAC, Washington, D.C., 1987

ANNEX G
EDUCATION

TABLE G-1
 GUATEMALA: EDUCATIONAL LEVELS OF THE ECONOMICALLY
 ACTIVE POPULATION, 1950-1981

Level -----	1950 -----	1964 -----	1973 -----	1981 -----
Without Instruction	72.0%	65.3%	55.5%	44.0%
Some Primary Education	29.5%	30.8%	38.5%	43.6%
Some Secondary Education	1.9%	3.4%	5.3%	9.5%
Higher Education	0.2%	0.5%	0.7%	2.7%

SOURCE: World Bank estimates based on census data

TABLE G-2
 GUATEMALA: EDUCATIONAL INDICATORS AT THE
 PRE-PRIMARY AND PRIMARY LEVELS, 1983

Levels/Indicators -----	Urban		Rural		Total Public & Private -----
	Public	Private	Public	Private	
Pre-primary:					
Students per teacher	39	22	40	28	29
Primary:					
Students per teacher	36	23	40	34	36
Overaged students	58%	26%	75%	71%	64%
Incomplete schooling	5%	18%	51%	76%	46%
Percent of teachers without training	3%	6%	10%	50%	9%

SOURCE: USIPE, Centro de Procesamiento de Datos, 1983 and
 World Bank, 1984

TABLE G-3
GUATEMALA: GOVERNMENT BUDGETARY ALLOCATIONS*
FOR EDUCATION, 1975-1982

Year	Allocations (millions of quetzales)			Percentages	
	Current Expenditures	Capital Expenditures	Total	of Total Government Budget	of GDP
1975	77.1	7.7	84.8	16.0%	1.6%
1976	82.5	7.4	89.9	13.0%	1.7%
1977	86.2	11.5	97.7	13.0%	1.5%
1978	96.3	19.3	115.6	13.0%	1.6%
1979	119.8	33.8	153.6	15.0%	1.9%
1980	130.5	39.4	169.9	17.0%	2.3%
1981	129.6	27.0	156.6	15.0%	2.3%
1982	123.6	23.9	147.5	16.0%	2.1%

NOTE: *--Includes expenditures of the Ministries of Education, Finance, Agriculture, Defense and Governance; the Technical Institute for Training and Productivity (INTECAP); and the School Construction Unit (UCEE) in the Ministry of Communications and Public Works.

SOURCE: Central government budget, various years, and World Bank, 1984.

TABLE G-4
GUATEMALA: EDUCATIONAL ENROLLMENT RATES, 1984

Level	Enrollments (in 000s)	Gross Enrollment Rate	Net Enrollment Rate*	Completion Rate
Preprimary	25.0	10.0%	10.0%	--
Primary	953.0	78.0%	63.0%	37.5%
Secondary	188.0	18.0%	15.0%	59.1%
Higher	57.0	8.0%	--	--

NOTE: *--Corresponds to age group

SOURCE: World Bank, 1984

TABLE G-5
 GUATEMALA: REPETITION, DROPOUT AND
 PROMOTION RATES IN GRADES 1-4, 1979-1982

Grades	Repetition rates			Dropout rates			Promotion rates		
	1979	1980	1982	1979	1980	1982	1979	1980	1982
1	51.6%	54.7%	49.4%	6.0%	4.0%	5.2%	42.4%	41.3%	45.4%
2	29.4%	34.9%	31.4%	12.6%	7.6%	7.7%	58.0%	57.6%	60.9%
3	30.2%	34.2%	28.2%	9.2%	4.2%	10.3%	60.6%	61.6%	61.5%
4	25.7%	25.6%	24.8%	6.8%	2.4%	12.8%	67.5%	72.0%	62.4%
5	N.A.	N.A.	28.1%	N.A.	N.A.	14.2%	N.A.	N.A.	57.7%
6	N.A.	N.A.	35.9%	N.A.	N.A.	11.1%	N.A.	N.A.	53.0%

SOURCE: World Bank estimates from data by age and grades in 1979, 1980, 1981, 1982 and 1983 from USIPE, Centro de Procesamiento de Datos.

ANNEX H
U.S. FOOD AID

TABLE H-1
 GUATEMALA: AMOUNTS AND VALUES OF COMMODITIES
 IMPORTED UNDER PL-480, TITLE I, 1984-1987

Commodities	1984		1985		1986		1987 (3)	
	metric tons	thousands of dollars						
Wheat	---	---	56,000	9,000	89,000	10,400	95,000	14,000
Vegetable Oil	8,000	7,000	6,000	5,000	12,000	5,000	12,000	5,300
Tallow	---	---	10,400	5,600	---	---	---	---
Corn	---	---	---	---	12,000	1,000	35,000	3,500
Rice	---	---	---	---	---	---	5,000	1,200
TOTAL	8,000	7,000	72,400	19,600 (1)	113,000	16,400 (2)	147,000	24,000

NOTES: (1) The private sector imported only \$5.6 million of tallow out of \$7.0 available under the agreement between the U.S. and Guatemalan governments, thereby reducing the total value of commodity imports in FY1985 to \$19.6 million from \$21.0 million.

(2) Although the Guatemalan government expressed a desire to import \$2.6 million of rice, it later decided not to use this availability, thereby reducing the total value of commodity imports in FY1986 to \$16.4 million from \$19.0 million.

(3) Figures represent Guatemalan government requests for FY1987.

SOURCE: Report No. 22 (January 1987), Office of Rural Development, USAID

TABLE H-2
 GUATEMALA: DESIGNATED USE OF PROCEEDS, BY ACTIVITIES AND AMOUNTS,
 FROM PL-480 TITLE I CONCESSIONAL SALES, 1984-1986
 (amounts in thousands of dollars)

Activity -----	1984		1985		1986	
	Amount -----	Percent -----	Amount -----	Percent -----	Amount -----	Percent -----
Soil Conservation/ Small-Scale Irrigation	3,000	42.9%	---	---	---	---
Access Roads	1,500	21.4%	---	---	---	---
Mediterranean Fruit Fly Eradication	1,100	15.7%	1,900	9.7%	800	4.9%
Screwworm Control	800	11.4%	---	---	---	---
Africanized Bee Control	600	8.6%	---	---	---	---
Rural Development Projects with National Reconstruction Committee	---	---	2,800	14.3%	---	---
Counterpart Funds for Ongoing AID Projects	---	---	9,300	47.4%	---	---
National Agricultural Development Bank Strengthening	---	---	5,600	28.6%	---	---
Creation of Program Coordination Unit	---	---	---	---	100	0.6%
Support for Guatemalan Gov't Budgetary Investments	---	---	---	---	15,500	94.5%
TOTAL	7,000	100.0%	19,600 (1)	100.0%	16,400 (1)	100.0%

NOTE: (1) Adjusted for lower-than-agreed-upon commodity imports.

SOURCE: Report No. 22 (January 1987), Office of Rural Development, USAID

TABLE H-3
 GUATEMALA: ACTUAL LOCAL CURRENCY AMOUNTS ALLOCATED
 UNDER 1984 PL-480 TITLE I AGREEMENT
 (thousands of quetzales)
 (1)

Activity -----	Earmarked -----	Budgeted in 1986 -----	Spent -----	Balance -----
Soil Conservation/ Small-Scale Irrigation: Extension Activities (DIGESA)	218	183	101	117
Credit (BANDESA)	2,165	904	---	2,165
Survey Information (USPADA)	333	333	---	333
Animal/Plant Protection: Mediterranean Fruit Fly	1,011	1,011	760	251
Screwworm	695	503	49	646
Africanized Bee	568	568	57	511
Access Roads	1,327	1,146	610	717
Budgetary Reserve (2)	---	286	---	---
CUP of 5%	332	---	332	---
TOTAL	6,649 (3)	4,934	1,909	4,740

NOTES: (1) Exchange rate: Q1.00 = U.S. \$1.00

(2) To be subsequently distributed to other line items as needed

(3) Total reflects Currency Use Payment of 5% of the value of imported commodities (\$350,000) from the Guatemalan government to the U.S.

SOURCE: Report No. 22 (January 1987), Office of Rural Development, USAID

TABLE H-4
 GUATEMALA: ACTUAL LOCAL CURRENCY AMOUNTS ALLOCATED
 UNDER 1985 PL-480 TITLE I AGREEMENT
 (thousands of quetzales)
 (1)

Activity -----	Earmarked -----	Budgeted in 1986 -----	Spent -----	Balance -----
Rural Development Projects with National Reconstruction Committee:				
Community Development	1,265	1,125	69	1,196
Private Voluntary Organizations	1,265	1,125	57	1,208
Strengthening BANDESA:				
Capitalization	4,215	4,215	4,215	---
Savings Mobilization	421	421	---	421
Technical Assistance (IDB)	421	421	---	421
Mediterranean Fruit Fly Eradication	1,686	750	501	1,185
Counterpart for AID Projects:				
#520-0274 (DIGESA)	70	70	16	54
#520-0251 (MinSalud)	879	879	535	344
#520-0248 (INDE)	2,000	2,000	137	1,863
#520-0274 (Caminos)	568	568	169	399
#520-0332 (Caminos)	600	600	---	600
Balance to be assigned, 1987	4,313	---	---	4,313
Budgetary Reserve (2)	---	565	---	---
CUP of 5%	932	---	932	---
TOTAL	18,635	12,739	6,631	12,004
	(3)			

NOTES: (1) Exchange rate: Q1.00 = U.S. \$1.00

(2) To be subsequently distributed to other line items as needed

(3) After initial payment of \$980,000

SOURCE: Report No. 22 (January 1987), Office of Rural Development, USAID

TABLE H-5
 GUATEMALA: COMMODITY IMPORTS AND NUMBER OF BENEFICIARIES
 UNDER PL-480 TITLE II ASSISTANCE, 1984 AND 1985

Commodity -----	FY1984		FY1985		2-Year Total -----
	CARE ----	CRS ---	CARE ----	CRS ---	
Soy-fortified bulgar	3,405	514	4,067	405	8,391
Cornmeal	3,420	---	4,323	---	7,743
Nonfat dry milk	3,178	720	4,063	454	8,415
Vegetable oil	1,091	267	1,314	273	2,945
Whole grain corn	---	622	374	768	1,764
Wheat flour	---	497	---	437	934
TOTAL	11,094	2,620	14,141	2,337	30,192

NOTE: *Commodities imported under a 1986 Emergency
 Food-for-work program directed by CARE included
 1,200 metric tons of corn, 1,800 of rice and 600 of beans.

Program -----	Number of Beneficiaries in FY1985 -----		
	CARE ----	CRS ---	Totals -----
Maternal-child health	224,000	63,900	287,900
Other child feeding	16,500	3,600	20,100
Food-for-work	8,600	12,000	20,600
TOTAL	249,100	79,500	328,600

SOURCE: Report No. 22 (January 1987), Office of Rural Development, USAID

TABLE H-6
 GUATEMALA: DOMESTIC FOOD PRODUCTION, IMPORT REQUIREMENTS,
 AND FOOD AID, 1982-1986
 (tons)

Category/Year -----	Corn ----	Rice ----	Beans -----	Wheat -----	Total -----
1982 ----					
Net Domestic Production--Milled	865,169	25,112	74,074	(82,496)	881,859
Net Change in Total Stocks--Milled	6,379	(206)	(1,905)	(21,757)	(17,489)
Official Commercial Food Imports--Milled	3,151	244	10	71,872	75,277
Food Aid--Milled	5,911	506	2,772	5,200	14,389
1983 ----					
Net Domestic Production--Milled	943,708	26,075	91,949	(74,992)	986,740
Net Change in Total Stocks--Milled	30,432	6	13,095	12,712	56,245
Official Commercial Food Imports--Milled	3,742	177	18	82,591	86,530
Food Aid--Milled	392	506	209	1,300	2,407
1984 ----					
Net Domestic Production--Milled	979,173	27,335	82,880	(91,138)	998,250
Net Change in Total Stocks--Milled	66,059	160	(151)	169	66,237
Official Commercial Food Imports--Milled	5,134	556	14	91,779	97,483
Food Aid--Milled	6,117	506	2,864	6,900	16,387
1985 ----					
Net Domestic Production--Milled	881,362	27,916	108,000	(98,897)	918,381
Net Change in Total Stocks--Milled	(62,409)	102	(920)	(1,288)	(64,515)
Official Commercial Food Imports--Milled	14,606	740	543	100,244	116,133
Food Aid--Milled	7,679	506	5,678	9,200	23,063
1986 ----					
Net Domestic Production--Milled	873,131	28,879	113,490	(93,576)	921,994
Net Change in Total Stocks--Milled	11,309	(102)	(4,130)	2,122	9,199
Official Commercial Food Imports--Milled	24,353	0	15	101,73	125,741
Food Aid--Milled	4,775	506	1,428	4,200	10,909

SOURCE: USAID/Guatemala Information Memorandum, April 1987

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