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Archivos Latinoamericanos de Nutrición (ALAN) es editado como órgano oficial de la Sociedad Latinoamericana de Nutrición (SLAN), para la divulgación de conocimientos en el campo de la alimentación y de la nutrición principalmente en el Hemisferio Americano. En sus páginas se escogen manuscritos en español, inglés, portugués y francés, tanto de miembros como de aquéllos que no sean miembros de la Sociedad, y de cualquiera de las siguientes categorías: 1. Trabajos generales (revisiones científicas críticas); 2. Trabajos de investigación (originales); 3. Trabajos de nutrición aplicada (resultados analíticos de programas de intervención y discusión de recomendaciones de aplicación práctica),y 4. Cartas al editor (comentarios cortos de interés general o relacionados con resultados o conceptos científicos publicados previamente en *Archivos*).

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**ARCHIVOS
LATINOAMERICANOS
DE NUTRICION**
(Continuación de Archivos Venezolanos de Nutrición)

**NUTRITIONAL CHALLENGES IN URBAN AREAS IN
LATIN AMERICA.**

A BIOMEDICAL AND SOCIAL SCIENCES APPROACH

**Claudia P. Sánchez-Castillo, Boris Graizbord, Héctor Bourges,
Jóse Romero and Rainer Gross**

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This publication is an English version of the invited papers and academic activities carried out during the II Latin American Workshop on Nutrition and Health in Urban Areas which took place in Mexico City during the week of March 2nd to the 6th, 1992 at the Centro Interamericano de Estudios sobre la Seguridad Social excellent facilities. This was not an isolated event, but part of a series of activities and meetings of experts and specialists in many disciplines that the German Agency for Technical Cooperation (GTZ) has sponsored in recent years. It follows directly from the I Workshop in Vina del Mar, Chile which took place in 1988 in which it was recommended to give the utmost attention to the problems and challenges that the formulation and implementation of nutrition and health policies poses in the Latin American urban areas. Thus great importance was given in this II Workshop to the prevailing nutritional conditions in the larger capital cities of this region as well as to the close relationship between the bio-medical and the social sciences.

The main purposes of the Workshop itself were to stimulate nutrition intervention projects, and research on their potential impact upon the urban and metropolitan areas in Latin America. The Workshop intended to promote a deeper awareness in the participants as to the availability of information on urban nutrition programs, and thus produce specific proposals for action in those areas, within a multi-disciplinary approach.

The organization of such an international meeting demands the full collaboration and support of multiple institutions and individuals. Ours was no exception to this. The reader will appreciate this fact as he or she goes through the contents of this issue. Several laboratories provided funding for necessary activities during the conference: Abbott Laboratories de México S.A. de C.V., Baxter S.A. de C.V., Compañía Nestlé S.A. de C.V., Mead Johnson de México S.A. de C.V. and Wyeth S.A. de C.V. Fundación Herdez A.C., Kelloggs S.A. de C.V. and Sociocultur also contributed with funds. Here we are particularly eager to acknowledge those whose names do not appear as authors or participants, but who nevertheless had a crucial role during the Workshop and also during the preparation of this issue. First we would like to express our deep gratitude to Francisco Xavier Vasquez and Gloria Rojas Eslava, who went through all the material and did the secretarial work with dedication and cheerfulness. The staff at the Instituto Nacional de la Nutrición Salvador Zubirán, and El Colegio de México gave their unconditional support during the organization and development of the Workshop: María Teresa García, Moisés Andrade Espinosa, Clara Resendiz Vite, Gloria Valadez, Estela Esquivel, Isabel Avila, Jaime Vargas, Lourdes Morales García, Alberto Menchaca and Gloria Lemus. Also, our thanks to the Department for Health Education whereby the data gathering, formatting, designing and printing took place, with special thanks to: Concepción Nolasco, Karina Salas, Raúl Espino, Felipe Osornio, Julian Cedillo, Monica Santos and Dr. Mariano García Viveros. Generous beyond words were Eduardo Maldonado from Cine Testimonio S.A., who donated the filming of the whole event, and kindly offered the exhibition of two of his films, and Helen Escobedo -environmental sculptor- who donated her work related to the urban environmental-nutritional topic, exhibited during the Workshop.

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The Editors

INTRODUCTION: Nutrition and Health in Urban Areas

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Latin America, like other parts of the world, is becoming urbanized at an ever greater rate. The population of some countries and the problems they face are extremely city-based. The diagnoses and recommendations made in the papers brought together in the area of health and nutrition (Part I), as well as the relevant aspects of the social science papers relating to the nutritional problems of metropolitan populations (Part II) make implicit reference to the importance of the seemingly irreversible problem of urban growth. However, even in recent times, human groups with high urbanization levels and highly complex technological advances which seem to separate them from their environment and drastically reduce the "friction" of distance, have been conditioned by and subject to their surrounding environment. Of course, this relationship cannot be seen in a simple or direct way; it is affected by societal history and evolution in terms of forms of economic and political organization. Acknowledging these facts and biosocial interdependence inspired the II Latin American Workshop on Nutrition and Health in Urban Areas.

In this publication a group of papers that were presented by express invitation at this workshop is brought together. More than 200 participants were at the event, sharing the round tables and using the auditorium of the Inter-American Center for Social Security Studies (CIESS) in the week from the 2nd to the 6th of March, 1992, in Mexico City.

In addition, this issue includes (Part III) the titles and an overall analysis of 71 registered posters to the event, a report of the features, aims and role played by the Mexican and international foundations that attended the workshop, a synthesis of the result obtained in the round tables on the improvement of methodology in the preparation of projects and a description of the Zopp method that steered the papers. Finally, a directory of participants is included.

The workshop papers clearly show that there are numerous points where the attempts of biomedical and nutritional as well as social scientists to explain and overcome nutrition and health problems in urban areas come together and overlap. One of the most important, we feel, is social equity as a precondition for the solving of food and general well-being problems affecting the urban populations of Latin America. Another is related to the need to refer the phenomena analyzed by different methods, though often with similar techniques, to particular demographic, economic and political situations and dynamics. Thus, although generalizations may be made and levels of reference on nutrition and health established, these cannot be maintained as anything other than what they really are. Each place, region or country needs adjustments in international norms and demands an operating definition of the terms in which the social needs and the states of nutrition and health of their population may be described and explained. This was highlighted by the social scientists and biomedical science specialists whose task it was to report on the nutritional and health situation in some of the large Latin American cities.

One more aspect that in our opinion was also clearly stated -related to the above and despite divergencies more of a procedural than a fundamental nature- is the need to include in every intervention model criteria ensuring greater efficiency and efficacy. Both concepts are discussed in planning theory: on the one hand, integral solutions and, on the other, discriminatory and selective criteria. The former refers, in our case, to the fact that although nutrition and health problems are not the same in rural as in urban areas,

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their solution cannot be exclusive to either of these environments. Besides, when looking at them, sociodemographic, economic, political and cultural aspects that characterize the population must be considered; these will determine or at least condition the expected results. The latter emphasizes the need to abandon policy proposals of a universal nature which implicitly or explicitly consider populations and places as homogeneous and which try to reduce or eliminate geographic and social differences.

To achieve consistency and coherence in actions, the importance was stated of putting into perspective and crossing over these considerations in any action model or strategy. Different groups, children, women, old people, etc., must be taken into consideration and these, in turn, must be defined in social terms according to income and occupation but also in geographical terms in cities (large, medium or small and within these in the central or old zones and the suburban or new ones) or the countryside (and there are differences here between traditional and isolated outlying regions, or integrated and modern areas).

However, there are other aspects: the factors involved are not complete with demographical variables alone. It must include sociopolitical variables that, though implicit in the former, must be specified and made operational. In addition, the information matrix is insufficient on one single plane; the temporality of the phenomena is also important since places, regions and communities are susceptible to outside influence and continuous change.

Below, we briefly highlight what in our opinion are the main conclusions to be drawn from the papers presented at the workshop and which we feel could be used as models for an analytical model of the nutritional and health situation of the urban populations of Latin America. We feel that all the papers have already been widely and brilliantly discussed during the workshop by all participants.

In the first article, **O'Donnell** clearly points out these relationships by presenting the problems and causes of mortality and morbidity in the context of Argentinian urbanization. Fact: urbanization is a seemingly irreversible process and, though it has brought benefits, it has also caused social costs which are expressed, among other things, in the population's health and food levels. Fact: almost all food consumed by the population is bought on the commercial circuit and is exposed to market fluctuations. The ever more critical economic situation in the years of what is known as the lost decade is expressed in the family shopping basket that must be bought with an ever smaller wage. Thus, nutrition and health studies in Argentina, but also in the other countries of the region, point to a deterioration and a more or less critical situation among the working-class population of the large cities: iron deficiency among under two-year olds; low consumption of ascorbic acid among the infant population; insufficient calcium consumption. And although food deficiency does not appear to be common in the urban environment, diseases resulting from eating habits or a sedentary lifestyle are ever more prominent in morbidity and mortality figures thanks to causes that, as time goes by, make the urban populations of our countries more like those of western industrialized and developed nations.

Almost all writers agree with **O'Donnell** on the need to pay attention to the prevention of cardiovascular and degenerative diseases in general. This goes back to considering the quality of life and, therefore, environmental, poverty and educational problems. Almost all agree, these will be the major themes of the coming years. Specialists, above all those who work directly in the health sector, call upon international agencies (IA) and non-governmental organizations (NGO) to refocus their vision and priorities on this urban reality in Latin America -without of course neglecting rural communities where extreme poverty persists. In the interior of these countries, actions must include the different sectors: health, education, economic, urban, etc. development and incorporate social and human science research projects to ensure their effectiveness.

Atalah, in his analysis of the situation in Santiago de Chile, discovers paradoxes: on the one hand, nutritional deficiency problems in the child population (under six) have fallen, whilst there is inadequate access to food in wide sectors of the population which shows itself, among other things, in low physical development among the school-age population, as well as in iron-deficiency anaemia which, this specialist says, is a public health problem. Likewise, whereas malnutrition is prevalent in older adults (over 65), as in large cities the world over, predominant problems in adults are nutritional diseases caused by excesses -making them susceptible to chronic and degenerative diseases.

It should be stated that all the participating specialists acknowledge the major role played by child breast-feeding programs. For these programs and in the prevention of adult diseases or malnutrition among the aged, education is a fundamental ingredient in any economic and social policy for the development of human capital and equity. To put it bluntly, this is a development problem. However, most agree that there are economic, administrative and political limitations to an integrated solution to this problem.

Perhaps it is the mega cities of Brazil that show most overwhelmingly the problems of urban poverty. **Vanucchi and Oliveira** refer to the huge population increases in the favelas in the outlying districts of the metropolitan regions. The annual growth rate is reaching extremely high levels which, if maintained for long periods, will have critical consequences for urban equipping, rising social tension, crime rates and a significant worsening in health and nutritional systems. The differences between social groups and between urban areas grow to the detriment of the majorities; food shortages and the resulting morbidity and mortality rates are

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increasingly affecting the child population. In addition to these problems, with socioeconomic features, are others of supply: deficient food keeping and storage, inadequate hygiene standards and unsuitable industrial processes which often threaten the health of urban inhabitants.

In the case of Venezuela, **Lara** points to a return to situations overcome years ago. They are now, however, fundamentally different because of changes in the geographical location of the population. Thus, while the lack of availability of food acts today as a conditioning factor in malnutrition due to the lower buying power of growing sectors of the mainly urban population, thirty years ago, the lack of productive capacity of the rural population was the fundamental determinant. Migration and migrants to the cities have put pressure on health systems and on primitive or traditional supply systems. At the same time, local, regional or national cooking traditions have been "colonized" by marketing and supply systems which reflect the immigrants culture. This is clearly seen in the cultural patterns portrayed in the mass media.

Costa Rica, **Murillo** informs, U.C. has not been spared the phenomenon of rapid population growth and concentration. Now 60% of the population is found in the mainly urban central valley. However, this writer states that one of the main public health worries is the high rate of endemic parasitic infection with deficiencies in physical infrastructure (water, drainage) and public services (mainly garbage collection). Therefore, this specialist suggests focussed and intense intervention to improve the well-being of the urban "marginalized" population of her country.

Plasencia and Grillo describe the advances made in nutrition and in health indicators in Cuba faced with a siege situation due to the American blockade. Unlike other Latin American countries, they say, in Cuba "the vast majority of the population receive 72% of energy and protein input by means of daily rations that guarantee society will be fed". However, and despite the fact that "in the last thirty years diet has been constantly improved", food habits survive that lead to nutritional problems whose effects can be seen in the causes of death. In addition, some food taboos have been maintained among certain population groups that prohibit the consumption of some foodstuffs. This affects the nutritional condition of children while sugar, salt and saturated fat consumption rises. Finally, in Cuba, the "lifestyle" has an impact on the population's health and nutrition which, as in other countries, must be improved through educational and public awareness programs.

Mendoza, in the Guatemalan economic and cultural context, describes the shortcomings in health and nutrition of the population of his country. He says that in the infant population the main causes of mortality and morbidity -as is characteristic of "poor" regions- are digestive and respiratory infections. And, although there is little information as to the nutritional situation among young adults and the whole middle and high socioeconomic strata population, it may be said that there are social and geographic differences: "the inhabitants of Guatemala City seem to be in a better nutritional state when compared with the rural areas of the region and the country".

For his part, **Bourges** emphasizes the fact that of all the eight cities analyzed, Mexico City is the oldest and the one that has grown most in the recent past. In its almost 700 year history, it has suffered from overpopulation on several occasions, the current case being due to a process of accelerated urbanization resulting from rural migration to the city. This, says **Bourges**, leads to food habit changes with losses in fiber and starch from the diet and increases in the consumption of sodium, saccharine, cholesterol and total and saturated fatty acids, encouraging the chronic-degenerative diseases which are ever more frequent in our context.

Thus in all countries except Cuba, the level of development (urbanization and industrialization) defines the health and nutrition problems as well as the eating patterns and habits of the populations. The importance of the urban problems is also clearly linked with sectorial (health, education) and economic policies.

The papers the social scientists presented invite us to reflect on the different intervention possibilities and the conditions or prerequisites for success. They are in depth diagnoses of the situation showing the causes and those policy elements that should be considered in development strategies and actions aimed at improving the health and nutritional conditions, with a change in the eating habits of the urban populations.

In a paper useful as a reference work on the social focus of health and nutrition problems, **Hewitt de Alcantara** reminds us that in the last decade the societies of Latin American countries felt the impact of a deep recession accompanied by macroeconomic restructuring policies (elimination of subsidies for producers and consumers, among other measures) and institutional restructuring (trade opening and privatization) that overwhelmingly affected the life of the entire population. The writer states that not all urban social groups underwent the change in the same way, so there were changes with differential access to food.

General indicators (such as changes in consumer prices, the drop in real wages, the proportion of income spent on food consumption, etc.), whilst allowing some understanding of the problem, hide circumstances particular to different groups -some are more vulnerable than others- and specific types of responses to the crisis.

With this in mind, the writer defines an urban “food system” as the totality of family and community strategies conditioned by a network of economic, social and political relationships. These link the agricultural producer to the urban or rural consumer. Any action, concerted or otherwise, deliberate or not, on the part of any of the social agents in their role as producers or consumers would therefore affect the options of those making up this system. It is obvious, says the writer, that the State is a central element in the macrosocial context that conditions food options, especially of the most vulnerable groups. Nevertheless, their actions are not free of inconsistencies and distributional dilemmas which have led to the setting up of civil organizations to mobilize the groups affected. For **Hewitt de Alcantara** it is through these actions that the local groups, whose income has been affected to a greater or lesser degree, have overcome with supply strategies, the crisis of the eighties.

The problem, she finally says, is that the population has few options to: “independently ensure an adequate family income, organize in mutual aid groups [...] or depend on charity”. Meanwhile, globalization and the need for economic restructuring “establish real limits on the role the public sector can assume in the food system of Latin American countries”.

The future does not appear to be bright. If the population growth rate remains stable for the next thirty years, we will have, according to **Lunven**, more than 3,400 billion people living in cities -more than 50% of the world population. The phenomenon will bring seemingly insurmountable problems for developing countries, i.e those with the greatest growth rates. Neither the necessary means nor resources exist to face these problems; agricultural production is affected by the imposition of a food model that rejects traditional food; cities take up agricultural land, water is extracted from distant river systems, other natural products or resources are used including forests, all of which help to destroy the natural environment and, as we have seen, the planet’s ecological conditions.

Lunven’s proposal concerns itself with the design of realistic policies. He refers to FAO missions in various countries in Africa, Asia and Latin America as a background, presenting an interesting synthesis of the problems, intervention strategies and their limitations. Based on this, he concludes that although an adequate urban infrastructure must be created, fiscal and monetary measures must also be taken; and the population must be educated and personnel trained. It is essential to revitalize the countryside.

Christen, for his part, makes concrete reference to an example of intervention in Cucuta, Colombia, on the border with Venezuela. When designed, the aim of the project was to initiate a process that would establish a situation of self-sustained development in the community. The following strategy was contemplated: the sale, at a very low price, of a food basket; the identification of families who could be paid with a basket for some kind of work to be carried out by a family member and thirdly, on a community basis, the creation of a rotational credit fund, made up of the income from the sale of this food, to be used to support the implementation of small productive projects (microfirms), and to purchase materials for construction and for social infrastructure works.

The results were successful. **Christen** reports that at the end of the project, more than 170 microfirms were running. Thus, not only were families made self-sufficient but also productive. In fact, the writer says, paradoxically the emergency project implemented by the World Food Program (WFP) in Cucuta “really began to be a development project the instant the period of emergency aid from the WFP as such ended”.

Another form of intervention, besides that by international agencies, is that carried out by non-profit (NPO) or non-governmental organizations (NGO). With respect to these organizations, **Reiner** describes their scope and form and why they are important as well as their impact on the solution to nutrition problems in urban areas. He compares them with other organizations and considers what can be expected of their participation and how this can be specified. Finally, to end his brief article, a consideration, based on concrete experiences, is made of the opportunities for NPOs working with the State on specific projects and the possible consequences of such collaboration.

Any analysis of poverty must be linked to if not based on the analysis of food poverty in particular. **Boltvinik** refers to a conceptual framework for integrating problems such as malnutrition, underfeeding and food needs. To do this he attempts a theoretical integration between the concept of entitlements developed by Sen (1981) in his book on Poverty and Famines, ways of access routes for providing consumer satisfaction and sources of well-being at home.

The analysis of the evolution and degrees of poverty must be our countries over the last two decades must be complemented with an analysis of the sociodemographic characteristics of homes and the association between the macroeconomic process and the rates of food poverty. **Boltvinik** makes reference to his own work where he translates these concepts into empirical variables. It is not a question -he tells us- of referring to food poverty in terms of food quantity since we must “distinguish between human food needs and animal food needs and hence the distinction between food poverty and deficient nutrition” (our underlining). It should equally be stated that food needs in the urban environment are satisfied mainly though not exclusively through commercial sources. This leads to the conclusion that shortages in this source of well-being are explained by the income of families or homes. He states

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that this concept of entitlement, is, "the ability [rights] of the persons to control food [and other goods] through the legal means available in a society. Perhaps this means include ancestral customs not necessarily institutionalized in law. The production, distribution or marketing of food needs particular attention...". Here, of course, family customs may be included in which members have or assign themselves the right to have priority over other family members where food is concerned. In other words, in the limiting conditions of extreme poverty and as part of a survival strategy, the father or male members, for example, have a right to the best part, leaving the mother and other female members of the family last in the pecking order or to go without. And this is where Boltvinik's point about linking the sociodemographic characteristics of the population in the analysis becomes extremely important.

Ultimately, the importance of these macrosocial and anthropological considerations in the measurement of poverty cannot be taken lightly.

Hernandez Laos presents us with a long-term project model "to eradicate poverty in Mexico" in which the possible conclusions and interpretation of the results depend on the correct measuring of the phenomenon. He makes reference to several definitions of poverty as used by different bodies that have tried to measure it, such as the concept of basic needs and poverty line. All start with the ability of households to satisfy essential needs. Hernandez Laos emphasizes the difference between insufficiency of income in households and social inequalities in income distribution, as poverty determinants and, therefore, of the acquisition of food goods.

Based on this distinction the writer proposes three prospective long-term scenarios (the year 2007) which could eliminate poverty from Mexico. The difference between them lies precisely in the way of combining economic growth -which could have an influence on family income- and the distribution of household incomes or equity. This is all in the context of Mexican trade opening up and the imminent Free Trade Agreement (FTA) that would have a direct effect on the production of basic goods and a certain effect also on food consumption guidelines, especially in the urban population. In accordance with his estimates, in the period 1963 to 1984, the rates of extreme poverty in urban and rural areas of the country fell systematically thanks to the reduction in extreme poverty in urban areas. These made up an ever greater percentage of the national population. Unlike this trend, extreme poverty in rural areas grew in the sixties, fell in the seventies and grew once again in the eighties to include a little more than half of the rural population of the country.

However, with a transfer of population from the countryside to the cities over the last three decades, the absolute importance of urban poverty increased, to account for -in the first half of the eighties- 60% of the country's total population (our underlining). Hence, it may be concluded that in absolute terms poverty is currently a mainly urban phenomenon, although in absolute numbers the poor in the countryside are even poorer.

In their paper, Jusidman and Manjarrez refer to various aspects of the food consumption of Mexico City's urban poor. They describe for us the recent experience of public intervention through the establishment of organizations and a framework of legislation and rules to attack food problems in Mexico. These changes occurred against a background of crisis and economic recession which, in the nineteen eighties, affected the low-income population, both in wages themselves and in consumption (due to inflationary effects).

The paper makes explicit reference to the studies carried out by the National Consumer Affairs Institute (INCO) to understand the impact of the crisis on the food levels, structures and habits of Mexico City's poor population. In addition the type of interventions carried out by the INCO are noted. They emphasize the importance of disseminating information that is timely and correct but, moreover, that responds selectively to different needs. In effect -they say- "the population shows a great appreciation for scientifically founded information and advice on food", since the matter worries and preoccupies most people. However, the food and nutrition advice and education programs and actions, on private commercial media, are not optimum since they are not differentiated and are portrayed with attributes which are often alien to a community that prides itself on its differences and plurality of opinions and needs.

In their paper on Mexico's demographic situation and the progress made in the National Population Program, the National Population Council (CONAPO)'s agents point to, among others, interurban inequalities, emphasizing marginalization, poverty and malnutrition as the right indicators for measuring them. They state that in accordance with recent INCO information, in 1989 the lowest-income urban sectors assigned 60 percent of monthly wages to the purchase of food, whereas the best off only spent 25% of their income in this way. On the other hand, whereas subsidies for basic products fell, the "basic food basket" went up in price by an annual 22 percent.

Faced with this deterioration, they inform us that the State has cut back its support in food improvement as far as the numbers receiving benefits are concerned. Thus, for example, 232 rations per capita were provided in 1984 to 865,000 school pupils, while in 1990 figures show that 4,624,000 people were helped but with only 25 rations per capita, a dramatic reduction of 58 percent from

one year to the next. Hence Urbina, Sandoval and Pamplona insist that there is an emergency situation among the groups previously receiving aid who are now vulnerable, including both adults and children.

According to the follow-up survey carried out by the INCO, Mexico City's low-income population reduced its expenditure on basic foods by approximately 30 percent, while it increased purchases of products made from refined flour, sugars and alcoholic drinks in line with what the Cuban specialists said about their country. In this context, and with 40 percent of the 30,000,000 Mexicans living below the poverty line in cities, feeding the urban (and rural in extreme poverty *vid. supra*) population becomes a strategic matter considered from the point of view of food production. Urbina *et al* state that the 1990-1994 National Food Program (PNA) recognizes it as such. The great challenge, as they say, is to find in the strategies of the different sectors and programs those common points that will encourage their collaboration in joint and integrated actions for the good of the weakest population whose family income does not allow them to cover their basic food needs.

The politicians themselves recognize the importance of sectorial and institutional measures. The Mexican Federal District Council member **Sodi de la Tijera** clearly states in his overall view the limits characterizing the mechanisms that control the wholesale and retail food trade in Mexico City. There must be greater competition in the wholesale market and, in general, action must be taken to integrally modernize the city's retail market. In the case of the former, **Sodi de la Tijera** says that there is a high concentration of a few companies not only in the distribution of products but right from their production. Here there are single production-transportation-storage structures and large-scale selling that do not allow for intermediates. In fact, he says, there is a hierarchy of wholesalers facing the small producers who, having no access to credits and lacking resources, technology, storage facilities, etc. have no other option than to hand over their products to the former to have them sell in gross wholesale terms to the bulk buyers.

As far as the retail trade system is concerned, **Sodi de la Tijera** distinguishes between that serving the needs of the high-income groups that "compete advantageously with the most modern stores in the world" and that network of popular small stores that sell to Mexico City's poor classes. This subsystem includes sidewalk stalls, street markets, "corner stores", etc. in which one may not expect to find health controls or advanced food handling technologies. And although these last examples sell more cheaply or in "very small" or "convenient" portions, as the writer puts it, they sell "'third-class' goods at 'second-class' prices", increasing profits for the shopkeepers while endangering the health of the customers.

In the context of privatization (for example, the national food supply chain CONASUPO) it is not clear if a market solution such as that proposed by **Sodi de la Tijera** would avoid greater concentration or would improve health control and protect consumer interests. He himself emphasizes the fact that greater government participation is needed through overall programs including production, obtaining the best quality products, investing in basic infrastructure (water) and training in hygienic food handling, from the producer to the final consumer. This will be -we feel- just the beginning in a modernization project that will increase efficiency but reduce inequity in Mexico.

For our part, we are convinced of the immediate need to research and go further into these aspects in order to support intervention models and policies to solve the nutrition and health problems of the urban majorities that preoccupy us all. The synthesis of the results of the working groups applying the Zopp method, which we include at the end of this issue, together with the titles of the summaries of the posters and their global analysis presented by Gross, also make this interest obvious.

The effort to bring together the opinions of organizations is an example of how important it is for everybody to take part in the discussions and projects, since the solutions are not only in the hands of researchers. Cooperation of the State and non-governmental organizations, invited to the workshop, is also necessary.

With the complete publication of the papers, the aims of the sponsors and organizers of this event have been established. If the message inspired by holding the II Latin American Workshop on Nutrition and Health in Urban Areas managed to enter the hearts and minds of those who attended or are assimilated by those who will read this publication, small we shall feel fully satisfied at the effort made by those who supported us, including those who gave it their financial backing.

PART I

**NUTRITION IN LARGE CITIES OF
LATIN AMERICA**

THE NUTRITIONAL SITUATION IN THE METROPOLITAN AREAS OF ARGENTINA

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Study Centre for Child Nutrition (CESNI)*.

SUMMARY Argentina is possibly the Latinamerican country with the highest proportion of urban population (86%; one of every two Argentinians lives in cities over 500,000 inhabitants). It was the first country in the region to experience rapid urbanisation and also the first in which this process has slowed down. From 1880, Buenos Aires received an intense stream of European migrants which 10 years later outnumbered the native population; a second peak of migration occurred in 1945 when rural dwellers were attracted by the economic boom. At the present time 36% of homes are unable to satisfy their basic needs but a few years ago the proportion was only 11.5%; an estimated 66% of Argentinian children live in these poor homes. The proportion of income used to purchase food is 33% for one half of the population, but reaches 46 and 68% in the two lower quartiles of income. Argentina suffers the highest prevalence of cardiovascular disease in the continent and at the same time high incidence of iron, calcium, vitamin C and vitamin A deficiencies resulting from rigid feeding patterns.

INTRODUCTION

About a century ago, more than half the present Argentinian territory was Indian territory. In one year an intense military campaign conquered it thus incorporating millions of acres of productive land in to the nation's economy.

At that time Argentina began receiving hundreds of thousands of Europeans immigrants most of whom established themselves in the largest urban conglomerates which already existed. This wave of European immigrants was so important that in the 1890 National Population Census, in Buenos Aires there were more aliens than native Argentinians.

This concentration of immigrants in the cities gave birth to small industries, usually family enterprises, which began to grow from 1920 but particularly from 1945, when the seeds of our heavy industry were planted, protected by a restrictive

legislation and financed by the wealth the country had accumulated during the pre-war and WW II years.

Coincidentally, long - postponed social laws were enforced and the medical care system was expanded, making it available to most of the population. The coincidence of all these facts gave momentum to a strong internal migratory movement from the rural areas to the cities. Rural production was, and still is, extensive (with the exception of some areas where grapes, fruits and sugar cane were cultivated) with a low requirement of manpower, which became less and less as rural activities became increasingly mechanised and electricity reached most of the countryside.

So Argentina reached in a few decades its present population pattern, with 86% of its population living in urban conglomerates of more than 2,000 inhabitants. But 56% of its population live in cities of more than 500,000 inhabitants. This pattern is similar to that of industrialised countries (Table 1).

This trend has slowed down in recent years; in the last National Census (1991) fewer people lived in Buenos Aires than in 1980. Therefore, it can be said that Argentina was, among the countries in the Region, the first one to suffer a massive urbanisation and the first one in which the process has begun to stop.

The urbanisation of Argentina has a pattern common to most Latin American countries. It can be defined as disorganised, uncoordinated and non regulated due to the government's lack of ideas and resources to control it. Endemically high inflation rates, lack of credit for purchasing land and building of houses led to the partition of available land into minimal plots, without pipewater and sewage disposal, and often even without electricity. Houses were of very poor quality and crowding was the rule. In urban areas where only the most fortunate could live crowding was also the rule for middle class employees or qualified blue collar workers. This process brought deep changes to the cultural, political, economical, sanitary and nutritional

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TABLE 1
DEMOGRAPHIC INDICATORS

a) Annual growth rate (per thousand)	
Total in country	14.6
Urban	17.36
Rural	-1.45
b) Percentage of urban population	
Years	%
1980	83
1985	85
1990	86
1995	87
2000	88

structure of the country.

Combining certain educational, economic and household characteristics gathered in the 1980 National Census, the Map of Poverty in Argentina was published in 1985. 1,249,000 households were considered as living below the of poverty line (NBI). These poor households were subsequently divided into two further categories: those structurally poor (e.g those who have always lived in extreme poverty) and those impoverished consequent to the deteriorating economy of the country.

As expected, more children live in the poor households than in the total of non-poor households (60.3% vs 39.1% of all Argentinan children) but fewer adults do (37.4% vs 62.2% of the population older than 15y). In other words, 1 in 3 households in Argentina is poor and 2 out of 3 children live in such families (1).

According to how poverty is defined, it is more prevalent in rural than in urban areas. In the provinces with the highest percentage of rural population, the poverty rates are the highest (e.g Misiones province 39%, Chaco 44% and Formosa 63%). However, the number of people living in poverty is much higher in urban areas: in the three above mentioned provinces the number of poor people is 136,000, 182,000 and 80,200, respectively, while in Greater Buenos Aires alone the number is 1,270,000. These figures confirm the relevance of urban poverty.

Statistically, sanitary and other indicators suggest that the urban population is in better condition than the rural one and so it is, if health indicators such as infant mortality rates are considered (Table 1 and 2). In part this is due to inefficiencies in the rural primary care system which in some provinces have been brilliantly solved through effective long lasting health projects (2,3).

TABLE 2
AVAILABILITY OF SANITARY SERVICES
(% of households)

	Total	Urban	Rural
I) Running water	61.0	70.0	13.0
II) Water supply			
Tap inside the household	73.0	80.0	36.0
Tap outside the household but within own land	10.0	9.5	10.0
Tap outside own land	3.5	3.5	4.0
Others	13.5	7.0	50.0
III) Flushing Toilet			
emptying into sewage system	34.9	40.0	1.0
Flushing Toilet emptying into other systems than sewage	43.0	44.0	38.0
Non flushing Toilet	18.0	13.0	43.0
No Toilet	5.0	3.0	18.0

TABLE 3
DOMESTIC ELECTRICITY AND FUELS
(% of households)

	Total	Urban	Rural
I) Electricity	86.0	95.0	40.0
II) Bottled gas	59.0	60.0	52.0
Piped gas	29.0	34.0	1.0
Other fuels	12.0	6.0	47.0

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Urban life can show the health and nutritional problems of poverty distinctly and at the same time the consequences of the unlimited availability of food for those who can afford it, sedentary life, and bad eating habits due to the stressful pace of life in the cities and the high percentage of women who work.

When the country's population is divided into income quartiles and the amount of the family income that is expended on purchasing food is calculated for each quartile, it can be observed that the more privileged half spends about 1/3 of the income on food items, which according to many studies permits a nutritionally adequate diet. On the other hand, the poorest quartile spends 68% of the family income on food, it being obviously impossible to provide a reasonable diet; the second quartile spending 48% of their income on food is in an intermediate but critical condition (Figure 1) (4).

Almost all food consumed by urban populations is purchased through the commercial network because home production is almost impossible in the cities. This makes families very susceptible to market fluctuations in the price of food, to seasonal availability of some foodstuffs, and also to changes in the purchasing power of salaries. This is clearly shown in Figure 2 depicting the critical recent years of our nation's economy (5).

It is convenient to describe here some peculiarities of the nutritional condition of our urban population. First, there are differences in the length of breast feeding between urban and rural populations, it being longer among rural mothers. In both populations, breast feeding is practiced more by the poorest mothers (Table 4) (6).

FIGURE 1
PROPORTION (QUARTILES) OF INCOME
SPENT ON FOOD

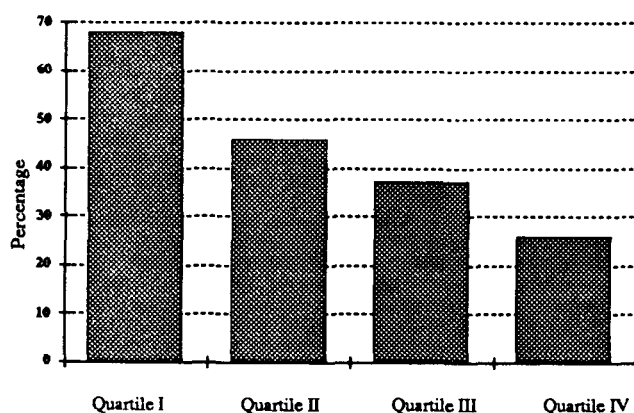


FIGURE 2
FOOD BUYING CAPACITY

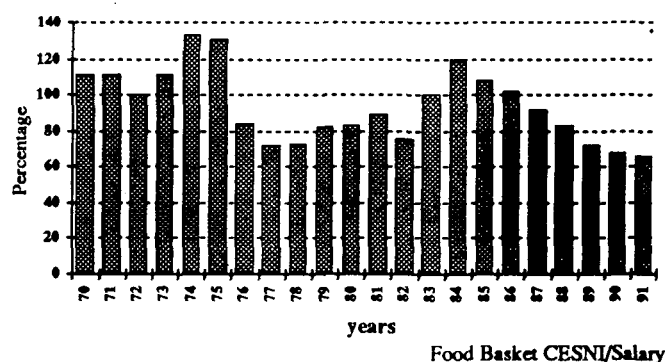


TABLE 4
BREAST FEEDING- URBAN POPULATION

	Never	0-4months	<3 months	0-6 months	<6months
Actual n = 561	11,5		40,4		57,1
(1974) n = 500	17,0		64,0		72,8
(1981) n = 419		41,8		58,2	

As a consequence of the increasing conviction of the health team about the advantage of breast feeding, a universal increase in the time it is practised can be observed, with the above mentioned differences. However, life conspires, through several mechanisms, against its practice. An early study showed differences in the feeding behaviour of mothers according to the age at which they had migrated to the city; if they had arrived at older than 15 years, they kept traditional habits; if however, they arrived before their fifteenth birthday they behaved as urban women. The same happened with multiparous women depending on whether they had resided in the city for five or more years or not (7).

Iron deficiency anaemia is highly prevalent among Argentinian infants, similar to any country which has not enforced infant food iron fortification programs. In the urban population the prevalence is as high as 48%, with slight differences depending on SEL. In the rural areas the prevalence

is as high as 56%, its origin being dietary inadequacies. The high consumption of unfortified fluid cow's milk is an important contributing factor (Figure 3) (8,9,10).

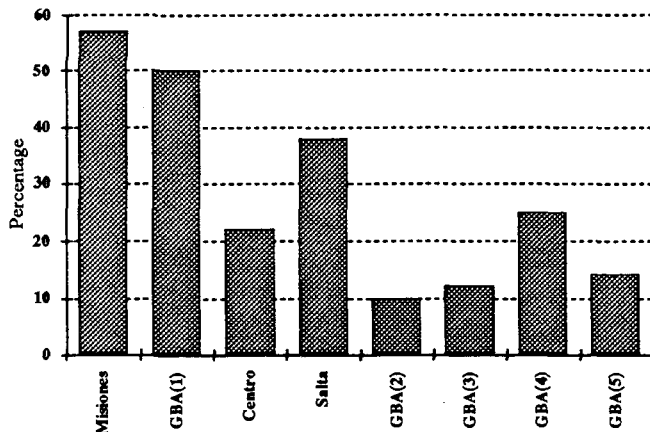
Several studies have shown that the consumption of ascorbic acid is also low, which makes an important contribution to extended dietary iron deficiency. Depending on age, 50 to 80% of children do not fulfil the dietary recommendation for Vitamin C.

Dietary intakes of vitamin A are below the recommendation in 30% of urban children; for rural children figures are 32 to 60% (Figure 4).

In Buenos Aires, calcium intakes are inadequate in 60 to 72% of school children. The information for rural children is scant but intakes seem to be worse.

Dietary protein deficiency is found in not more than 15% of children, but the usual figure in most studies is below 3%. Deficiency in energy intakes is much more prevalent, being reported in 20 to 45% of children. Urban children are more

FIGURE 3
PREVALENCE OF ANAEMIA ACCORDING
TO VARIOUS STUDIES



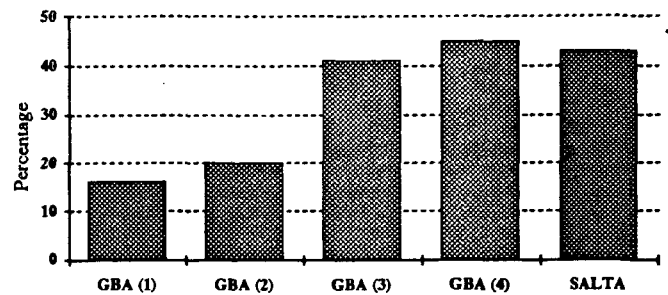
GBA 1: children 9 months to 2 years; GBA 2: children 6-8 years; GBA 3: children 8-11 years; GBA 4: boys 11-14 years; GBA 5: girls 11-14 years.

privileged than rural ones (Figure 5)(11).

Where nutritional and alimentary differences between urban and rural populations are more clearly seen is in degenerative diseases resulting from inadequate feeding patterns and an excessively sedentary lifestyle.

Argentina ranks first in America in mortality rates due to cardiovascular diseases related to atherosclerosis, followed by the US, a country so concerned with the problem and where such spectacular results have been obtained year after year through prevention campaigns. In the region, only a few English-speaking Caribbean countries show higher rates. And what is

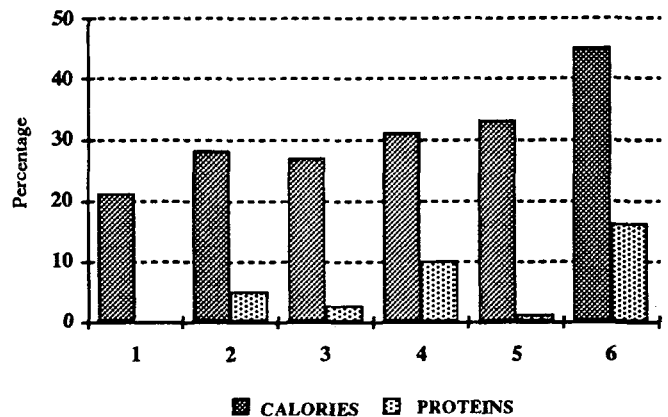
FIGURE 4
VITAMIN A DEFICIENCY



GBA 1: less than 1 year; GBA 2: children 1-2 years; GBA 3: less than 1 year (other study); GBA 4: children 1-2 years (other study).

most worrying is our peak morbidity-mortality occurs between 45 and 55 years, meaning that thousands of young adults, in the peak of their productivity and experience, die or are crippled by severe disabilities. The cost in work losses, in medical treatments

FIGURE 5
PERCENTAGE OF THE POPULATION BELOW THEIR
RECOMMENDED DAILY ALLOWANCE



1: Preschool, Greater Buenos Aires; 2: children 2-14 years, Capital and Greater Gran Buenos Aires; 3: school children, Capital; 4: less than 2 years, Misiones; 5: school children, Greater Buenos Aires; 6: preschool children, Salta.

and rehabilitation is truly dramatic for a country with moderate resources such as ours.

Several factors are important in the origin of the problem: a) the high proportion of the population older than 15y, a demographic peculiarity of Argentina shared by only a few countries in L.A; b) a steady increase in the life expectancy of the population (e.g 1985-1990: 70.2y); c) a persistent drop in the mortality due to infectious and parasitic diseases; and d) a persistent exposure of Argentinians to major risk factors, basically hypercholesterolemia and high consumption of

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saturated fat and cholesterol.

The availability and consumption of beef in Argentina ranks among the highest in the world. In 1987 it was 109 Kg/ inhabitant/ year; cholesterol availability for 1978-1987 was 458+/-15mg/inhabitant/day. Apparent consumption of fat for the same decade was 62% of animal origin, with high percentages of saturated fat. Fat consumption shows a clear stratification according to SEL: the higher it is, the higher the consumption of saturated fat (12).

Table 5 summarises all the studies on the prevalence of hypercholesterolemia, all of them in urban areas (13). Only one of them (14) was conducted on a representative population sample, stratified by SEL; it shows a significantly higher prevalence in the upper SEL, as well as a higher consumption of fats in general and saturated fat in particular, and cholesterol (14).

When the availability of foodstuffs is analysed against income quartiles, the consumption of meat, eggs, dairy products and fats in the most privileged quartile is about twice that in the two lower ones (4).

Through the decades, food consumption by Argentinian families shows a very static rigid pattern. Twenty foodstuffs (less than 20% of the total available), and always the same foodstuffs, provide 80% of the available energy and nutrients (wheat, beef, sugar, milk, sunflower oil, potato, cheese, chicken, apple, tangerine, tomato, squash, peaches, carrots, offal such as liver or kidneys, and wine) (15).

This peculiar alimentary behaviour of Argentinian families is a serious obstacle to changing dietary patterns which lead to lowering the consumption of cholesterol and saturated fats. However, there are some hopeful signs emerging from the information on the apparent consumption of some foodstuffs (Table 6). Unfortunately this trend has not yet influenced our

TABLE 5
PREVALENCE OF HYPERCOLESTEROLEMIA IN
ARGENTINA

	n	Cut-off Limit (mg/dl)	Prevalence %
Adults	15604	> 240	26-51
Young adults 17-22 years		> 200	18
School children	2776	>200	5-20
Children 1-2 years		>180	5

Source :(13).

mortality rates due to cardiovascular diseases.

Although obesity and sedentary life are not ranked among the major risk factors for cardiovascular disease, both contribute to it. As was said previously, living patterns in the cities are conducive to them.

Large segments of our urban population live in small flats with minimal opportunity for physical activity for small children; elementary schools do not have facilities for sports or for leisure activities after school hours; free public parks or recreation centres for the systematic practice of sports for adolescents and adults are scant; given that usually both parents work outside of their homes, children after school hours are left under the care of some aged relative, who take advantage of candies and TV to keep them quiet. Mothers return to their homes after work, usually tired and with little time to prepare dinner, so they cook what is simplest, cheapest and fastest, usually meat and high energy density foods. Parents have their lunches at their workplaces, usually foods high in energy content, mainly because of their lower price and easy availability. Even children living in suburban areas, that could have more opportunity of living a less sedentary life, have seen this advantage curtailed

TABLE 6
VARIATION IN THE APPARENT CONSUMPTION
OF FOOD
PERIOD 1970-1983

Apparent consumption	Percentage change
Beef	- 18 %
Lamb	- 49 %
Pork	- 19 %
Fish	+ 52 %
Poultry	+ 190 %
Full fat milk	- 27 %
Skimmed milk	+ 108 %
Skimmed cheese	+ 51 %
Fat	- 50 %
Skimmed Yoghurt	+ 243 %

due to the fear of mothers of growing urban violence and of drugs.

Therefore, although obesity is not yet a health problem of the magnitude of some industrialised and Caribbean countries, it is emerging as a serious concern for children and adults living in the conditions described. Such a lifestyle is also the seed of cardiovascular degenerative diseases.

Some studies of school children in Greater Buenos Aires show that obesity and overweight are three times more frequent than PEM, chronic or acute. In public schools the percentage of overweight children in the first year is significantly less than in the 7th year revealing that many of such overweight school children also have stunted growth caused by severe and long lasting nutritional harm early in their lives, which is not recovered from in spite of a present nutritionally adequate diet, all of which leads them to accumulate body fat.

While the population increases its life expectancy, health problems of the elderly become progressively more important. Bone and joint problems in osteoporotic adults are a serious public health problem, and a burden for health budgets, for patients and their families. This condition is particularly worrying in postmenopausal women where bone calcium losses are almost inescapable when oestrogen activity ceases.

In this disease, prevention plays a key role. Guidelines for prevention aim at achieving the maximal calcium density in the bones of girls so that, as with a bank account, when the unavoidable time of postmenopausal bone loss arrives, women still could have enough calcium in their bones. Recommendations are high daily calcium intakes throughout life but specially during adolescence and enough and lasting physical activity. As was commented before, this is the opposite of what is presently happening in our cities.

It is possible that the situation described for urban centres in Argentina is not much different from that of other cities in the region, with the exception of some alimentary patterns. These will surely change once the agricultural protectionism of industrialised countries diminishes their influence on our internal market for meat and meat products, because for decades, on a per gram basis, meat protein has been for Argentinians, the cheapest dietary protein source. Also a change will come when the socioeconomic condition of the region improves after our "lost decade" and once the perverse and unimaginable external debt our countries have with the rich countries is renegotiated on fairer terms.

The urbanisation of LA, part of its modernisation, is irreversible, and the prevention of degenerative and deficiency diseases, the care of our ecology and education for all will be the major issues in the years to come. International agencies and NGO from the rich countries will have to change their vision and programmes in a continent that, in spite of its conflicts, struggles and searches for identity, is closer to solving their problems than

are the African or some Asian nations. Without ignoring rural communities that are persistently in need, urban problems that until now have received little attention demand aggressive and original approaches.

In human urban settlements, where people are so exposed to their interaction with their peers, overstimulated by mass media and so dependent on the classic commercial structure for their nutritional needs, future actions will strongly depend on the interaction of the health, nutrition and economy sectors, with the strong support of human sciences to be truly effective.

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simplification, we only present a selected subgroup of the 32 comunas in the Province.

There is abundant information related to nutritional deficiency problems in the maternal-infant sector; thus, we can put together longitudinal data-sets that include a high proportion of the mother-infant population and which are very representative of that population. Considerably fewer background data are available for nutritional deficiency issues in other age-groups of the population, such as adults, the elderly, adolescents, etc., and there is even less information with respect to nutrient excess issues, conditions which have been gaining increased importance in the current epidemiological profile of the nation. We conclude the paper with a brief analysis of policies and programs that affect the nutritional status of the population and with the identification of the principle tasks still left to be completed in this area.

INDIRECT INDICATORS OF NUTRITIONAL STATUS

One can obtain an indirect evaluation of nutritional problems from an analysis of conditioning factors (eg socio-economic level, availability of foods, etc) or of biological indicators recognized to be associated with illness (morbidity rates). This information has low specificity, but it is important because for same countries it represents the principle source of available data at the national level.

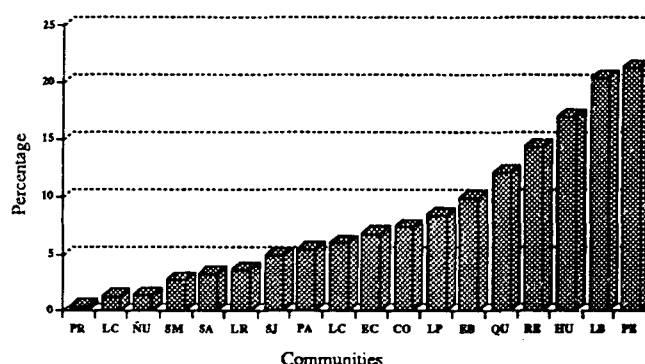
SOCIOECONOMIC INDICATORS

Poverty maps constructed on the basis of structural indicators (characteristics of the home, educational level, access to potable water and plumbing, household appliances, etc) or functional indicators (food purchasing power) allow us to identify families at risk of malnutrition. From national household and census data collected in 1982 it is estimated that 14% of Chilean families live in extreme poverty. This figure varies substantially from region to region within the Metropolitan Area (eg ranging from 2.3 to 21.4%), as with other indicators, but families living in the Metropolitan Area are better off on average than the national figure (8.9%). Likewise, within Santiago there exist marked differences, notably in some comunas the percentage of families living in extreme poverty is 20 times greater than that of families with a high level of socioeconomic development (Figure 1).

By other methods, it has been estimated that 35% of the nation's population live in extreme poverty because they are not able to satisfy their food requirements. The cost of a subsistence market basket for a typical family (average 4.5 persons) is equivalent to US\$125 monthly under circumstances in which the minimum wage is US\$88. That is to say, one needs 1.4 minimum wages just to cover the cost of food and 2.8 to take care of other basic necessities. Our studies in low income neighborhoods of Greater Santiago show that 80% of the families have salaries below the poverty line as so defined. Critics of our methods suggest that they over estimate poverty

because of difficulties inherent in the measurement of income, and because they do not take into consideration food assistance from health and education sector programs, which in the poorest quintiles can represent a significant contribution.

FIGURE 1
PERCENTAGE OF FAMILIES IN EXTREME POVERTY
IN DIFFERENT COMMUNITIES

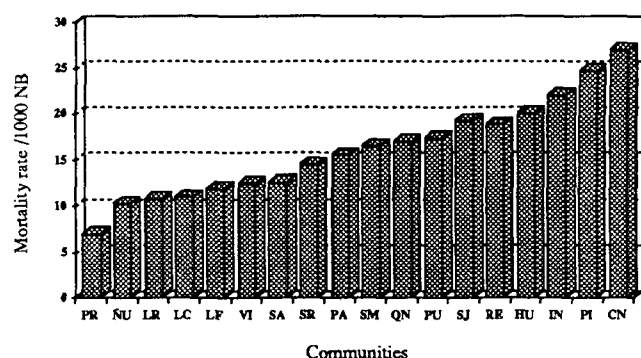


MORTALITY RATES

The infant and preschool mortality rates have traditionally been considered to be indirect indices of nutritional status because of the strong association they bear with the prevalence of malnutrition. Numerous studies conducted all across Latin America demonstrate that undernutrition plays an important role in 50% of deaths of under-five-year-olds (primary or secondary causes). In general, we consider an infant mortality rate above 30 per 1000 live births to reflect nutritional problems with the higher the mortality rate, the more severe the problems. In Chile, the 1991 infant mortality rate is estimated to be 15.5 per 1000 live births, a level which has fallen by 25% in the last six years. Santiago's rate is 10% below the national average, although there is marked variation depending on the level of development of the comuna (Figure 2). In areas in Santiago City with the most extremely adverse conditions, the risk of death in the first year of life can be four times higher than the city-wide average. An analogous situation occurs with preschool (under-five) mortality rates, although those for our capital (0.68 per 1000 preschoolers) are, on average, low in comparison to those of other countries in the Latin American region. This suggests a relatively adequate nutritional situation for this group.

The structure of overall mortality allows another approximation of the nutritional situation. In developing countries with high prevalences of undernutrition deaths are largely infectious in origin. As nutritional conditions improve, adult chronic diseases and accidents gain more importance. Chile shows a transitional situation (Table 1) with a significant

FIGURE 2
INFANT MORTALITY RATE IN SANTIAGO
IN DIFFERENT COMMUNITIES



increase in deaths due to chronic diseases during the last decades. There are two factors that contribute to this transition. One is the decline in deaths from infectious diseases especially diarrhea and bronchopneumonia; the other is the increase in absolute terms of life expectancy which results in a greater exposure to chronic disease risk factors. Death rates for cardiovascular diseases have been increasing, but when one calculates the rates adjusted for age one sees a distinct decline in fatalities from this cause in Santiago between 1984 and 1989. The high frequency of deaths related to overeating necessitates prioritizing activities for prevention and control.

DIRECT INDICATORS

Food intake. Both quantitative and qualitative evaluation of eating patterns are essential for defining nutritional policies and evaluating the effects of interventions. Very little information based on representative populations is available, however. In

the last 30 years only one national study (1974) has been conducted. It showed a mean energy intake of 1997 ± 787 kcal in Santiago, a level well below the recommended intake. Compared to the rest of the country, however, Santiago was in a rather favorable situation. According to the 1974 study a significant percentage of the national population ingested less than 70% of recommended intakes for one or several nutrients: energy, 24%; protein, 16%; vitamin A, 38%; and iron, 18%. In addition it showed that 20% of those interviewed had an energy intake above the recommended level.

Various studies conducted with less representative samples or in specific population groups (pregnant, adolescent, elderly, worker, lactating women etc.) tend to show the same situation; between 20 and 50% of the subjects had insufficient intake of energy, calcium, vitamin A, riboflavin, folate, or zinc, among other nutrients. All studies showed a strong association between nutrient intake and socioeconomic level.

Another source of indirect information comes from the analysis of household income surveys which are conducted periodically in most countries. In Chile they have been done about every 10 years (the most recent in 1988). All of them have included Santiago. Although there are some variations in methodology among them, they allow us to follow the principle trends in family expenditure. Total expenses and the outlay for food from the 1988 survey are shown in table 2. The households were stratified by income level, with the first quintile representing the 20% with the lowest income. The poorest families designated the highest portion of their financial resources to food, but this was clearly insufficient in relation to the cost of the subsistence market basket (which costs 27,000 pesos at the time of the survey), which suggests that many families were underfed.

From expenditures for food during 1978 and 1988, one can make estimations of intake (Figure 3). According to international

TABLE 1
CAUSES OF DEATH IN CHILE 1946 - 1986

Causes	1946 %	1956 %	1966 %	1976 %	1986 %
Circulatory System	11.2	12.0	10.8	21.1	27.4
Malignant Tumours	4.9	8.1	10.2	13.5	17.5
Trauma and Violence	4.9	6.6	8.5	9.3	12.2
Respiratory System	21.2	18.7	17.6	15.7	11.0
Infections and Parasities	20.9	17.8	7.3	5.1	3.5

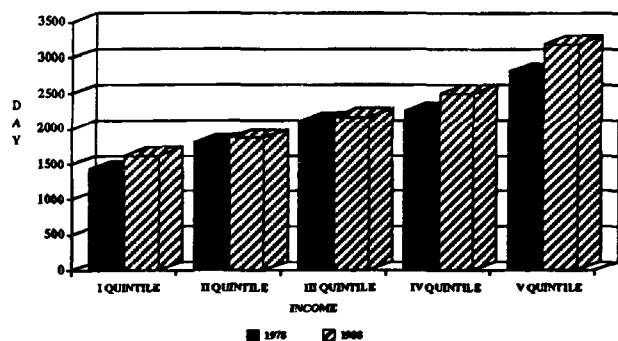
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TABLE 2
TOTAL FAMILY EXPENSES AND FOOD EXPENSES AS A PROPORTION OF FAMILY INCOME*

Income	Total expenses \$ thousands	Food expenses \$ thousands	Food expenses/Total expenses %
Quintil I	16.6	8.8	53.0
Quintil II	31.2	15.4	49.4
Quintil III	48.2	22.1	45.9
Quintil IV	76.6	30.4	39.7
Quintil V	207.8	48.2	23.2
TOTAL	76.1	25.0	32.9

* \$ From June 1988.

FIGURE 3
CALORIC INTAKE ACCORDING TO INCOME POLL
OF FAMILY BUDGET
INE 1978 AND 1988

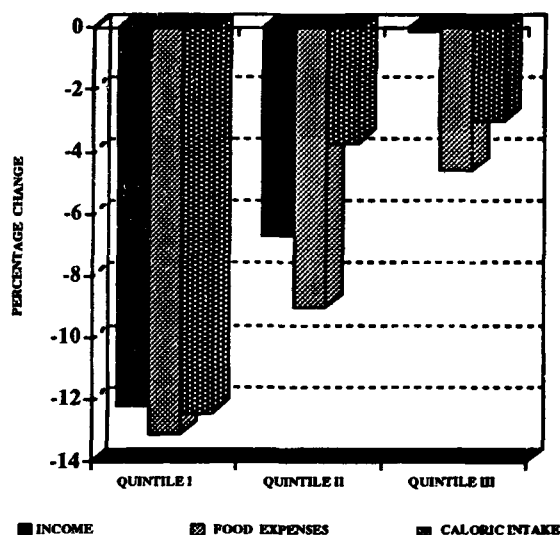


recommendations, 2200 kcal per capita are needed. Figure 3 points out an important energy gap in the families with fewer resources (equal to -775 kcal per day). Only quintile IV has a normal intake. The families in the upper quintile show an energy surplus. It is notable, when comparing the distinct quintiles, that differences in energy consumption are less than the differences in expenditure for food. For example, the lowest quintile spends 40% of what the third quintile expends, but has 67% the caloric intake of the middle quintile. This is explained by the purchase of less expensive energy sources (egg, bread, sugar, rice, oil), which represents a survival strategy for the poorest families. This translates into monotonous diets with a limited variety of items and a low intake of animal protein, fruits and vegetables. This could predispose these individuals to deficiencies of certain specific nutrients (such as iron, calcium, zinc, riboflavin and vitamin A).

The analysis of the latest two surveys demonstrates that in Chile the economic crisis of the 1980's affected the poorest families most intensely (Figure 4). The reductions in income

and in expenditure and consumption of foods were significant (-12%) in the lowest quintile, but not in the other four quintiles. Quintile V was the only group which increased in income. This indicates that social policies were not adequate for buffering the negative impact of the economic crisis.

FIGURE 4
PERCENTAGE VARIATION IN EXPENSES AND
CONSUMPTION PER CAPITA ACCORDING TO
INCOME, 1978-1988



Anthropometric studies. Body measurements represent the most widespread way to evaluate nutritional status. However, in their interpretation one must take into consideration that growth retardation represents only a relatively late phase of underfeeding, as the organism has mechanisms at its disposal to

adapt to a moderate deficit (by reducing physical activity, for example). Further more growth retardation is not always of nutritional origin and some may be the result of genetic variation.

Under-six-year-olds: The Ministry of Health performs a monthly evaluation of the nutritional status of the population coming in for well-baby and well-child care; this includes 75% of the under-six-year-olds in the country. Weight-for-age in relation to the French growth tables of Sempe is used as an indicator of nutritional status; a value of less than one standard deviation ($Z < -1$) is considered to diagnose undernutrition. Using this criterion, 7.1% of this population in the Metropolitan Area were undernourished in October 1991; of these, more than 90% had Grade I malnutrition. Deficits greater than 2 SD (Grade II) constituted 0.7% of the well-child population. The prevalence of Grade III was a whole order of magnitude lower, at 0.4 per thousand. Age-wise analysis shows a low prevalence (2.2%) in the first 6 months of life, which increases to a maximum of 9.6% in the second year, then recedes during the period from 2 to 5 years of age.

The evolution of this indicator over the last 17 years is shown in Figure 5. It points out a substantial decline between 1975 and 1982, then there is a period of stabilization until 1988 and finally a distinct drop thereafter. Throughout the whole period under analysis, the Metropolitan Area is close to the national average. However, as with all indicators, significant variation exists depending on the communal development, with a range from 3.8 to 12% (Figure 6).

The Ministry of Health also uses the weight-for-height index with relation to the WHO/NCHS tables. Based on this relationship, acute undernourishment (-1 SD) affects 3.4% of the under-six-year-olds. As distinct from that seen with the other indicators, the proportion of children with a deficit is uniform across the whole country, suggesting that this is an insensitive variable.

FIGURE 5
PREVALENCE OF UNDER NUTRITION IN CHILDREN
UNDER 6 YEARS, 1975-1991

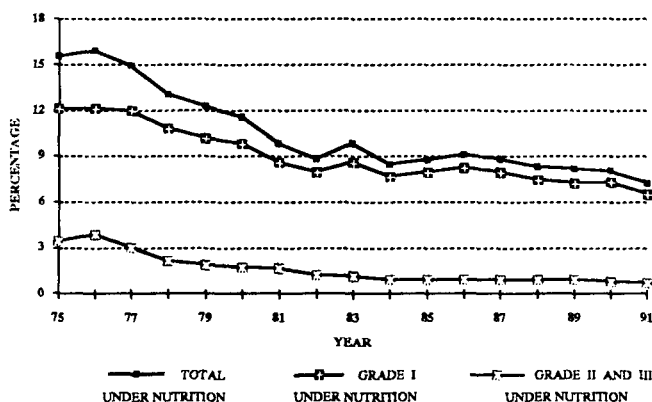
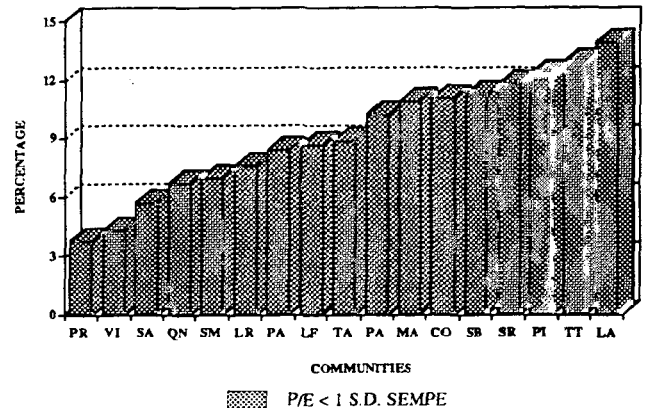


FIGURE 6
PREVALENCE OF UNDER NUTRITION IN CHILDREN
UNDER 6 YEARS IN DIFFERENT COMMUNITIES



The foregoing information reflects a quite adequate nutritional status for this age group. Recognizing these achievements it is still necessary to point out that the majority of experts posed the need to replace the reference standard used for one with a greater international acceptance. The mean differences between the Sempe and the WHO/NCHS tables are relatively small (2-4%) but this produces a significant increase in the apparent rate of undernutrition. With this indicator the prevalence of a deficit in weight-for-age increases to 16%, although the majority of nutritional disturbances are still mild (-1 to -2 SD). Furthermore, there has been a concern to validate the representativeness of the information generated by the Ministry of Health. Various studies conducted by our group show a high correlation between the rate of undernutrition of the well-child population and the population at large. The population not covered by periodic examination is no more than 4% of all the poor, and its nutritional status seems to be similar to that of the population enrolled in the state-run health system. This allows us to reject the hypothesis that there exist "pockets of poverty" with severe nutritional deterioration.

The height-for-age index is a good indicator of an individual's nutritional history. A value of less than 1 SD of the American tables (NCHS) is seen in 30% of under-six-year-olds. This is significantly greater than the 16% which would be expected from the normal distribution curve. There is no consensus with regard to the interpretation of this finding. Some experts feel that it reflects chronic undernutrition, but others suggest it to be a genetic phenomenon based on the low prevalence of weight-for-age and weight-for-height malnutrition and the high frequency of height deficits from the first six months of life (25%).

The growth rate between two successive visits constitutes a very dynamic indicator to point out those critically at risk of undernutrition. From an operational point of view, the Ministry of Health considers "at risk" to be indicated by an increase in

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weight of less than 75% of that expected in under-two-year-olds and less than 50% of expected in preschoolers above that age. Using this criterion, 12% of the children within the state-run system would be considered to be at risk. This fraction increases to 22% in the second year of life, the period in which the greater incidence of undernutrition is seen.

There has been little concern for the study of juvenile obesity. The few studies that treat this subject have found a relatively small prevalence (4-8%) without gender differences.

Pregnant women: Prenatal care has a high coverage rate via the Ministry of Health, and every well-patient visit assesses the maternal nutritional status in relation to a nation, as standard (Rosso, Mardones). According to this criterion, 23% of pregnancies have been classified as low-weight, a proportion which has gone down by 20% in the last five years. The nutritional situation of only about half of the low-weight pregnancies has been improved; this suggests a rather poor effectiveness of this program as an intervention. The apparent high proportion of low-weight pregnancies is notable because it is nearly three times higher than the rate of undernutrition reported for non-pregnant women in the reproductive age. Also the proportion of new-borns weighing less than 2500 g (6.4%) or with sub-normal weight (19%) is relatively low in relation to the apparent prevalence of maternal undernutrition. This suggests that the standards that are being used could be over-estimating the ponderal deficit.

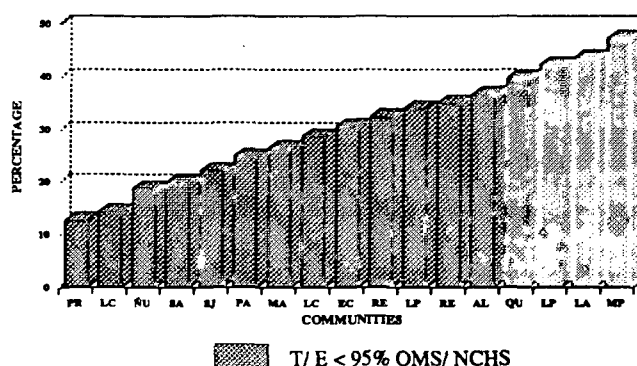
Also noteworthy in Chilean pregnancies is the high prevalence of overweight (19%) and obesity (18%). The risk of obesity shows a clear relationship to maternal age and parity, doubling in prevalence in grand-multips or in women over 35 years of age. In contrast to what is seen in other countries of the region, the reproductive cycle confers an increased risk of obesity on the population of urban Santiago.

Schoolchildren: Beginning in 1934 the Ministry of Education conducted height surveys of the grammar school population; this provided representative information for this group. Nevertheless, different nutritional evaluation criteria have been applied such that it is difficult to evaluate the trends. The most notable issue is a high prevalence of height retardation, in the order of 40% at the national level and somewhat lower in the Metropolitan Area. The prevalence of height retardation is progressive with age (increasing from 30 to 60% between 6 and 14 years); this shows that school feeding programs are insufficient to prevent nutritional damage. The proportion of children in the first year of school with a height below 95% of the WHO/NCHS standards is shown in Figure 7, illustrating important differences among the comunas of Santiago.

Obesity of school children also constitutes a public health problem beginning with adolescence. At this age, a substantial increase in the prevalence of obesity (weight-for-height > 120%) is seen in girls, reaching 20-25%. By contrast boys

maintain a significantly lower prevalence (5-10%). It is not clear why this sexual dimorphism exists.

FIGURE 7
PREVALENCE OF STUNTING IN THE FIRST YEAR
OF SCHOOL IN DIFFERENT COMMUNITIES



Adults. The adult population has been the least studied, from the nutritional point of view, and existing studies make it difficult to extrapolate the data to the population at large or to estimate trends. The prevalence of a weight deficit (weight-for-height < 90%) is estimated at 10% of the adult population, with similar rates for men and women and for persons of different socioeconomic strata. Contrary to what would be expected, one study showed a lower prevalence of weight deficit in women of a very low socioeconomic group.

The most important problem in the adult population is obesity, which affects an average of 20% of men and 30% of women. To this we must add a further 20% of more of people who can be classified as "overweight" (a weight between 110 and 119% of standard). Socioeconomic status is not associated with obesity prevalence in men, but it is in women with an inverse association (10% in the upper class and 40% in the lower). The frequency of obesity increases significantly with age in all income groups especially among women, reaching levels of 50% in lower class women over 50 years of age. Height also shows a strong, and inverse, association with obesity. Only 4.2% of the population sampled in the Metropolitan Area had subnormal retinol levels.

It is difficult to interpret this information when we look at it together with data on the ability to buy or to consume food which shows an important energy shortage in poor families. This could be explained by an overestimation of the requirements, by an underestimation of consumption, by a reduction in physical activity, or by adequate survival strategies that lead to the consumption of low cost foods rich in carbohydrates. What is certain is that in all social groups examined the nutritional problems of excess predominate. To this we can add the

presence of other risk factors such as smoking, hypertension and sedentary life-style (Table 3). In one study 82% of 1203 adults in Santiago had a sedentary life style, defined as performing less than 10 minutes of programmed physical activity twice a week.

FIGURE 8
PREVALENCE OF OBESITY IN WOMEN
ACCORDING TO HEIGHT AND
SOCIOECONOMIC CLASS

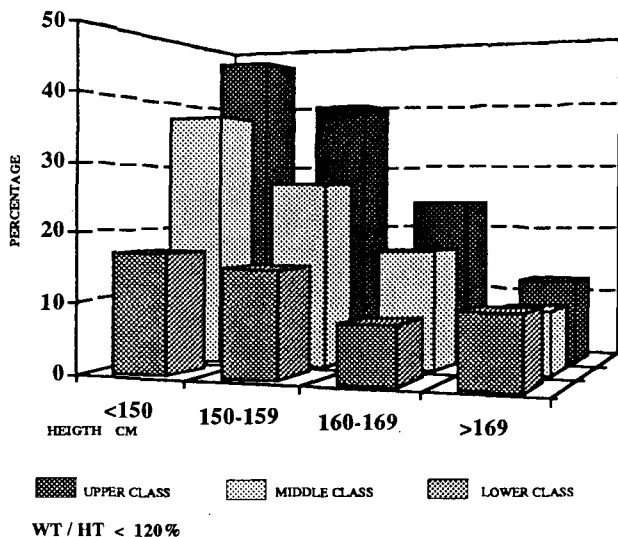


TABLE 3
PREVALENCE OF RISK FACTORS FOR CHRONIC
DISEASES

Risk Factor	Men %	Women %	Total %
Hypertension	8.6	9.1	8.8
Smoking	50.7	43.4	46.3
Obesity	13.2	22.7	18.0
Sedentary life style	75.6	86.9	82.4

Source: (13)

BIOCHEMICAL INDICATORS

Iron deficiency anaemia represents the principle specific nutrient deficiency which has continued to appear in all nutritional surveys that have used hematological indicators.

The prevalence of anaemia in the child of 6 to 24 months of age varies between 20 and 30%; this falls dramatically in the school age child to 3-5%. The other period of high vulnerability is pregnancy when rates of anaemia reach about 30%. If we analyze iron deficiency itself or the depletion of iron reserves (transferrin saturation, serum ferritin, or free erythrocyte protoporphyrin), the proportion of those with deficits practically doubles. Even when there was legislation which obligated iron fortification of wheat flour for bread-making, some 38 years ago, that measure was not sufficient to prevent anemia of the suckling child. More recently other foods distributed by the Ministry of Health for infant feeding (breast milk substitutes, weaning foods), have been iron fortified; the results of this have not been adequately evaluated.

Other specific deficiencies have been demonstrated, all be it in less representative samples. Recently, Bustos et al. (15) demonstrated, using enzymatic methods, high prevalences of riboflavin and pyridoxine deficiencies in pregnant women with normal weight-for-height. Zinc deficiencies have also been uncovered in preschoolers, school aged children and pregnant women; the functional significance of this has not been well defined. Hypovitaminosis A does not constitute a public health problem in Chile according to the national survey of cities with a population with critical degrees of poverty. They employ instruments especially designed to identify rigorously the homes which require urgent attention. They specify—but do not always abide by—a need that programs should be carried out decentralized, basing the primary responsibility for their applications and control in the city halls.

ANALYSIS OF SECTORIAL POLICIES THAT INFLUENCE NUTRITIONAL STATUS

Social programs, in general, and alimentary programs, in particular, constitute one of the fundamental causes for improvement of the conditions of life in the poorest sectors which have been seen over the last 50 years. State intervention in this realm has a redistributive purpose and fulfills a crucial function of improving the nutritional situation and setting channels of upward social mobility. Currently, Chile invests about \$150 million (U.S.) annually in feeding programs, which represent about 0.5% of the GNP, which is greater than that seen in the majority of Latin American countries.

In many countries, traditional social policies have shown limitations in reaching the poorest groups, with the primary beneficiaries of this enormous state effort winding up being the middle and lower-middle classes. This can be explained, in part, by the fact that the most underprivileged are practically margined from the economic system, either being unemployed, or with an unstable employment, or being self-employed in the informal economy. Another common limitation of the food programs is that they are not always directed to the most biologically vulnerable groups. In Chile, important advances

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have been made in both these directions, as a high percentage of the state outlay effectively reaches the poorest and the most vulnerable.

The Military Regimen in accordance with the ultraliberal economic concept that it imposed on the country, attributed to the state an extreme inefficiency in distribution. It asserted that progress in redistribution of wealth could only be obtained by growth in the economy. Nevertheless, it defined as one of the fundamental goals for its social policy the wiping out of extreme poverty; this stance required that selective policies that favored specific social and economic groups be put into action. This tried to "target" a substantial part of the social outlay, avoiding the unworthy "filtering" of this to the rest of the population. The upper- and middle-class social groups should finance with their own resources the benefits that they had formerly received from the state. The state should transfer to the private sector the job of producing and distributing the basic services so that the market forces, and not the apparatus of government, would be regulating access to these benefits. The state effort should be concentrated on programs oriented at households which were in no condition to satisfy basic needs, distributing subsidies according to need, and not according to ability to pay.

Recognizing the contributions of this approach, it is important to bear in mind that poverty and hunger have deep causes, rooted in the organization of society and in the basis of the economy. Thus, it is difficult to visualise the eradication of the problem of hunger through piecemeal actions that act primarily on the external manifestations of the phenomenon without attacking the permanent factors that generate and perpetuate them. The economic model accentuated the social inequalities, as is shown in surveys of household budgets and family expenditures. Under different political and economic conditions, the social programs must be maintained and intensified, as the subsidies constitute palliatives for poverty. Moreover, they are the programs whose benefits represent an investment in human capital. Along with these measures, the state should be fundamentally concerned to achieve economic growth with more equity, assuring participation of the populace and the integral nature of the social actions.

By definition, nutritional problems are multisectorial and actions which take into consideration their multicausality (i.e. health, education, employment, sanitation, economy, agriculture, etc.) are fundamental for their prevention and control. The nutritional advances achieved in our country are the result of adequate social policies, relatively integral, stable over time, and targetted to the most vulnerable groups. It is very difficult to establish, among the different sectorial programs, what has been the relative impact and importance for improving the nutrition situation. Without pretending to rank them, we can cite the following aspects:

1. Adequate coverage by health services with an emphasis on activities to foment and protect the health of the maternal

infant health group. This is complemented by creation of nutritional surveillance systems at the individual and at the collective levels (pregnancies and children below 6 y of age) and well-defined criteria for the actions to be taken to address nutritional deficits.

2. Family-planning programs which have reduced birth-rates and average family-size.
3. Maternal-infant health feeding programs of widespread cover age adequately targeted toward the population of highest vulnerability and with a preventive and curative focus. This is complemented with a network of services for children with nutritional deficiencies.
4. Services to the preschool child targeted to the extremely poor, in which the child receives alimentation, stimulation and educational activities.
5. An important increase in the distribution of drinking water and the systems for handling human excrement, especially in the urban population.
6. Improvement in the mean level of formal education of the population with the reduction of rates of illiteracy and an increase in the mean years of schooling.
7. Well-targeted school feeding programs which contribute to the decrease in school drop-outs, which improve school performance, and which promote equality of opportunity in the educational process.
8. Urbanization with a significant reduction in the rural population, a group with a traditionally greater nutritional vulnerability.
9. Agrarian policies that permit a significant growth in this sector and a lesser dependence on food imports.
10. An open market economy to international trade based on state intervention and stimulation of foreign and domestic investment, which has allowed for economic growth with relatively stable prices.

FINAL CONSIDERATIONS

Over the last half-century in Chile, there has been a preferential inclination toward maternal-infant health and nutrition, which has been translated into the execution of a variety of technically-adequate and well-administered feeding programs. Through the process of evaluation of both their process and their impact, the programs have improved and perfected their targeting. It is without a doubt that this fact has contributed to the reduction in the prevalence of undernutrition, of low birthweight, and of infant mortality, in synergistic conjunction with other social policies oriented at improving the factors contributing to the nutritional problem.

Despite the progress that has been achieved, however, it is important to point out some limitations of the current policies

and programs, limitations that suggest the need for their revision to improve their efficiency.

1. Over the last nine years (since 1982), there has been little progress on the nutritional situation with relatively stable rates of malnutrition and low birthweights.
2. The current nutritional assessment criteria do not appear to be the most adequate and the majority of academic bodies have been proposing for years that the standards be changed to those with the greatest international acceptability, namely those of the WHO/NCHS.
3. There has been little concern for the integrated development of the child, centered almost completely on efforts to favour physical growth in preschool children.
4. Despite the satisfactory evolution of mean nutritional indicators in the population, there are marked inequalities when data are disaggregated into smaller geographical units.
5. Based on obvious priorities, all of the investment in this area has been oriented to the nutritional deficit problems of the maternal-infant group, leaving aside other groups which also constitute public health problems such as adolescents, adults and seniors.
6. There has been insufficient concern at the public health level for the nutritional problems of excess or for diseases linked to feeding pattern, despite the high prevalence in adults of diabetes, hypertension, obesity, hypercholesterolemia, etc.
7. There are great deficits in the area of alimentary education for the population at large, and on quality control of foods consumed.
8. There is no national-level information from which to evaluate the extent of sub-alimentation, which in all studies appears to be many times higher than actual undernutrition. This can be explained by mechanisms of adaptation and accommodation to food deficit and always is associated with some retardation of physical growth.
9. Even when severe energy deficits have been overcome in the maternal-infantile population, there are still important problems with the quality and variety of food in the lower income groups, which results in the underconsumption of certain nutrients, e.g. calcium, iron, zinc, folic acid, riboflavin.
10. There is little coordination between the different state agencies that plan, administer and execute feeding programs. This fact is reflected at the local, regional and national level.
11. There is technical weakness in the administration of some state agencies in charge of planning and development activities in the areas of food and nutrition.

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NUTRITION IN LARGE URBAN CENTRES OF BRAZIL: SOUTHEAST REGION

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SUMMARY The interest in the evaluation of the nutritional status of the population and the quality of food in large cities has been steadily growing in Brazil. The Brazilian population is rapidly urbanising. Recent demographic data show that 70% of the Brazilian population live in cities and that the State of São Paulo is more than 90% urban, with dense concentrations. The city of São Paulo has about 10 million inhabitants. Other cities in this region have up to 1 million residents. This growing urbanisation produces serious food and nutrition problems linked to changes in dietary habits and social conditions. Nutritional problems related to lack of proteins, calories, vitamins and minerals along with excessive consumption of alcohol, and at the same time obesity have been detected in these populations. Food storage, hygienic food preservation, and adequate industrial processing are among the additional problems affecting the nutrition of the population in large cities. Changes in traditional habits such as breast feeding are occurring in these settings. The prevalence of nutritional diseases such as protein energy malnutrition, iron deficiency (with or without anaemia), and vitamin A and zinc deficiency have been studied in the cities of São Paulo and Ribeirão Preto. At the same time, the increasing prevalence of diseases of affluence such as cardiovascular disorders and obesity, along with alcoholism, are of great concern to experts working in nutritional sciences.

KEYS WORDS: Metropolisation, Urbanisation, Micronutrients, Protein, Energy, Obesity, São Paulo.

INTRODUCTION

In developing countries, urban areas are rapidly growing in terms of their importance, extension and population. The United Nations published a review entitled "Patterns of Urban and Rural Population Growth" (1980) which noted that the urban population of the less developed countries was around 440 million in 1960, 970 million in 1980 and would reach 2.6 billion in the year 2000. The more urbanised regions in developing countries of Latin America have a level of urbanisation estimated at 65% in 1980, followed by Asia with 30% and Africa

with 29% (1). An example of this growth is São Paulo which at the turn of this century had 240 thousand inhabitants, reached 580 thousand by 1920, 1.3 million by 1940, 2.2 million by 1950, 3.6 million by 1960, 5.9 million by 1970, 8.5 million by 1980 and today has a population of 9.7 million. Considering 1900 as a reference year, its growth has been 40 fold. The city of New York only grew 2.5 times during the same period (2).

Recent demographic data show that 70% of the Brazilian population live in cities and that the State of São Paulo is more than 90% urban as a consequence of rural-to-urban migration. The migratory flux flows from the rural areas and small towns to large urban centres. The factors involved are mostly socio-economic in nature, such as the expectation of a better chance of employment, higher wages, improved standards of living, education and recreation. Huge increases in population occur most frequently in slums in the outskirts of large cities, although a contrary trend was recently detected, with large groups of people leaving our densely populated areas.

In fact, in Brazil, one clearly observes the phenomenon designated "metropolisation", i.e., an accelerated expansion of the periphery of the large metropolitan regions. In the past 11 years, the annual growth rate of this peripheral population has been higher than that of the inner city. Metropolisation is occurring in São Paulo, Rio de Janeiro and Belo Horizonte (Southern Region) as well as in other capitals. In São Paulo, for example, the annual growth rate is 1%, whereas the rate for the surrounding areas is 3% (IBGE-Census 91). Around 2.7 million people live in slums ("favelas") which have sprung up around the periphery.

The consequences of metropolisation are: deterioration of the urban infrastructure, increased social tension, crime, and a worsening of nutritional and sanitary conditions.

In 1985 the infant mortality rate (deaths of children under 1 year of age for every 1000 live births) decreased to 36.0 in the City of São Paulo. However, the rate was not consistent through-

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out the region: for example in 1983 this rate was 42.6 in the center of Sao Paulo and 69.2 in the surrounding areas (3). Recent studies in the Municipality of Sao Paulo have shown that the elderly living in the outskirts are less privileged in terms of environmental surroundings, cultural patterns and economic situation. This study showed that the aged population consisted primarily of females (60%) who had migrated from rural areas (57%). In the central area 27% had a per capita income of more than US\$ 250 per month. In the peripheral areas, 47% were illiterate, 56% had a monthly income below US\$ 50 and 32% had mental disturbances, the latter rate being higher than in the central area (4).

Recent Brazilian studies have compared the prevalence of undernutrition among under-five-year-olds in 1974-75 with that of 1989. There was a significant decline in this prevalence, showing a 33% reduction in all forms of undernutrition and a 67% decline for the moderate and severe forms (5). These data, however, show an extremely heterogeneous distribution, with great contrasts among the various Brazilian urban regions. The Southern Region presents anthropometric indicators comparable to those of countries such as Chile and Costa Rica, considered to have good levels of health and good patterns of nutrition (6).

Despite the progress in the Southeast, other reports have demonstrated the prevalence of other types of nutritional disorders in the area, such as chronic non-infectious diseases related to nutrition.

Previously, the main focus of intervention programmes has been the correction of disorders related to protein energy malnutrition; now other forms of malnutrition are requiring attention.

Thus, in the Municipality of Sao Paulo in 1984/85, 53.7% of children under 2 years from a low socioeconomic stratum showed nutritional anaemia, half of them with severe anaemia (cutoff: Hb < 9.5 g/dl). These figures represent double the prevalence found in a study undertaken 7 years earlier in the same municipality (7,8).

High prevalences of nutritional anaemia have been found in other cities of the Southern Region of Brazil; for example, 38.3% of children between 6 and 12 months of age in the central part of Ribeirao Preto and 58.2% of children under 2 years in the outskirts of the same city were anaemic (9,10).

Other deficiencies have also been described in this economically developed city of Ribeirao Preto. Low circulating levels of zinc were found in children from 2 to 7 years of age from low socio-economic groups living in peripheral settlements. The plasma zinc levels were below 70 µg/dl in 13% of the children studied (11). Similar findings were detected in Rio de Janeiro (12).

Estimates of a recent household-level survey (1989) in the

Southern Region have shown that approximately 6 million persons > 18 years of age had low body-weight. This was the worst figure, in absolute terms, for any region in Brazil (13). In the Southern Region the rural population showed the greatest prevalence of low weight when rural and urban populations were compared (Table 1).

TABLE 1
ESTIMATED PREVALENCE (%) OF LOW WEIGHT
IN THE RURAL AND URBAN POPULATION
OF THE SOUTHEAST REGION

Sex	Urban Sector		Rural Sector	
	%	Estimated population	%	Estimated population
Men	14,25	2.311.165	21,46	588.191
Women	13,75	2.403.778	17,20	406.205

Economic factors certainly influence dietary patterns, particularly in the urban areas. Mello-Amorozo and Srimpton (14), in 1984, suggested that income was a factor for 30 to 60% of the population of Manaus, a large urban center in the Amazon region. These factors, once again, can be seen in the Southern Region when one considers the various income levels; the prevalence of low weight decreases with increasing monthly per capita family income (13).

Expenditure on food consumes one-half to one-third of the household budget of the low-income population of Latin America (15). In 1980, Ward and Amano (16) reported that poor migrants in Brazil were not efficient in their selection of diet; for the same income, they could have bought relatively better quality foods.

We recognise a certain overall relationship between income, expenditure on food and eating patterns. An increase in income almost always results in an increased purchase of foods in absolute terms but, after reaching a certain minimum level, the percentage of the household budget allotted to food tapers off.

The nutritional problems related to rapid urbanisation certainly exert an important influence on food intake for urban residents, particularly those with low purchasing power (17).

Thus, recent published data of the PNSN (Health and Nutrition National Survey) have shown that the influence of income on nutrition is more evident when the per capita incomes are tracked from a 0.5 minimum-wage household in-

come to a 2.0 minimum-wage, both for men and women. Across this income gap in rural populations, there was a decrease in the prevalence of low-weight in adults. Among adults in the urban areas, these changes did not imply a modification in low weight prevalences (13). Mechanisms of subsistence such as production of food, a practice very common in rural areas, may possibly explain this difference. Furthermore, obtaining food is much more dependent on the level of family income in urban settings and the urban cost of living is made up of expenditures on housing, transportation, etc.

Studies have shown a large variety of foods, and possibly foods of better quality consumed by residents of the urban zone. The urban diet, in opposition to the rural diet, tends to incorporate foods such as meat, fish, poultry, eggs, milk and dairy products, and fruits and vegetables in large amounts (18).

Another aspect to be considered is physical activity which is considerably less in the cities than in rural areas (17). In addition, the new residents of the urban zone tend to utilise processed, industrialised foods, i.e., "snack foods" (rich in sugar, salt and fat) (19,20). These considerations may explain the higher prevalence of "low" body mass indices in rural than in urban areas.

On the other hand, there is a high prevalence of obesity in urban centres.

With respect to obesity (defined as a BMI > 30) among adults, it was estimated there are 3,698,605 adults with this condition in the Southern Region. Of all the people thus classified, 70% are females. These values represent a high prevalence of obesity among women (12.6%), with men having only a 3.8% frequency of this condition (Table 2). The overall frequency of obesity found among school children in Ribeirao Preto - SP is as high as that seen in developed countries, but it is directly related to socioeconomic status (Table 3) (20).

The rate of obesity among adults increases progressively

TABLE 2
ESTIMATED PREVALENCE (%) OF OBESITY IN THE
RURAL AND URBAN POPULATION OF THE
SOUTHEAST REGION, 1989.

Sex	Urban Sector		Rural Sector	
	%	Estimated population	%	Estimated population
Men	6,11	990.829	1,53	42.088
Women	13,71	2,395.828	11,43	269.860

TABLE 3
PREVALENCE OF OBESITY IN SECONDARY SCHOOL
CHILDREN ACCORDING TO SOCIO-ECONOMIC
CLASS AND SEX. RIBEIRAO PRETO -SP

Socio-economic Class	Percentages		
	M	F	Total
Upper	35,8	42,4	38,0
Middle	17,0	7,5	12,0
Low	2,3	5,3	4,0

with age, from 45 years onward in women and between 45 and 64 years in men. In urban areas, around 67% of all obese women are over 45 years of age; in this age-group, the prevalence of obesity is 22.7%. For men, the peak prevalence of obesity (10.2%) was found in the age-range of 55 to 64 years.

When analysing the relation between obesity and income, a general trend is observed: the higher the income the higher the prevalence, with the exception of women living in the urban area, who show a mild decline in obesity with higher incomes. Obesity is more frequently seen among urban men, with a prevalence of 6.1%, as compared with rural men, with a rate of 1.5%. Among women, the urban-rural difference disappears, with prevalences of 13.7 and 11.4% in the respective regions (13). The high prevalence of obesity is a matter of concern due to its association with morbidity and mortality.

Tentative explanations for the gain in body weight and the prevalence of obesity in Brazil, especially among women, may be related to food intake and physical activity.

Data presented by the DIEESE (Intersyndical Department of Economic Studies) from studies monitoring the price of the subsistence food basket in Sao Paulo do not confirm the possibility of an overall increase in food consumption. The "Household Budget Survey" (POF - FIBGE, 1989), conducted in 1987/88 in nine different metropolitan areas of Brazil, permitted a comparison of food intake over a 15-year period. These data show a decline of about 8% in food expenditures over the period of 1974 to 1989. They also show a larger consumption of soybean oil.

According to Coitinho and coworkers (13), there has been an increase in energy intake in certain subgroups of the population. It is possible that this increase in energy was provided by a supply of foostuffs at work, such as those offered by the Food for Workers Govt. Programs. Food supplement programmes for pregnant women and young children and a reduction in family

size probably increased the availability of food or its differential redistribution for adult consumption. An additional possibility is an alteration of dietary composition with the substitution of expensive foods (meat, eggs, butter, fruits and vegetables) by "cheap calories" such as rice, oil and manioc flour along with a possible increase in the consumption of alcoholic beverages.

It is probable that changes in life style result in less physical activity, both in terms of work and recreation. Our way of life is becoming ever more sedentary, with clear consequences in body composition; the extreme effects of this process are the weight gains observed in the poorest classes (20). A hereditary influence may also be proposed as an additional explanation.

The creation of a Brazilian Programme of Food Production, Storage and Consumption, is proposed in order to secure food for everyone. It is necessary to satisfy the priority needs of the highest-risk segments by ample supplementation with basic foodstuffs. It is also fundamental that food availability be increased in a long-term programme.

A more efficient commercialisation of food could lead to a reduction in price, reducing the number of intermediaries between producer and consumer. The City Hall of the Municipality of Sao Paulo has organized "fairs" in neighborhoods with populations of lower economic level, selling foods at reduced prices. Another option frequently brought to mind is the reduction of prices of basic foods for the consumer by way of a government subsidy system but this causes the agricultural sector to lose interest in production. Finally, it has been proposed that intervention programmes take into consideration not only issues of protein and energy nutrition but also those of micronutrient imbalances.

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NUTRITIONAL PROBLEMS IN THE URBAN AREAS OF VENEZUELA

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SUMMARY In the last sixty years, Venezuela has seen the geographic distribution of its population change to the point where more than 80% of its inhabitants have come to live in the urban areas of the country. The rise of development poles has attracted the majority of those living in the rural areas, and many immigrants from neighbouring countries who came in search of better living conditions. Those who came from the rural areas progressively adopted dietary patterns characterised by a disproportionate intake of fats and carbohydrates, and low levels of physical activity. They also stopped producing their own food to become part of a mass consumption society characterised by the dependance on money to acquire food, therefore dependent on the availability of jobs and the buying power of salaries. These factors, together with the serious sanitary conditions prevalent in the poverty belts in which they come to live, produce a delicate nutritional situation in the urban areas of Venezuela. The high prevalence of overweight and raising levels of undernutrition represent a step back to situations surpassed years ago. Recent studies place 80% of the urban population in poverty levels, with a prevalence of undernutrition that reaches 13.8% of the population under 15 years of age, while overweight affects near 9% of them.

INTRODUCTION

At the beginning of the forties, Venezuela was a rural country that, after having been ruled for almost thirty years by a tough peasant from the Andes highlands who had become a military man, saw part of its population ravaged by various epidemics. While a large number of the survivors abandoned little by little their agricultural activities, looking for better living conditions in the underdeveloped cities, others were attracted by the recently emerging oil exploitation areas, a fabulous asset later to be a primary source of wealth and a decisive factor of the most important changes to take place in the years to come.

Today, as the last years of the twentieth century elapse, our country has more than eighty percent of its inhabitants living in

the same cities that welcomed the rural migrants. However they do not resemble them at all in their physical and population structure, in the way of life of their inhabitants and in the complexity of their problems.

The changes in the physical structures of the cities, determined by their population dynamics, have forced them to lose the typical grid structure of their streets, to make them grow in an anarchic way due to the explosive growth of their improvised 'barriadas' or shantytowns, as new groups are arriving, now not only from the Venezuelan countryside, but from the neighbouring countries whose economic and social conditions are worse than ours. They are all motivated by the same reason: the search of a better present for all, and a less limited future for their children.

This evolution of the human component of Venezuelan cities has many elements that should be analysed when talking about the nutritional situation of their inhabitants.

In the first place, those who came from the rural areas several decades ago, brought with them in full their dietary habits and their disposition to hard work, which was the only kind of work they had learned from their parents and had practiced from a very early age in their country life.

Those who have arrived in the last twenty years, have done so attracted by the apparent image of comfort of the city life, just as it is presented by the mass media that reach every corner of the country. This is reinforced by the fact that ninety seven percent of the population is reached by radio, and T.V. coverage approaches ninety percent.

The motivation is quite different for those who came yesterday and the ones arriving nowadays. Just as different are the cities that welcomed those of yesteryear with open arms, and the ones that await them now to make them part of a machinery less and less human and filled with problems and limitations.

On the other hand, those who came from other lands in the

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1950's were mostly from European countries in which, even though they were part of the less favoured classes, they had an internal wealth derived from living in places where history ennobles the spirit with the breaking of each dawn.

In spite of being part of programmed immigration conceived to improve the productivity of the fields, which were already witnessing the significant decrease in their population, the majority of these immigrants settled in the cities to transform the primitive grocery shops that fulfilled the daily needs of the families in their neighbourhood, selling in accordance with the traditional dietary habits, into improved grocery stores that evolved towards more advanced marketing systems with a deep influence from the countries of origin of those immigrants. At the same time, their habits were slowly colonising Venezuelan cuisine at all levels, so much so, that the Italian pasta has become one of the most consumed products.

These people that, as I said before, came from sectors of utmost poverty in their countries of origin, aided by their exemplary capacity for work, left external poverty never to return to it in spite of the new realities of the countries where they have put down roots.

Those who came from poorer countries have made no significant contributions as far as consumption patterns are concerned, but they do compete for food availability with the ones who come to the cities from the Venezuelan countryside. They add up to the malnutrition statistics and seriously affect the reach of the social programs aimed at reducing the dietary deficit that now affects so many people.

Nevertheless poor migrants from the country itself, poor but legal immigrants from the more advanced Europe and poorer immigrants, illegal mostly, from underdeveloped Latin America, all arriving in the cities, significantly reduce their levels of physical activities to form an atypical subgroup of malnourished. Their marked overweight is the result of the consumption of food rich in less expensive carbohydrates and the substitution of the daily walk to work and the physical demands of it by motorised transport and mechanised labor in the industries that lured them to move to the cities (1).

This last fact characterised for years the nutritional situation of the urban areas of Venezuela, in such a way that, at the beginning of the eighties, overweight was predominant over undernutrition in the population under 15 years of age, and those of us who work in hospitals that see to the needs of the less favoured sectors of the population, regarded with surprise and awe those cases of severe undernutrition.

As a point of reference, in the study carried out in the University Hospital Angel Larralde of the Social Security Service, where the headquarters of our Unit of Investigation is located, and that covered a period of one year from October 1986, only six cases of severe undernutrition were reported, three of which were the result of congenital malformations that affected the feeding capabilities of the patients in the poor

homes they came from (2).

As for adult population, it is of interest that obesity has increased its prevalence to alarming levels. Evidence of this reality can be found in research done in the Valencia area, in which an increase of over one kg. per year was observed in the working class from the moment they were employed by manufacturing industries.

Taking into account the average age, 31 years, the daily energy need, 3,000 Calories, and the perspective of progressive diminishment of physical effort requirement as with time work becomes more mechanised, we had enough reason to worry, especially since in evaluating the nutritional situation of the families of those workers we found a prevalence of obesity in sixty percent in their wives or mates (3), all living in slums areas of the cities.

Likewise, in our hospital, 39.7% of the men and women who came for out-patient care in a two month period in 1985 were obese (4).

That was our developing country when we understood such a country as one that improves progressively its general situation and whose population ascended equally in the social scale, which doesn't necessarily mean improving all aspects of life, but definitely an acceptable reduction in the quantity and quality of the problems typical of underdevelopment.

That was the urban Venezuela of times favoured by an income derived from oil that exceeded the State's capacity to administer it rationally. The diminishment of the occurrence of undernutrition and the increase of the problems related to dietary excess could not be attributed to the favourable impact of a true development policy, but to the spreading of national wealth to all sectors as a consequence of overspill.

This also explains what we observed ten years later. The fall in income derived from petroleum showed that unplanned distribution of economic resources that appeared to be sufficient for everything and everyone, had only been good enough to palliate exterior poverty, not allowing the larger sectors of the population to abandon interior poverty which made them return, when the overflowing resources diminished, to the situation that seemed left behind.

The phantom of external debt that threatens the political, economic and social health of Latin American countries, put an end, in our case, to that wealth for everyone and turned it into a poverty that affects eighty percent of the Venezuelan population (5).

Obviously, the percentage living in the urban areas being similar, it is to be expected that such poverty has changed the dietary outlook of our population.

Life in the cities is accompanied by a total dependance on money for household food availability. As it is possible neither to work the land nor to raise animals in urban living conditions in our country, salaries become a fundamental determinant of

what can or cannot be done regarding nutrition.

As it is known, one of the consequences of adjustment measures applied in all the countries of the region to make them capable of paying their external debt, is the increase of unemployment. This fact is felt more strongly when another of the consequences of those measures comes forth: the disproportionate increase in the prices of food products resulting from the withdrawal of subsidies. In our country, that did not know the meaning of inflation, the prices of food went up 125% in 1989, at the same time the real salaries decreased thirty percent, which represents the greatest reduction in forty years (6).

The consequences of this disastrous combination of unwanted circumstances are plain to see. In the Paediatric Service itself, where we found only three severely undernourished children between 1986 and 1987, twelve were hospitalised in the first two months of this year. At the same time, in the other Public Hospital of the city, that serves not the workers but the even poorer sector of the population, a similar number was hospitalised in only seven days.

The official statistics coincide, in their way, to present the seriousness of the 'new' nutritional situation of the urban areas of Venezuela. The prevalence of undernutrition in the population under fifteen years of age has evolved in such a way that, from 9.85% in 1980 (7) it went to 12.5% in 1990 and to 13.8% in 1991 (8). It is significant that in the same period, the percentage of children with weight above the average fell from 13% to 8.4%, corresponding, as was already stated, to the type of overweight resulting from the excessive intake of the cheapest energy source, carbohydrates.

Currently, our country faces a difficult situation with respect to food availability in order to fulfil the nutritional and energy needs of the population. Never before, as they are now, had the figures of availability of food items that are usual sources of micronutrients as important as vitamin A, zinc and iron been as low as they are now (9).

For vitamin A, the figures declined in 1989 to 70% adequacy, while for iron it reached 62%. In relation to this mineral it is worth mentioning that, by the year 1986, anaemia was no longer a public health problem, but in studies carried out last year in the urban population of 7, 11 and 15 years of age, it was found that the prevalence of low ferritin levels, increased 80% in relation to the figures registered five years earlier.

Even though there is no data about zinc availability, the fact that it shares sources with the other micronutrients makes us think that we are facing a similar risk of deficiency.

Although it is true that the data on the food balance sheets are not specified for rural and urban areas, it is very clear that a large portion of the dietary needs of the minority that lives in the countryside are satisfied by domestic production on a small scale, while it is the people in the cities that depend to a

higher degree on the production and imports registered in the official documents, so that the data in the balance sheets are quite close to urban reality.

Compared to previous long-past times, in which food availability was also insufficient, it is necessary to make clear that the problem then sprang from the low capacity of supply, typical of a country with undeveloped agriculture and lacking industrial substructure. Now the research in social and economic areas lead us to the conclusion that the difficulty lies in a low capacity of demand as a consequence of the loss in buying power of present salaries due to the impact of the economic adjustment measures.

These elements outline a dietary and nutritional situation of the Venezuelan urban population, that, although it has similar external characteristics to the one observed some decades ago, it is accompanied by a number of quite different determinants and conditioning factors, a fact that demands special consideration in defining programmes and integrating policies that lead to a real solution of the above mentioned problems.

The majority of the poor people that live in the slums of modern Venezuelan cities have returned to this condition after the illusion of wealth vanished. This is confirmed by the reappearance of what the passing of time had led us to believe were sad situations we had overcome.

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NUTRITION AND HEALTH IN THE URBAN AREA OF COSTA RICA

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SUMMARY Costa Rica, a Central American country, has not escaped the phenomena of rapid growth of a concentrated urban population. Thus, 60% of the country's total inhabitants are located in the Central Valley which is characteristically urban. Although the Government cares for health and education in both urban and rural areas, there is a lack of rules and guidance to control urban growth.

Since the study of the nutritional status of a given population cannot be made in the same way for all age groups, this paper concentrates on the nutrition of preschool children. The main objectives of this article are: to describe the current nutritional situation of children living in urban areas of the country, with emphasis on the Metropolitan Area, and to discuss what determines such a condition.

In 1990, 13.1 percent and 23.1 percent of the country's population, was composed of children between 0-4 and 5-14 years respectively. The first age group showed (congenital diseases as the main cause of death), the second age group showed accidents as the main cause of death. This mortality pattern indicates that malnutrition is no longer an important cause of morbidity or death in Costa Rica.

However, recent studies have demonstrated the presence of malnutrition in poverty stricken urban settings. This fact, suggests that nutritional deterioration is being observed among urban groups of poor socioeconomic conditions.

INTRODUCTION

Costa Rica, a Central American country covers an area of 52000 square kilometres with a population of nearly three and a half million in January 1992. This country has the following characteristics which distinguishes it from other countries: an economy based on agriculture, a century of democracy, 40 years without an army, primary and secondary schooling free of charge, the guarantee of women's equality and no reelection of political leaders. According to the last national census in 1984, the country only showed 7% illiteracy. In 1987, the government

expenditure on education represented 20% of the national budget (PAHO, 1990).

Since its independence in 1821, different administrations have shown a strong political will and financial support provided by the government for health related programmes. Thus since 1940 the setting-out and enforcement of social policies and the creation of relevant institutions have brought about an infrastructure for providing health and nutritional services to the most needy.

Rapid urban growth particularly during the second half of this century has also taken place in Costa Rica, where it is more noticeable since 20% of the territory is dedicated to national parks and forests.

"Urbanisation" can be defined as the process of rapid growth in terms of size and importance of a given population in a given area 40% of the total population of the country is currently concentrated in the Central Valley of Costa Rica.

Located in this valley, there is the Metropolitan Area which contains 28% of the country's population in 262 square kilometres, with a population density of 513 in comparison with a population density of 59 for the rest of the country (Sosa, 1991).

Because the Costa Rican economy is based on agriculture, the majority of social programmes are focused on rural areas. For this reason, attention to families living in urban areas has been postponed to the point that satisfaction of basic needs is now a main worry for the government (MIDEPLAN, 1991).

With the purpose of presenting the health and nutrition situation of people living in urban areas of Costa Rica at the "2nd Latin American Workshop on Nutrition and Health in Urban Areas", the following paper has as its objectives a) to describe the socioeconomic conditions in which urban populations live, particularly those living in the Metropolitan Area; b) to present the nutritional status of the urban population,

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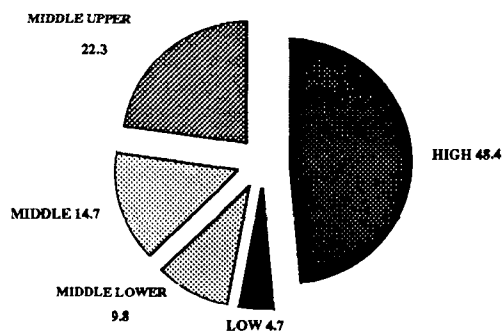
mainly that of preschoolers, and c) to indicate the main conditioning factors of nutrition in the population of the Metropolitan Area.

SOCIOENOMIC SITUATION OF THE URBAN POPULATION

In spite of the fact that the Metropolitan Area of San Jose presents as an average the best economic and social conditions of the country, it also exhibits important differences in the living conditions among families.

According to figures given by the Ministry of Planning (MIDEPLAN), during 1991, 34% of families of this area did not satisfy their basic needs, and 15,239 other families were living in acute poverty. In this regard, Figure 1 shows that 20% of families concentrate 48.4% of the national income whereas other 20% of families only receive 5% of the national income. Although poverty is spread among the Metropolitan Area, there are concentrations of poor families in certain neighbourhoods such as those located to the south of the capital (MIDEPLAN, 1991).

FIGURE 1
WEALTH DISTRIBUTION IN COSTA RICA, 1988
EXPRESSED AS A PERCENTAGE OF TOTAL WEALTH



Dirección General de Estadística y Censos.
Encuesta Nacional de Ingresos y Gastos, 1988.

This is an alarming situation since it is expected that by the year 2000 the urban dwellers will represent 60% of the total population (Figure 2). In contrast, the national budget destined to cover services such as drinking water, electricity, rubbish collection, public transportation and others has been gradually reduced since the 80s. For example, in Figure 3 it is noticeable that government expenditure on health and education has decreased whereas expenditure on housing is increasing, mainly due to the strong demand of homeless families.

FIGURE 2
PROPORTIONAL INCREASE OF THE URBAN POPULATION IN COSTA RICA

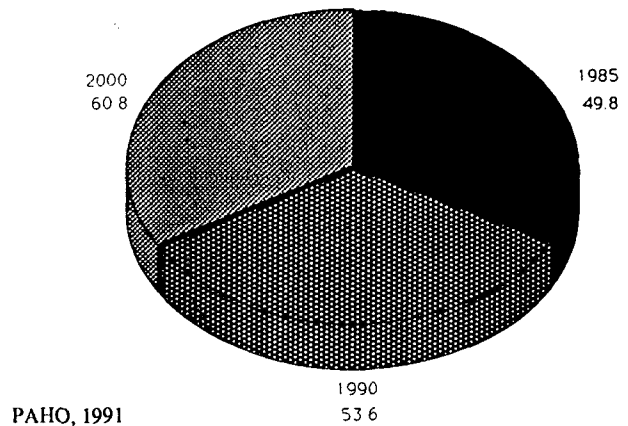
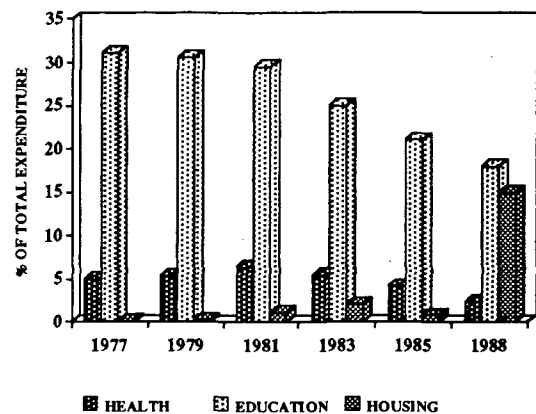


FIGURE 3
GOVERNMENT EXPENDITURE ON HEALTH, EDUCATION AND HOUSING IN COSTA RICA, 1977-88

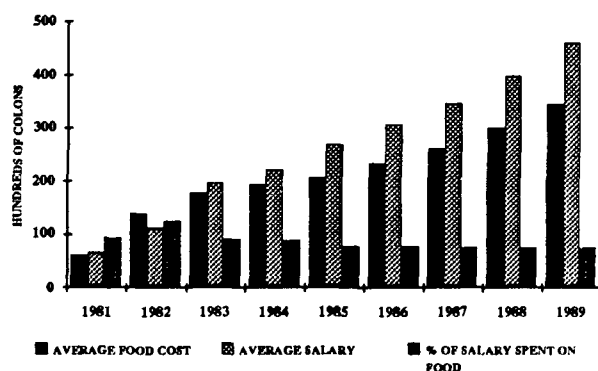


Mideplan, 1985 & O.P.S., 1991

The cost of food in relation to purchasing power is an economic indicator that allows us to suggest nutritional and health consequences for poor families. In this respect, Figure 4 shows that a family depending on a minimum salary would need 75% of that salary to cover the cost of food. This situation would classify such families as poor. In addition, Table 1 shows the results of a survey carried out during 1981-82 among urban poor families which showed that only those whose breadwinner had a permanent job were able to cover the cost of food.

NUTRITION AND HEALTH IN THE URBAN AREA OF COSTA RICA

FIGURE 4
PROGRESSION OF THE COST, OF THE BASIC FOOD BASKET, 1981-89, COSTA RICA



Cáceres y Murillo, Cadesca, 1990

TABLE 1
HOUSEHOLD EXPENDITURE ON FOOD, COSTA RICA, 1981-82.

Type of employment of the head of the family	Average family income*	% of income*** spent on food colons/month
Permanent workers:		
Salaried	5397**	49
Self-employed	4833	72
Owner	10948	31
Temporary workers:		
Contract labourers	3751	53
Independent workers	2556	41
Dependent workers	3283	57

* The average national salary in 1982 was 2957 colons/month.

** 60 colones = 1 U.S. dollar during the survey period.

*** The cost of the Costa Rica food basket for a family of five was 2460 colons/month in 1981-82.

Source: Murillo, S., 1984.

HEALTH AND NUTRITIONAL SITUATION OF THE URBAN POPULATION

Sociodemographic factors Table 2 shows that for the first half of this century, mortality strongly contributed to the behavioural growth of the population. In contrast, from 1950 onwards, birth rates have been the determinant variable on population growth (Sosa, 1991).

TABLE 2
MORTALITY RATES IN COSTA RICA

Category	Deaths/1000 Population		
	1970	1980	1990
Total mortality	6.6	4.1	3.9
Infant mortality	61.5	19.1	14.0
Mortality 1-4 yr	4.4	0.9	0.8
Mortality 5-14 yr	0.9	0.5	0.3

Source: Mahs, 1982 & P.A.H.O., 1991.

As can be observed from this table, infant mortality has particularly affected the general mortality rate of the population. However, from the 1960s, infant mortality rates have shown a continuous reduction, mainly due to changes in the causes of death pattern, (Table 3).

TABLE 3
CHANGES IN THE PRINCIPAL CAUSES OF DEATH AT THE NATIONAL CHILDREN'S HOSPITAL

	1970	1980	1990
1st	Diarrhoeal Disease	Perinatal illnesses	Idem.
2nd	Pneumonia	Congenital malformations	Idem.
3rd	Septicaemia Transmittable	Pneumonia	diseases
4th	Meningitis	Trauma	Trauma
5th	Immaturity	Malignancies	Idem.

Source: Mohs, 1982 & P.A.H.O.

The composition of the infant mortality rate has also suffered variations through last decades, i.e. in 1970, the infant mortality rate of 61.5 per thousand live births was composed of a neonatal rate of 22/1000 and of a postneonatal rate of 39.5/1000 live births; whereas, in 1988, these figures were composed as follows: infant mortality rate of 14.1/1000 live births given by a neonatal rate of 9.3/1000 and of a postneonatal rate of 4.8/1000 live births (Table 4).

The above-mentioned situation added up to a decreased birth rate, which has affected the pyramid structure of the

TABLE 4
INFANT MORTALITY RATE PER 1000
1970-1988, COSTA RICA

Year	Neonatal	Postneonatal	Infantile
1970	22.0	39.5	61.5
1975	17.7	19.4	37.1
1980	11.2	7.9	19.1
1988	9.3	4.8	14.1

Source: Mohs, 1982 % PAHO, 1991.

population. Thus, by 1990, 13.1% of the population were children under 4 years of age and, according to projections, it is estimated that by the year 2000 this age group will only represent 11.5% of the inhabitants.

The principal causes of death among the adult population are similar to those for developed countries such as cardiovascular diseases, tumours and accidents.

Intestinal parasites. The high prevalence of endemic infectious parasitic diseases is one of the main health problems in the public health of developing countries. In general terms, many countries of the world have been successful in reducing the percentage of people suffering from endemic parasites. However, recent surveys have revealed that the percentage of infected people living in developing countries still remains unchanged. Most of these people are located in the slum areas of cities (WHO, 1990; Kossof & Hernandez, *et.al.*, 1989).

Like most of the Latin American nations, Costa Rica has been more successful in tackling rural health problems than those in poverty stricken urban areas (Kossof & Hernandez, *et.al.*, 1989; Murillo, 1990).

A study carried out in 1987 by Hernandez and co workers in families of a slum area and families from the middle income group, confirmed the hypothesis that inadequate hygienic conditions favour the transmission of intestinal parasites.

Results from the above-mentioned study are shown in Table 5 where it can be observed that a high prevalence of *A. lumbricoides*, *T. trichiura* and *H. nana* exists in slum families. Ninety four percent of families belonging to the middle income group were found free from those parasites, whereas 59% of families from the slum were infested. This difference was found to be statistically significant.

Furthermore, the same study indicated that the infestation was higher in people between the ages of 1 to 14 years. This situation suggested that inadequate sewage disposal and poor sanitary facilities contributed to a higher prevalence of parasitism.

Another study undertaken in a sample of preschool children during 1987, revealed that 85% of them were positive for parasites. Similar percentages were reported earlier in 1963 in a study done by Kotcher among 4 years old children of different towns of Costa Rica, Table 6 (Reyes, *et. al.*, 1987).

The study made by Reyes (1987), demonstrated that the prevalence of *A. lumbricoides*, *T. trichiura* and *E. histolytica*, correlated with the availability of drinking water and the type of sewage disposal ($p < 0.05$).

Supporting these findings, Murillo, 1990, found during an observation period of 12 months, a high prevalence of diarrhoea

TABLE 5
PREVALENCE OF INTESTINAL PARASITES IN A SLUM AREA AND IN HATILLO (MIDDLE CLASS
COMMUNITY) (%), METROPOLITAN AREA, COSTA RICA, 1987

Parasite	Children (1-14 years)		Adults (15 years or greater)	
	Slum area	Hatillo	Slum area	Hatillo
<i>Ascaris</i>	38 (21.0)	4 (6)	16 (8.9)	10 (8.6)
<i>Tricuris</i>	28 (15.5)	0	23 (12.8)	1 (0.8)
<i>Hymenolepis</i>	16 (8.8)	0	6 (3.4)	0
n	181	67	179	117

Source: Hernández, F. 1989.

TABLE 6

PREVALENCE OF INTESTINAL PARASITES IN PRESCHOOL CHILDREN ATTENDING DAY CARE CENTRES IN THE METROPOLITAN AREA OF COSTA RICA, 1986

Parasites	No.	%
<i>A. lumbricoides</i>	123	(25)
<i>T. trichiurus</i>	168	(37)
<i>E. histolytica</i>	83	(16)
<i>L. intestinalis</i>	234	(47)
Total	500	

Source: reyes, L. et. al. 1987.

in a sample of children under three years of age from poor neighbourhoods in the Metropolitan Area.

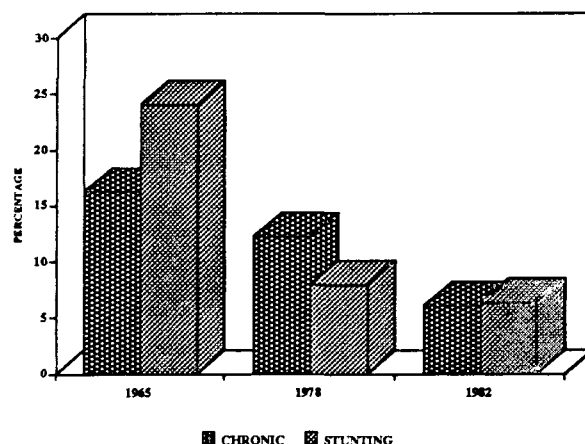
As was expressed by Reyes, 1987 "it could be concluded that although there have been achievements in health in Costa Rica, the deterioration of socioeconomic conditions of some families and the poor environmental conditions in which they live, are reflected in such high indicators of parasites lately found in people in the Metropolitan Area".

Health and nutrition The study of the nutritional status of children under 6 years of age has been the objective of several surveys undertaken in Costa Rica during the last three decades. Figure 5 shows a reduction in the prevalence of chronic malnutrition (defined as < 2 S.D. a way from the median of the NCHS reference growth pattern for the relationship weight age) and of stunting (defined as < 2 S.D. from the median of the NHCS reference growth pattern for height-age) in the preschool population of the country. Because these figures are mean values at the national level, they fail to reflect the nutritional situation of children according to urbanisation or socioeconomic class.

As has been stated by others (Lipton, 1975; Austin, 1982; Schurch and Favre, 1985; Gross and Monteiro, 1989), the study of nutritional problems in urban families coincides with the adversity of socioeconomic and cultural factors which promote poverty and malnutrition.

This relationship between poverty and malnutrition has also been described for Costa Rican urban areas. A study carried out by Murillo in 1984 in a subsample of children under 6 years of age from the poorest neighbourhoods of the Metropolitan Area, indicated that families belonging to the lowest income group had the majority of undernourished children. Thirty percent of surveyed children presented growth retardation which proved

FIGURE 5
PREVALENCE OF UNDERNUTRITION IN PRESCHOOL CHILDREN 1965-82, COSTA RICA



Encuesta Nacional de Nutrición

to be significantly related to environmental conditions rather than to genetic factors.

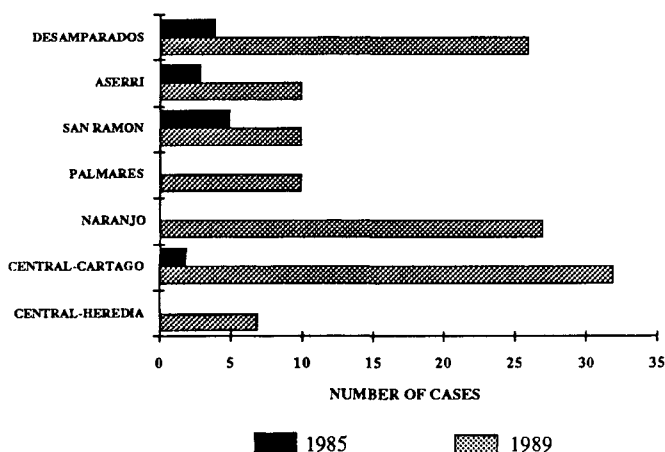
Results from the same study suggested that differences in height between children from different social classes occurred after the first year of life, probably as a result of negative environmental conditions and inadequate upbringing. Furthermore, it was found that differences in height were more pronounced than differences in weight between the study children according to social class (Murillo, 1984; 1987).

A longitudinal study undertaken among children living in the Metropolitan Area indicated that infants were completely weaned at three months of age, and energy intake was found to be the limiting factor in infants' and children's diets, particularly of those older than 11 months. This same study showed that 73% of children from the poorest families were below the 50th centile of height for age.

There exists some evidence of nutritional status deterioration among the infant population from urban areas during the last three years as a consequence of the economic crisis and as a result of the structural adjustment measures adopted by the government since 1986. The budget for primary health care programmes has been reduced affecting the quality and coverage of services. In addition, these programmes have been orientated towards the rural rather than the urban population, (Figure 6).

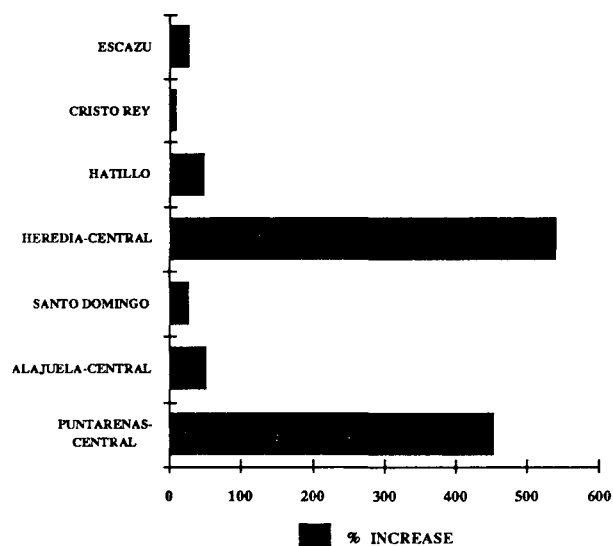
A recent report from the Ministry of Health points out an increase in the number of cases of severe malnutrition in some districts (cantones) during 1985-89. Another report from the same Ministry, indicated an increase in severe malnutrition cases among children under 6 years of age from urban districts (central) in the Provinces of Heredia, Puntarenas and San Jose, (Figure 7).

FIGURE 6
INCREASE IN CASES OF SEVERE UNDERNUTRITION
IN SOME URBAN DISTRICTS,
COSTA RICA, 1985-1989



Novigrodt, R. Proban. Ministerio de Salud, 1991

FIGURE 7
INCREASE (%) IN SEVERE UNDERNUTRITION
ACCORDING TO THE PRIMARY HEALTH CARE
PROGRAMME, COSTA RICA 1985-89



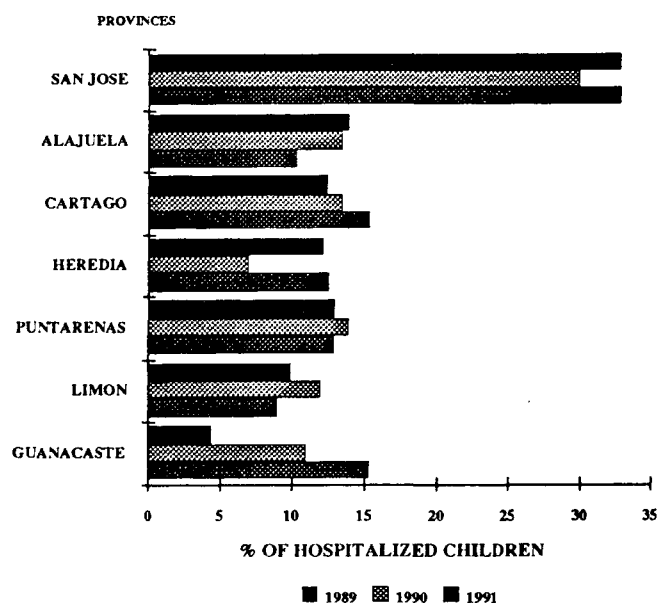
Novigrodt, R. Proban. Ministerio de Salud, 1991

This situation coincides with data from INCIENSA (the only place in the country specialising in the treatment of severe malnutrition) in relation to the number of hospitalised children with a diagnosis of severe malnutrition for the period 1989-1991. In this regard, Figure 8 shows the geographic distribution

of these children. It is worth noting that 33% of total cases came from urban areas of the country, mainly from San Jose province where the Metropolitan Area is located.

Another important finding regarding the nutrition of urban dwellers, concerns the average intake of calories and proteins by the population which was lower than rural ones according to the last national estimated consumption survey of 1989, (Figures 9 and 10).

FIGURE 8
GEOGRAPHIC DISTRIBUTION OF SEVERE
UNDERNOURISHED CHILDREN HOSPITALIZED AT
"THE INCIENSA", HOSPITAL, 89-90, COSTA RICA



Alfaro, F. Inciensa, 1992

CONCLUDING REMARKS

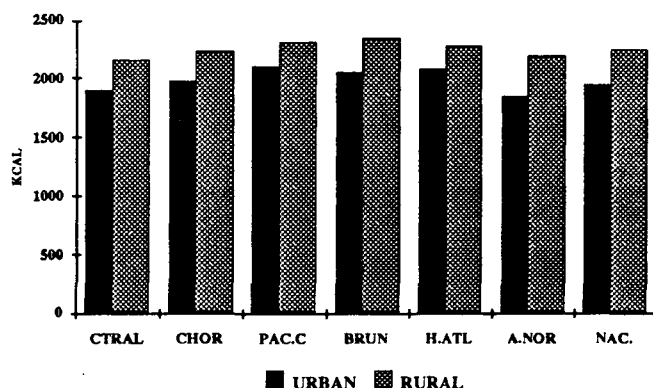
The health and nutritional status of a given population is usually determined by social and economic factors. These factors not only condition the environment where people live but also condition food habits, access to food and economic production of the individual. Thus, it is necessary to analyse the environment where groups live in order to describe their nutritional status (Cáceres and Murillo, 1990).

Although Costa Rica is lacking a multicausal analysis of the health and nutritional status of its urban population this paper presented data from the few available studies and reports to which we had access.

This presentation suggests that both research and recognition of nutritional problems affecting Costa Rican urban population have been ignored.

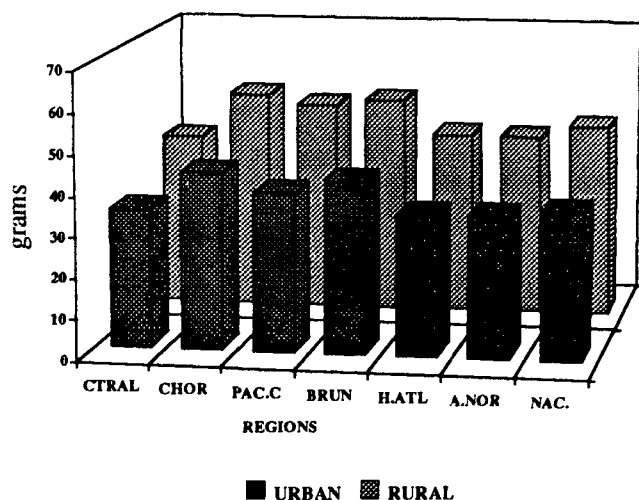
The high prevalence of intestinal parasitism and the high

FIGURE 9
ENERGY CONSUMPTION PER CAPITA ACCORDING
TO URBANISATION, IN DESIGNATED REGIONS,
COSTA RICA, 1989



Encuesta Nacional de Consumo Aparente de Alimentos, 1989

FIGURE 10
PROTEIN INTAKE ACCORDING TO DEGREE, OF
URBANISATION, COSTA RICA, 1989



Encuesta Nacional de Consumo Aparente de Alimentos, 1989

rate of morbidity episodes affecting preschoolers of the Metropolitan Area, indicate the need for adequate basic public services addressed to poverty stricken urban areas. In addition, it is necessary to provide nutrition education to help solve some of the current health problems.

It is worrying to note a deterioration process taking place regarding the nutrition of children under 6 years of age. This result could be one of the social costs brought about by structural adjustment measures adopted by the government

since 1986. Malnutrition is a fact in Costa Rica. According to information displayed in this paper, low income families are the ones which present health and malnutrition problems.

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NUTRITIONAL STATUS IN HAVANA, CUBA

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SUMMARY An analysis of the dietary nutritional status in Havana in the framework of the general situation of the country is reported. Some demographic characteristics, the administrative and political organisation in the country's capital, some aspects of the food availability and the different alternatives for obtaining them are commented upon, emphasising the significance of public nutrition in the capital. The average values of per capita food consumption are expressed and the characteristics of dietary patterns and food consumption of the population are examined. In addition, this paper discusses the deterioration of the commercial and financial relationships undergone by Cuba from 1989 on, as a result of the disappearance of the Socialist bloc and the tightening of the American blockade, which have forced Cuba to concentrate her domestic efforts on the Nutritional Programme. The results of the Dietary and Nutritional Surveillance System (SISVAN) in priority sections of the population (children less than 5 years of age, pregnant mothers, and school children) are discussed. The achievements made in the nutritional status of the population, as well as the different health indicators are stressed. Likewise, an epidemiologic scenario of non communicable chronic diseases and other health disorders are reported, along with their association with diet and the major causes of death in the capital and in the country. Finally, some issues on the population's way of life that have an impact on health and nutrition are reported and the tasks undertaken to increasingly raise the population's health are discussed.

INTRODUCTION

Havana, the capital of the Republic of Cuba, is one province divided into 15 municipalities: its current population amounts to 2,119,059 people, about 20% of the country's total, making it the largest city on the island.

The population density is 2,913.2 people/square kilometre, in contrast with the average national density, which is 96 people/square kilometre.

Havana is located in the Northwest part of the island. The climate is tropical and humid tempered by trade winds. In the

summertime, the average temperature is 28°C, with the hottest months being July and August. In winter, the mean temperature is 22°C. As far as rain is concerned the annual rainfall amounts to 1400 mm. Annual mean temperature is 25.1°C and the average relative humidity is 79%.

Its total territorial extent is 727 square kilometres, covering an area of 273 square kilometres.

It is located between 19° and 25°N and between 74° and 85°W.

The population distribution has higher percentages than those of the nation for the age groups 50-64 and 65 and over (14% and 10.4% respectively versus 11.9% and 8.5% in the country), a fact that is reflected in the higher mortality rates which are present in some chronic diseases.

Life expectancy at birth in the city reached 74.2 years in 1990, slightly lower than the national average of 75.2.

The estimated number of births for 1990 was 32,122 live births, at a rate of 15.2 per 100 population, lower than the national average (17.6), 99.93 % of live births in institutions.

During the 1980's a low population growth rate was seen as a result of a lower birth rate, with a relatively higher mortality rate.

Havana is among the four cities of the world with two million or more population in 1985, that in the period 1970-85 had a growth rate lower than 1%. The other three cities were Paris, Budapest and Beijing. In London, there was a decrease in the population.

Havana is the seat of the central government, formed by the Council of Ministers and the National Assembly of the People's Power. The provincial government consists of the Provincial and Municipal Assemblies of the People's Power. All government agencies have representation at the three levels (municipality, province, nation).

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It is important to point out that the territory encompassed by the 15 municipalities of the capital is considered urban, so when dealing with urban areas in Havana we mean in fact the entire capital. Its almost complete urbanisation prevents home production of agricultural products, and forces the neighbouring province which surrounds Havana completely, except for the shore line, to guarantee the supply of these foods for the capital's population.

DIETARY AND NUTRITIONAL STATUS

In the last thirty years the population's energy requirements have been guaranteed. The energy availability in 1965 was 2551 calories, and rose in 1988 to 2953; and in Havana it surpassed 3000 calories per capita. In 1989, the calorie supply in the country was 2845 and protein availability has ranged from 66 to 79 grams (Table 1).

Up to mid-1990 Cuba had four main ways of food distribution: home production, state subsidised ration card distribution, state free market, and public nutrition.

This is the same situation in Havana, with a much lower emphasis on home production.

At present due to the economic situation in the country and owing to the need to guarantee an equitable supply of foods for the population, most products in the state free market became subject to ration card distribution.

It is important to emphasise the energy supply, attained in an equitable and even manner by the entire population through product supply by using ration cards in the retail market, since this type of distribution is made at very low controlled prices, owing to state subsidies.

A significant amount of food provided for the population is channelled through so-called public nutrition, which includes students canteens at all levels of education, from day-care centres to the Universities, hospital food services, and employees and worker's canteens in all sectors of production.

Food rations provided by these services are free, with the exception of employees' and workers' canteens, where prices are low depending on the menu content. However, an important share of the cost of this service is borne by the state, since this price does not include expenses generated by the service.

Bearing in mind the supply of foods in the retail market through the ration card system and through daily rations that guarantee public nutrition, it is thought that the majority of the population takes 72% of its calorie protein intake through these channels. This represents a good dietary assurance for Cuban citizens.

The per capita food intake is distributed as follows (Table 2).

Although the protein and energy supply shows relatively fair levels for a developing country, it is necessary to improve

TABLE 1
AVERAGE FOOD/ENERGY CONSUMPTION

	kcal	Protein (g)
1965	2 552	66
1970	2 565	69
1975	2 622	71
1980	2 867	75
1985	2 953	79
1989	2 845	75

Source: State Committee of Statistics (SCS)

TABLE 2
PER CAPITA FOOD INTAKE
(Kg/year)

Food Product 1989	Actual
Cereals	108
Sugar	51
Beans	12
Carcass Meat	39
Eggs (U)	230
Fish (whole)	18
Milk and products	144
Fats	17
Root vegetables	66
Fruits	56
Green vegetables	59

the dietary pattern, to increase the amount of vegetables, fruit, meat products and whole cereals, as well as to decrease the consumption of sugar, refined cereals, in addition to increasing the ratio of oils rich in polyunsaturated fatty acids over saturated fats.

In general, during the last three decades diet has made constant improvement, but still many food habits contributing to the development of nutritional problems persist. Suffice to say that the three major causes of death for all ages are associated with dietary/nutritional factors.

NUTRITIONAL STATUS IN HAVANA CITY CUBA

The Cuban economy has been undergoing a deterioration of its commercial and financial relationships since 1989. The weakening of the Socialist economic bloc, coupled with the tightening of the American blockade, forced us to concentrate our domestic endeavours in the Food Programme and in action orientated towards rapid inflows of currency.

This Food programme reflects the country's economic and political desire to obtain in the shortest time possible a greater food independence and guaranteed availability, and to continue improving them until a truly rational nutrition is attained.

Protein-energy undernutrition is no longer a health problem. However, this condition persists in a small section of the child population. This is the result mainly of unfavourable cultural factors that are deeply rooted and require a long period of time to change.

A risk factor is the growing number of teenage pregnancies, whose children have had the highest incidence of low birth weight and the lowest prevalence of breastfeeding.

In 1990, from a total of 34 326 pregnancies recorded in Havana, 6120 were pregnant mothers less than 20 years old, which represent 17.9% of the total, slightly higher than the previous year (17.4%).

The year 1990 ended with a 7.1% rate of low birth weight in Havana, higher than the 6.5% for the previous year.

PREGNANT MOTHERS AT NUTRITIONAL RISK

According to data collected by the Food and Nutrition Surveillance System (SISVAN) in the year 1990, 7.3% of the total of pregnancies were classified at risk for low weight in the early months of pregnancy, lower than the one recorded for the nation, which was 8.7% Table 3 shows the trend of this indicator from 1985 on.

Pregnant mothers with a poor weight gain during one

pregnancy showed in 1990 a 3.3% rate, lower than that for the country as a whole, which was 5.5%. This indicator has persisted around 3% in the last few years.

Pregnant mothers classified as at risk for nutritional anaemia showed a 11.2% rate, slightly lower than the national rate, which was 11.4%, and higher than that for 1989, which was 9.1%

CHILDREN AT NUTRITIONAL RISK

By the end of 1990 there were in Havana 1165 children less than 1 year of age under nutritional surveillance. They had been classified as obese (above the 97 percentile for weight/height) a 3.5% rate, higher than that for Cuba which was 1.9%. As overweight (over 90 and up to the 97 percentile for weight/height), 3190 children were included in this very group (9.5%), also higher than that of the nation, which was 5.9%. 2086 children classified as thin (between the 3 and the 10 percentile for weight/height) a 6.3% rate, the national rate being 4.0%. 398 children under 1 year of age were classified as undernourished (lower than the 3% percentile for weight/height) a 1.2% rate, higher than the national average which was 0.9%.

Table 4 shows the results of the nutritional surveillance of children under 1 year of age from 1985 onwards, both in the capital and in the country as a whole.

Table 5 shows that the 1-4 age group has low rates of children at nutritional risk, although they are higher in Havana than in the nation as a whole.

NUTRITIONAL STATUS IN SCHOOL CHILDREN

In 1986, a survey of weight/height in school children in primary school (semi-boarders) and secondary school (boarders) was made throughout the country with the view to evaluating their nutritional status (Table 6).

A total of 19, 428 primary school children and 9466

TABLE 3
PREGNANT MOTHERS UNDER NUTRITIONAL SURVEILLANCE. HAVANA AND CUBA
(RATE IN %)

Year	Low weight at the beginning of pregnancy		Weight gain less than 8kg during pregnancy		Haemoglobin < 110g/l in the last trimester	
	Havana City	Cuba	Havana City	Cuba	Havana City	Cuba
1985	8.6	10.9	5.5	7.4	13.4	14.0
1988	6.1	7.9	3.0	5.3	6.8	11.1
1989	7.1	8.8	3.1	5.5	9.1	12.3
1990	7.3	8.7	3.3	5.5	11.2	11.4

TABLE 4
CHILDREN LESS THAN 1 YEAR OF AGE UNDER NUTRITIONAL SURVEILLANCE HAVANA CITY, CUBA
(RATE IN) %

Year	Obese		Overweight		Thin		Undernourished	
	Havana	Cuba	Havana	Cuba	Havana	Cuba	Havana	Cuba
1985	2.6	2.3	6.5	5.9	2.7	4.3	0.6	1.3
1988	2.0	2.0	5.8	5.4	4.3	3.6	0.8	1.0
1989	3.5	1.9	9.9	5.3	5.9	4.6	1.0	0.9
1990	3.5	1.9	9.5	5.3	6.3	4.0	1.2	0.9

Source: SISVAN

TABLE 5
CHILDREN AGED 1-4 YEARS UNDER NUTRITIONAL SURVEILLANCE HAVANA, CUBA.
(Rates in %)

Year	Obese		Overweight		Thin		Undernourished	
	Havana	Cuba	Havana	Cuba	Havana	Cuba	Havana	Cuba
1985	3.2	1.6	4.5	2.5	1.0	1.1	0.4	0.5
1988	2.8	1.4	4.0	2.2	1.4	1.1	0.5	0.5
1989	2.5	1.1	3.8	2.0	1.5	1.0	0.5	0.4
1990	2.2	1.0	3.3	1.8	1.3	1.0	0.4	0.3

Source: SISVAN

TABLE 6
WEIGHT/HEIGHT SURVEY IN SCHOOL CHILDREN 1986

Nutritional Status	Havana		Cuba	
	n	%	n	%
Primary School Children				
Undernourished	55	4.0	353	1.8
Thin	73	5.2	574	2.9
Overweight	135	9.8	2 757	14.2
Obese	87	6.3	1 765	9.3
Secondary School Children				
Undernourished	1	0.2	163	1.4
Thin	10	2.0	480	4.2
Overweight	67	13.3	1 307	11.4
Obese	18	3.6	511	4.5

NUTRITIONAL STATUS IN HAVANA CITY CUBA

secondary schoolchildren were surveyed.

In Havana, 1366 primary school and 503 secondary school children were surveyed.

In this city, 4.0% of primary schoolchildren were classified below the 3 percentile (undernourished), 5.2% were classified between the 3 and 10 percentiles (thin) 9.8% were classified between the 90 and 97 percentiles (overweight) and 6.3% of primary children were classified over the 97 percentile (obese).

These figures are higher than those for Cuba as a whole in the undernourished and thin, while they were lower for overweight and obese children.

In secondary schoolchildren, there was one child below the 3 percentile, 0.2% were classified as thin, 13.3% as overweight, and 3.6% as obese. All of these figures are lower than those found for Cuba as a whole.

During 1991 another survey was made in school children, the data of which are still being processed.

SPECIFIC NUTRITIONAL DEFICIENCY

Iron deficiency.

Iron deficiency is the most frequent malnutrition disorder in Cuba, the main cause being dietary deficiency.

According to studies made in the 1980's, the mean iron intake ranged from 45 and 90% of the daily recommended allowance, from 82 to 96% for girls and women of reproductive potential and from 30 to 42% for children from the second semester of life onwards, pre-school and school children. The studies made in Havana had similar findings. (Table 7 and 8)

These surveys demonstrate that anaemia is frequent in pregnant mothers, children from 6 months to 5 years, teenagers and women of reproductive potential. The rate of individuals with anaemia (haemoglobin concentration under the critical reference value) was 22-33% in pregnant women, 40-60% in children aged 6-12 months, 25-40% in children aged 12-36 months, 30-35% in teenagers and women of reproductive potential. However in primary school children the frequency was around 10% while in men it was negligible or non-existent. In a group of children it was demonstrated that although anaemia developed in the second semester of life the pre-latent deficit occurred in more than half of the children before the age of six months.

In general there is a prevalence of slight anaemia since the number of individuals with moderate to severe anaemia is small.

Vitamin A deficiency.

The results obtained in studies of the population in Havana, made by the Nutrition Institute since the late 1970's in almost all population groups (Table 9) make apparent the low Vitamin A daily intake and serum levels that allow their classification as

a health problem. These statements are true for pregnant mothers, newborn children, school children, adolescents, and adults of working age.

According to the FAO/WHO guidelines for the identification of Vitamin A deficiency as a health problem, the values in the last few decades for risk groups of 10 and 20 mcg/dl, show that mean values for serum Vitamin A concentrations were under the established limits.

Vitamin C.

Vitamin C deficiency has been demonstrated in some population groups, for example a study of pregnant women in the Centro Habana municipality, showed that the percentage of women with "high to moderate risk" serum ascorbic acid concentrations was 27.9% in the first term of pregnancy. This level eventually decreased to 12.8% in the third term, probably as a result of vitamin supplementation provided to pregnant mothers on a free and regular basis. In teenagers in the city of Havana itself, the occurrence of cases at moderate risk is more apparent.

NON-COMMUNICABLE DISEASES ASSOCIATED WITH DIET

In Havana, as well as in the nation as a whole, the epidemiologic picture is characterised by the predominance of non-communicable chronic diseases, with a growing trend in most of them.

Heart disease is still the first cause of mortality in general, with an unadjusted rate of 258.2 per 100 000 population in 1990, higher than the previous year (240.5) and the national rate (200.5).

In the year 1990 itself, the rate of potential years of life lost for people 1-64 years of age was 8.7 per 1000 population. The major clinical condition is ischemic heart disease, which accounts for more than 80% of the deaths from this cause. Acute myocardial infarction accounts for 25% of the overall mortality throughout the country.

Arterial hypertension is recognized worldwide as a frequent cause of morbidity, as well as an important risk factor in the development of other diseases. In Cuba almost all of the studies, point to a 15-20% prevalence in the population over 15 year of age in both sexes, it being more frequent in blacks.

Cancer mortality is second among the ten major causes of death. Unadjusted and adjusted rates for malignant tumours have remained stable for the last two decades and medium levels persist. In 1990, the rate was 128.5 per 100 000 population, similar to that of 1989 which was 125.3.

The most frequent sites involved were the following: lung, breast, prostate, colon and rectum, stomach and cervix.

In Western Cuba, cancer mortality rates are higher than in

TABLE 7
IRON INTAKE FOR POPULATION GROUPS STUDIED IN HAVANA CITY

Group	Year	n	Middle intake mg/day	Recommended intake (INHA) mg/day	Adequacy %	% of people whose intake is	
						1/3 Recom.	2/3 Recom.
Students from "Playa" Pre- University Institute	1980						
Men		25	9.3	18	52	-	40
Women		30	9.3	16	45	-	97
Children from 0-2 years old and parents							
Central Habana and Old Habana	1983-1988						
Children 6 months		48	5.7	10	57	6	72
Children 02-12 months		46	7.6	10	76	0	37
Childrens 24 months		48	7.1	10	71	2	42
Mothers		47	8.2	18	46	13	89
Fathers		37	10.6	12	88	5	25
Elderly	1984						
Men		29	10.0	12	83	-	3
Women		16	9.0	10	90	-	6
Childrens 0-11 years old, Cerro	1985	192	8.2	11	74	-	39
Children 0-9 years old							
5 Towns	1985	81	9.0	11	82	0	33
Children 6 months, Lawton	1988	82	5.3	10	53	10	90
Children 12-36 months							
Central Habana	1988	76	7.3	10	73	0	36
Students Ballet Shool	1989						
Men		9	19.3	-	121	0	11
Women		11	9.5	-	53	0	82
Students "Circo" school	1989						
Men 15-18 years		7	13.6	-	85	0	0
Women		6	9.7	-	54	0	83

INHA = Institute of Nutrition and Food Hygiene

NUTRITIONAL STATUS IN HAVANA CITY CUBA

TABLE 8 FREQUENCY OF ANAEMIA FOR GROUPS SURVEYED IN THE CITY OF HAVANA

Group	Year	n	Anaemia %
Children 6-11 months	1974	145	45
12-24 months		339	30
Pregnant mothers Central Habana Third term	1978	72	33
Pregnant mothers Central Habana Third term	1980	75	29
Playa Pre-University Institutes Students	1980		
Males		132	33
Females		207	22
Population in Enrique Cabrera Hospital catchment area	1980		
Males		57	0
Women of child-bearing age		50	25
Pregnant mothers 27-40 weeks		101	22
Women with light activity occupations	1982	69	30
Children "Alamar"	1982		
6-12 months		33	45
13-24 months		183	28
6-24 months	1983	52	42
Children Centro Gabanda and old Habana	1983-1988		
6 months		48	43
12 months		52	36
24 months		44	27
Mothers		91	24
Fathers		69	1
Arts school students	1989		
Males		77	10
Females		97	11

the Eastern part: Havana: 173.6 per 100 000 population.

Diabetes mellitus was the sixth major cause of death in 1990, with a rate of 21.4 per 100 000 population, with a growing trend in the unadjusted and age adjusted rates in the last two decades. Havana had a rate of 24.9

Prevalence rates for diabetes mellitus in Cuba in 1989 were 10.5 per 1000 population in males and 19.8 per 1000 population in females.

Obesity, as a nutrition-dependent condition in 98% of cases, constitutes a great risk factor for the health of the individual. It is closely associated with arterial hypertension, cardiac infarction, and diabetes mellitus, among others. In a base-line study made in 1989 in the framework of an intervention programme of the Institute for Endocrinology and Metabolic Diseases in 2133 subjects aged 15 and over, living in the capital area, obesity (measured by a body mass index greater than 30 in males and 28.6 in females) was found in 14.3% of the surveyed population.

TABLE 9
POPULATION AT RISK OF DEVELOPING VITAMIN A DEFICIENCY BASED ON CALCULATIONS OF SERUM LEVELS DETERMINED IN
DIFFERENT POPULATION GROUPS OF HABANA, EXPRESSED AS A PERCENTAGE OF THE TOTAL POPULATION

Population group	Year	n	High risk 10 µg/dl %	Moderate risk 20 µg/dl %	Low risk 10-30 µg/dl %	30 µg/dl %
Adolescent (Lenin School) Males.	1979	69	1	-	40	25
Adolescent (Lenin School) Females.		105	2	-	64	32
Adolescents (IPU) Males.	1979	70	1	-	38	62
Adolescents (IPU) Females		114	2	-	61	37
Adolescent Males.	1979	36	-	-	54	46
Adolescent Females.		26	-	-	54	46
Pregnant women 1st. Trimester.	1978	59	14	42	44	0
Pregnant women 2nd. trimester.	1978	59	17	35	44	4
Pregnant women 3rd. trimester.	1978	59	39	52	9	0
Fishermen (departing)	1981	79	3	20	68	29
Fishermen (returning)	1981	65	11	37	75	14
Pregnant women 1st. trimester.	1983	113	25	-	69	6
Pregnant women 2nd. trimester.	1983	53	30	-	49	21
Women of working age	1983	83	5	38	-	-
Men of working age	1983	62	5	24	-	-
Children 1 year old	1983	42	12	-	-	-
Children 2 year old	1983	39	8	-	-	-
Children 6 months old	1983	52	19	-	60	21
Elderly in care	1984	28	7	25	56	39
Elderly at home	1985	34	4	7	21	75
School children	1987	277	1	-	47	52
Women about to give birth	1988	155	30	-	-	70
Adolescents (15-18 years)	1989	61	7	-	28	65
School children, Santa Fé	1990	31	14	-	-	-
School children Cojimar	1990	32	17	-	-	-
Adults	1991	38	3	18	50	47

The rate of obese women was clearly higher (20.1%) than that of men.

According to conservative estimates, it is considered that about 25% of the Cuban population must be obese.

Hypercholesterolemia (blood cholesterol over 6.4 nmol.l) was found in 18.8% of the people studied in the above-mentioned sample. The percentage of women with high figures for cholesterol was also higher than that for men (22.7 versus 12.8 respectively).

It may be noted that the apparently healthy population shows a high percentage of people with risk factors for non-communicable diseases that are susceptible to modification.

That is why a great deal of the primary care efforts are currently aimed at correcting these factors.

In analysing the mortality scenario in Havana, it is seen that nine non-communicable conditions are among the ten major causes of death. Only influenza and pneumonia are included as communicable diseases.

TRENDS IN MORTALITY RATES FOR AGE GROUPS

Children under 1 year of age

The five major causes of death in this groups coincide with the country's (Table 10 and 11). Mortality rates for these causes are similar or lower than the national rates.

1-14 age group

Trends are similar to those in the country as a whole. However, the fifth place includes, heart disease, as well as bronchitis, emphysema, and others in addition to deaths for meningococcal infection.

15-49 age group

The first five major causes of death coincide, being higher than the country's rates in the cases of malignant tumours and diseases.

50-64 age group

The first five major causes of death are higher than those for the country as whole. Outstanding is the increase in diabetes mellitus mortality rate for this age group, which replaces accident mortality rates in fourth place.

65 and over age groups

Except for the mortality rate for cerebrovascular disease, rates in the city are higher than the country as whole, with arterial and arteriolic diseases displacing influenza and pneumonia from fourth place.

Infant mortality rate in Havana has remained below the country's mean (See table 10). In 1975, the city had a 24.1 rate per 1000 live births, reaching 10.0 in 1990.

In children under 5 years of age, the mortality rate has had a more favourable trend than in the country as a whole (Table 12). In the three-year period 1984-1986 a rate of 15.3 per 1000 live births and a survival rate of 98.5% were seen. In the last three-year period 1987-1990 a rate of 12.5 with a 98.8% survival was seen (Table 13).

LIFE STYLES AND TRENDS IN HAVANA AND IN CUBA

Some studies show that a low percentage of the population is willing to exercise regularly, in a manner independent from their working activity, both in the capital and in Cuba.

At present, there are circumstances leading to the increase in physical activity among them: the massive introduction of bicycles, as a major means of transportation for students and workers.

The Grandparents' Clubs have also been a favourable factor, which is already giving positive results.

Generally, the Cuban population needs to improve their knowledge of and attitudes towards the selection, preparation and consumption of foods in order to develop a food supply with the characteristics of a balanced diet.

Some nutritional taboos still persist such as giving too much importance to Cuban taro in the diet of children under one year of age instead of to potatoes. This happens in spite of the fact that the former is a feculant starch-rich root with very little protein content.

Weaning is started early to the detriment of breastfeeding.

There are negative practices such as peeling some vegetables (tomatoes, pumpkin and squash, cucumber), and also cooking them generally with plenty of water which is not taken advantage of, and so forth.

Breakfast is underestimated, and supper is the heaviest meal. This, added to poor exercising, contributes to obesity.

A high consumption of salt, sugar, and saturated fats persists and pork is the most favoured meat. Some fish species are not valued nutritionally as they should be.

Many green and yellow vegetables are dismissed by the population, in spite of their nutritional value.

Hygienic handling of foods is poor, particularly in places providing school/workplace meals. That is why food poisoning is reported all the year round, particularly in the summer time.

Breastfeeding rates are very low. Most infants under the age of three months ingest an alternative type of milk (mixed nutrition) in their diet or have been weaned completely.

In 1990, the National Survey on prevalence and duration of breastfeeding and nutrition in the child under 1 year of age was made. The Survey included 6688 individuals throughout the

TABLE 10
PRINCIPAL CAUSES OF DEATH, HAVANA (1990)
(Rate per 100 000 population)

Overall mortality	
Heart diseases	258,2
Malignant tumours	170,5
Cerebrovascular disease	82,2
Accidents	51,7
Influenza and pneumonia	443,6
Diabetes mellitus	34,2
Bronchitis - emphysema - asthma	5,4
Suicide	14,8
Cirrhosis and other chronic liver conditions	14,3
Perinatal disorders	6,9
1-14 age group	
Accidents	16,9
Congenital abnormalities	5,4
Malignant tumours	3,7
Influenza and pneumonia	2,7
Heart disease	0,8
Bronchitis-emphysema, asthma	0,8
Meningococcal infections	0,8
15-49 age group	
Accidents	36,3
Malignat tumours	30,5
Heart disease	23,8
Suicide	12,7
Cerebrovascular disease	9,6
50-64 age group	
Heart disease	324,7
Malignant tumours	284,8
Cerebrovascular disease	111,9
Diabetes mellitus	53,7
Accidents	47,1
65 and over	
Overall mortality	
Heart disease	1 888,3
Malignant tumours	1 061,0
Cerebrovascular disease	579,4
Arterial and capillary vessel disease	371,8
Influenza and pneumonia	3 651,4

Source: Anuario Estadístico 1990

country. It was found that the characterisation of infant nutrition in the population is significantly different from the international recommendations. In the country there is a low prevalence of exclusive breastfeeding at birth, which is particularly remarkable in some provinces like Havana. This is probably associated with organisational problems in maternity wards that discourage natural feeding.

The rapid decrease in natural lactation in the first term seen throughout the country, particularly in the Western provinces, seems to indicate that an optimum advantage has not been taken from the great development of health services nor from the potential provided by mass organizations to develop effective and lasting educational activities.

PUBLIC AWARENESS, NUTRITION AND HEALTH
EDUCATION

The joint work of the Ministries for Public Health and Education, as well as other agencies of the Central State Administration, has made it possible to develop nutrition and health education targeted at the school population, teachers, technicians and food handlers.

In this connection, programmes and standard guidelines have been developed and training and improvement seminars have been carried out. In addition they have been included in the curricula and syllabuses at the different types and levels of the National System of Education.

However, the required level for educators to act as the major

NUTRITIONAL STATUS IN HAVANA CITY CUBA

TABLE 11
PRINCIPAL CAUSES OF DEATH, CUBA 1990
RATE PER 100 000 POPULATION

ALL AGES		5-14 AGE GROUP	
Heart disease	200,3	Accidents	16,1
Malignant tumours	128,5	Malignant tumours	4,3
Cerebrovascular disease	66,2	Congenital abnormalities	3,6
Accidents	49,0	Meningococcal infections	1,5
Influenza and pneumonia	30,3	Heart disease	0,7
Diabetes mellitus	221,4		
Suicide	20,2	15-59 AGE GROUP	
Bronchitis, emphysema, and asthma	10,1	Accidents	41,6
Cirrhosis and other liver diseases	8,4	Heart disease	21,8
Certain congenital diseases	7,7	Suicide and self-inflicted injury	20,7
		Cerebrovascular disease	9,7
LESS THAN 1 YEAR OF AGE			
Certain perinatal diseases	4,4	50-60 AGE GROUP	
Congenital abnormalities	2,5	Heart disease	226,4
Influenza and pneumonia	0,7	Malignant tumours	255,0
Enteritis and other diarrheal diseases	0,5	Cerebrovascular diseases	94,9
Accidents	0,3	Accidents	43,9
		Diabetes mellitus	41,5
1-4 AGE GROUP			
Accidents	1,8	65 AND OVER	
Congenital abnormalities	0,8	Heart disease	1 829,7
Malignant tumours	0,7	Malignant tumours	973,1
Influenza and pneumonia	0,4	Cerebrovascular disease	579,3
Meningococcal diseases	0,3	Influenza and pneumonia	300,7
		Arterial and capillary vessel disease	289,2

Source: Anuario Estadístico 1990

promoters of health in the community has not been reached.

As part of the National Food and Nutrition Programme a subprogramme of Food Culture has been under way since 1987.

It includes multisectorial participation of all ministries and organisations that in one way or another are involved in diet and nutrition.

The general objectives of this subprogramme are:

To provide the consumer population with the information required to set out the basis of a food culture that will enable

the population to select, prepare and consume foods in keeping with their nutritional requirements and with a full awareness of their association with health.

To guarantee the appropriate flow of information between food producers, importers, and distributors in such a way that supply is increasingly consistent with the public's demands and requirements.

During the development of this Campaign, information is being collected for assessment through the activities of the Central Commission for Food Culture, as well as the activities

TABLE 12
INFANT MORTALITY RATE (per 1000 live births)

	Havana	Cuba
1975	24,1	27,5
1980	17,2	19,6
1985	14,0	16,5
1989	10,4	11,1
1990	10,0	10,7

TABLE 13
MORTALITY RATES IN CHILDREN UNDER 5

	Mortality rate per 1000 live births		% survival	
	1984-1986	1987-1990	1984-1986	1987-1990
Cuba	18,1	13,8	98,2	98,6
Havana	15,3	12,5	98,5	98,8

carried out by the 14 Provincial commissions one from each of the 14 provinces in the country and the Municipal commission of the Isle of Youth.

For spreading educational messages, the mass media, both nation-wide and province-wide, particularly the press, radio and television, are available. These messages are labelled with the Campaign's logo and motto.

Among the priority-given activities a National Campaign for Breastfeeding is currently under way aimed at all sections of the population and the member of the health team.

During all these years, studies have been made to help provide a deeper insight into the topic of food as well as to deal effectively with orientation.

An example of this is the study made of some economic and historical aspects of nutrition in Cuba in the 15th and 16th centuries.

Some surveys have been made of the preferences and consumption of vegetables by the Cuban population.

They have served as the basis of population orientation work which includes the making of recipe books, newsletters, magazine articles, as well as courses and training.

It is apparent that progress has been made in the knowledge and attitudes towards nutrition and diet; unfortunately, the quality of this trend is poor.

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THE NUTRITIONAL SITUATION OF THE METROPOLITAN AREA OF GUATEMALA CITY

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SUMMARY The Republic of Guatemala is situated in Northern Central America. Its current population is estimated to be 9,467,232 inhabitants. Sixty-five percent are indigenous; 65.2% of the nation's population lives in rural areas. The metropolitan Guatemala City area is formed of the Capital of the Republic and the municipalities of the department (state) of Guatemala. It comprises 20.6% of the nation's population. Of the metropolitan residents over 7 years of age, 22.3% have had no formal schooling, 50% have had only primary school education, and 21% have both primary and secondary education. Forty percent of the population is in the economically active age; 54% of that participates in the economy. The voluntary unemployment rate is around 3.3%. The primary productive activities are: manufacturing industry (23.4%); social, community and personal service (27.8%); and trade (19.7%). With respect to health statistics: overall, the infant, and the 1- to 4-year-old mortality rates in 1989 were 11.1, 71.4 and 6.7 per 1000, respectively. The maternal death rate in childbirth was 12.9 per 10000. Among infants, the principal causes of death and illness are gastroenteritis and respiratory infections. In adults and the elderly, the leading cause of death is circulatory disease. With respect to the nutritional situation there are differences in the weaning patterns between the metropolitan area and other areas of the country with the earlier introduction of foods and with a reduced period of breastfeeding. The nutritional problems documented in distinct studies have been: 1) low-birth-weight; 2) protein-energy malnutrition, particularly of the chronic type (stunting) in preschoolers, school children, and adolescents; 3) iodine deficiency in school children; 4) vitamin A deficiency in preschoolers, women of childbearing age, and the elderly; 5) iron and zinc deficiency in children and pregnant women; and 6) B-complex deficiencies (riboflavin, B6 and B12) in a segment of older persons studied. Guatemala City seems to have a better nutritional status (lower percentage of deficiency) as compared with the rural interior of the country. Little information is available on the nutritional situation of young adults, and in all groups of the middle-class and upper-class populations.

HISTORICAL AND GEOGRAPHICAL ASPECTS

The Republic of Guatemala is situated in Central America. To the south is the Pacific Ocean, to the east are the republics of Honduras and El Salvador, and to the north is Mexico and Belize. Its origins are Mayan, a civilisation that extended from Mexico to Honduras. At the time of the arrival of the Spaniards, the territory was organised into indigenous nations with characteristics of feudal economies. The period of the Conquest saw the destruction of the indigenous organizations, the adoption of Spanish culture, and the establishment of Spanish cities.

The first capital of Guatemala was founded in 1524 in the central highlands. It was moved to nearby areas in 1527 and 1541 due to uprisings of the native populations and volcanic eruptions. In 1543, a capital was established in the Panchoy valley (Antigua Guatemala) where it lasted 230 years. In this period, it became a small Central American metropolis, surrounded by small indigenous villages. Its economy was based on agriculture and household industry. In 1773, the city was destroyed by the Santa Maria earthquakes, and in 1776, the city was moved to its current location (1).

Since the colonial era, Guatemala has been basically an agricultural country. It presently has a surface area of 109,000 km². With a censused population of 8,663,559 in 1989, and a 3% annual growth rate, the population in 1992 is estimated at 9,467,232 inhabitants. Sixty-five percent of the population is indigenous; 65.2% of the population lives in rural areas, in small communities of less than 2000 inhabitants (2). In 1986, 64.5% of the population was classified in "extreme poverty" ("misery") (i.e., income insufficient to satisfy food requirements); 18.9% were classified as "poor," (i.e., income insufficient to supply necessary goods and services); and the remaining 16.6% were the non-poor (i.e., able to satisfy their needs for food, goods and services)(3).

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THE METROPOLITAN REGION DEMOGRAPHIC ASPECTS

Populations

This region comprises the Department of Guatemala, which includes the capital city and the municipalities that make up the state. In 1989, it had 1,787,396 inhabitants which represented 20.6% of the nation's population. Assuming the same 3% national growth rate, the population in 1992 should be at best 1,953,135. Ninety percent of the population is non-indigenous and 75% of the metropolitan area population lives in urban zones. With respect to age and gender distribution, in 1989 the male:female ratio was 0.92 and the dependency rates [(minors and elders)/(population from 15 to 64 years) x 100] was 72.5 (4). Children less than 5 years of age represented 15% of the population; children from 5 to 14 years made up 25%. Productive adults, 15 to 64 years, constituted 56% and those over 65 years were 4%.

Migration

Guatemala City is the main centre of attraction for migrants from the interior of the republic. In the category of "migration, at one time in one's life" — change in place of residency between birth and the time of interview — the migratory balance (immigrant-emigrants) equals 15.1% of the metropolitan area population. In the category of "recent immigrants," which referred to the five years immediately prior to the interview, the migratory balance is equivalent to 1.5% of the metropolitan area inhabitants (5).

Socioeconomic characteristics

It is important to point out that more than half of metropolitan families do not have adequate water supply nor disposal facilities for excrement. With respect to schooling, 22.3% of the population over 7 years of age has no formal education; 50% have studied up to some level of primary school, and 21% have studied at the secondary school level. Forty percent of the population is in the economically active age, with a rate of participation of 54% (men, 73.9% and women, 38.5%). The rate of voluntary unemployment in 1989 was 2.9% for male and 3.6% for females (4). The activities in which the majority of metropolitan workers are employed are: manufacturing industry (23.4%), social, community and personal services (27.8) and trade (19.7).

Mortality

The rates of total, infant and 1- to 4-year mortality in 1989 were 11.1, 71.4 and 6.7 per thousand inhabitants, respectively (4, 6, 7). In terms of maternal mortality in childbirth, the national rate for 1989 was 12.9 per 10,000 live births (8). The Ministry of Health estimates that there is a 36% under-reporting of pregnancy-related perinatal deaths. Making the correction for under-reporting, the true maternal mortality would be 20.2 per ten thousand live births (8). For the public hospitals in

Guatemala City, this figure varies from 3 to 14 deaths per 1000 live births.

Insofar as infant mortality is considered to be a good indicator of population health status, Table 1 presents a breakdown of this index with respect to socioeconomic characteristics. The factors associated with increased infant mortality in Guatemala are: 1) living in a rural area; 2) being of indigenous ethnicity; 3) low maternal education; such characteristics usually accompany poverty and a low accessibility to health services. One feature of infant mortality relevant to the urbanisation process is the fact that it is higher in working women. As women in the work place are increasingly more common, attention to the factors associated with this situation is warranted.

TABLE 1
INFANT MORTALITY RATES IN THE METROPOLITAN
AREA RELATED TO SOCIOECONOMIC
CHARACTERISTICS

Indicator	1983 (Rate X1000)
Place of residence:	
Urban area	58.1
Rural area	76.6
Ethnic group:	
Indigenous	91.7
Non indigenous	60.9
Maternal schooling (level acquired):	
None	107.0
1-3 y	53.2
>4 y	50.0
Working status:	
Employed	83.4
Unemployed	61.7
Water source:	
Private tap	46.8
Communal tap	85.6
Well	78.3
Rivers, lakes, etc.	83.6

Source: Refemce # 6

In adults and the elderly, the five primary causes of death in decreasing order of frequency are: 1) circulatory disease, 2) death from non-specific causes; 3) endocrine and immune disorders; 4) respiratory disease; and 5) infections and parasitoses (9).

Fecundity and birth rates

The birth rate for the Republic as a whole was 40.3 per 1000 in 1984. Assuming a 2.5% under-reporting of births, the true rate is closer to 41.3 per 1000. The general fecundity rate—which is a more refined measure than birth rate—was 21.3%. Breaking down fecundity by place of residence, the highest level (6.7 children) are found in rural areas as compared to a lower rate (5.3 children) in urban areas. In terms of geographic trends, the metropolitan region was the one with the lowest rates of fecundity (5.1 live children). The highest fecundity rates, between 6.5 and 7.9 children, were seen in the departments in the western and central provinces of the Republic. The other feature of fecundity was the ethnic contrast with indigenous mothers (6.5 children) being higher than non-indigenous (5.2 children) (10).

Morbidity

The pathologies most commonly affecting the infant population are acute respiratory infection and diarrhoeal disease. With respect to acute respiratory illness (ARI) a longitudinal study of under-five-year-old children was conducted (11). The observed incidence was 7.2 episodes per year. The median duration was 11 days. Six months to 23 months was the age of peak ARI incidence, and males were affected more than females. In terms of the type of ARI, studies from the same community (12) reported that colds (upper respiratory infections) were present on 70% of the occasions, pharyngitis on 10%, bronchitis on 9% and broncho-pneumonia on 5%. Otitis media was observed in the remaining 2.5%. Studies from marginal settlements of Guatemala City reported an incidence of 40.4% for ARI (13).

Acute diarrhoeal disease is most commonly seen in the weaning period. This situation has been attributed to the suspension of breast feeding and the introduction of foods of a general lesser hygienic quality (Solomons et al, 1990). The diarrhoeal incidence in peri-urban settlements of Guatemala City are 15.2% (13). Research in the peri-urban zones demonstrate the most common diarrhoeal pathogens to be adherent *Escherichia coli*, enterovirus, *Salmonella* spp., *Shigella* spp and *Campylobacter* (15).

In adults and the elderly, in addition to the previously mentioned causes of mortality, musculoskeletal diseases, fractures, non-specific symptoms, digestive disorders and respiratory disease require the attention of health service organizations in Guatemala (9).

Nutritional status

There are few studies directed toward evaluating the nutritional status of the metropolitan areas that have a sample-selection and sample-size that make them representative of this population. In recent years, diverse investigations have been undertaken in the peri-urban communities of Guatemala, which

include different age-groups and a focus on specific nutrients. In Table 2, the age-groups and communities involved in nutritional research in Guatemala are presented. For this summary, the information is grouped under the headings; 1) feeding patterns; 2) indicators of protein-energy status; and 3) micronutrient nutriture.

TABLE 2
AGE-GROUPS STUDIED AND COMMUNITIES
INVOLVED IN NUTRITIONAL STUDIES IN
METROPOLITAN AREA OF GUATEMALA CITY AREA

Preschool children:

Cerro Gordo
Guajitos
El Limon
Colonia Maya
Peronia
El Milagro

School children:

Guajitos
El Limon

Pregnant women:

Guajitos

Elderly:

Guajitos

Whole families:

El Amparo
Nueva Chinalta
El Milagro

FEEDING PATTERNS

Preschoolers

In Figure 1, we present two important aspects of infant feeding: 1) the pattern of breast feeding and 2) the timing of introduction of complementary feeding in three regions of the country (6). The children in the metropolitan areas are given foods other than breast milk earlier, and as a consequence, the overall nursing duration is shorter than in the interior of the country (6). In children seen at well-baby care clinics of the Guatemalan Institute of Social Security (IGSS), 68% of the mothers reported having introduced foods (including liquids) between 0 and 2 months of age (16). In order of their introduction into the diet, the liquids were: sugar water; pure water; barley water; gruels; Incaparina (a vegetable mixture) and coffee. For

solid items, this order was: banana; yellow squash, eggs, guisquil, sweet rolls, and potatoes. Chocano (17) in another study of infants in Guatemala also reported an early introduction of complementary foods.

School children

Information on the feeding pattern in school children (18) indicate that the foods most frequently consumed (i.e. by more than 85% of the population) are: rice; beans; sweet rolls; tortilla; meat; and coffee. Grouping the foods by nutritive values, no differences are apparent between children of the present capital and those of the former capital (Antigua Guatemala).

Pregnant Women

With relation to dietary patterns in pregnant women of marginal urban area of Guatemala City, a great dietary diversity (larger number of items consumed) was seen; this was due to a long list of items that are eaten only occasionally. Diversity was not correlated with nutrient intake (19).

Elderly

During 1990, CeSSIAM conducted studies in a poverty-stricken community of Guatemala City aimed at evaluating the nutritional status of the elderly (20). In Table 3, the foods reported most frequently to be consumed by the elderly of Guajitos are shown, based on 24-hour recall data and on a food-frequency questionnaire of vitamin A-rich foods (Table 3A). The pattern of the elderly differs little from that seen in younger age-groups in Guatemala City.

TABLE 3
FOODS MOST COMMONLY CONSUMED BY
SUBJECTS OVER 60 YEARS OF AGE

Rank	Food	Frequency
1	Sugar	156
2	Tortilla	112
3	Coffee	110
4	Onion	92
5	Tomato	65
6	Oil	60
7	White bread	55
8	Sweet roll	55
9	Black beans	43
10	Rice	35
11	Egg	33
12	"Guisquil"	32

Total number of responses= 1343; Number of subjects=85.

TABLE 3A
VITAMIN A-RICH FOODS MOST FREQUENTLY
CONSUMED BY SUBJECTS
OVER 60 YEARS OF AGE

Rank	Food	Percent
1	Tomato	90
2	Egg	82
3	Fresh cheese	68
4	Plantain	67
5	Carrot	56
6	Margarine	48
7	Liquid milk	40
8	Pork sausage	38
9	Banana	36
10	Papaya	35
11	"Guicoy"	33
12	Cream	31
13	"Quilete"	25

Total number of subjects interviewed = 85.

Source: Reference #20.

Indicators of protein-energy status

Among the nutritional alterations that affect the Guatemalan population, protein-energy malnutrition is probably the one that is most widespread, due to insufficient nutrient intake and repeated episodes of infectious diseases. In the infant population, the most severe damage is due to chronic undernutrition, manifested from birth as low-birth-weight (LBW) and later as retardation of longitudinal growth.

Dietary intake

Data on energy and protein intake have been reported for children in suburban areas of the metropolitan region (21). The mean age-adjusted energy intake adequacy was 84+/-20% with an interval of 53 to 130%. For protein, the mean adequacy of age-adjusted recommended intake was 22+/-40%, with a range of 47 to 195%. During 1986-87, Alarcon and Rivera (22) undertook a study in a poverty-stricken area aimed at evaluating the effect of the economic crisis on the alimentary-nutritional situation. The findings showed that, at the beginning of the study in 1986, the per cent of families that did not meet the energy intake recommendations were 91%, 57% and 54% for families of low, middle and high socioeconomic status, respectively. For proteins, the percentage of the population with intake adequacy less than 100% of the recommended were 54%, 29% and 10% for the respective low, middle and upper strata. Protein constituted 12.3% of the total energy, and 30% was derived from foods of animal origin.

With the increasing participation of women in the labour

force, the day-care centres for children are becoming important. Quan (23) showed that the diet served in one such centre in Guatemala did not contribute sufficient energy to support a child over three years of age, whereas the protein density was sufficient for children up to age 5 years.

ANTHROPOMETRIC INDICATORS

Neonates

One of the prime manifestations of undernutrition seen is low-birth-weight (LBW) and, more specifically, intrauterine growth retardation (IUGR). The indicator is also an index of maternal nutrition, insofar as a strong association has been shown between birth weight and maternal weight both before pregnancy and during pregnancy. National hospitals of Guatemala reported a LBW incidence of 15% in 1983 and of 10% in 1988, with an estimated overall incidence of IUGR of 9.4% (24, 25, 26). In the hospital system of the IGSS, which serves the working class with limited economic resources in Guatemala City, the reported incidence of LBW was 12% (26, 27). The two private hospitals of the capital which serve the upper class elite reported a LBW incidence of 5.1% (28).

Preschool children

Studies undertaken at the Institute of nutrition of central America and Panama (INCAP) in preschool children from 1982 to 1983 in the poverty-stricken communities of Guatemala City reported a prevalence of 8% of acute PEM, using a weight-for-height chart (29).

In children from 0 to 36 months, residing in the rural communities of the metropolitan system in the Department of Guatemala, the prevalence of PEM was 27% using a Z score of less than minus two for weight-for-height reference standards (29a). Information provided by the Ministry of Health General Division of Health Services (DGSS) for the metropolitan region indicate that 31% of children 1 to 6 years of age had moderate (Gomez, Grade II) undernutrition and 4.3% had severe (Gomez, Grade III) under-nutrition. A study of acute diarrhoeal disease which is being carried out currently in a poverty-stricken rural community of Guatemala City in children between 6 months and 6 years reported a deficit in height-for-age of greater than minus two standard deviations in 39% of 1678 children measured; 21.8% had a deficit of weight-for-age and 2.2% a deficit of weight-for-height (30).

School children

In Table 4 and 5, the percentage of children between 4 and 18 years of age with PEM, based on anthropometric indicators measured by Martinez (31) are shown. School children from rural areas had a greater percentage of deficiencies in all of the indices (H/A, W/A, W/H). About 50% of the children had chronic growth retardation (<85% adequacy of H/A).

Adolescents

With respect to the adolescent population, a study of national secondary schools in Guatemala City showed that about 25% of those examined of both genders had a retardation of stature of greater than minus two standard deviations as compared to the reference populations (32, 33). Currently, studies of body composition are being conducted which should shortly yield more insight into the nutritional status and development of this age-group.

Comparing the data of this study, which has been limited to Guatemala City, with data of children between 11 and 18 years from urban areas of the Republic (31) one can infer that nutritional status of adolescents is better in the capital, given that there are lower percentages of deficiencies in height-for-age and weight-for-age.

Elderly

Little information is available on the nutritional status of the elderly. Studies conducted in institutions are not representative of the remainder of the population who live in the community. In the country, this sector is represented, in its majority by "the Young Old," that is non-institutionalized persons from 60 to 75 years of age (9). In Table 6, the indicators of body composition of elderly of a rural and a peri-urban community of the metropolitan area of Guatemala City are shown. In general, they are characterized by having lesser stature and lower weight than older people in developed societies; however, there are differences between urban and rural elders in terms of Body Mass Index (BMI), with the rural elders' BMIs being lower, which indicates a lesser quantity of adipose tissue (34, 35). This situation can be explained by some combinations of lower energy intake and greater physical activity by virtue of more strenuous life-styles. The loss of height, as assessed by the armspan/height ratio, is similar in the two groups and represents a net loss of around 4% of the height that had been achieved in younger adult life (34, 35).

MICRONUTRIENT STATUS

Three micronutrient deficiencies — iodine, vitamin A, and iron — have been reported in Guatemala as public health problems.

With respect to iodine, in the 1950s endemic goitre had a prevalence of 38% (36); based on these findings, laws were passed for the iodination of salt and by 1961 it had achieved 90% of its goals. Interviews conducted in recent years reported goitre prevalence between 10 and 15%. Subsequently, the programme deteriorated, and by 1987, the prevalence of goitre in school children at the national level was 20.4%. In the urban area of Guatemala City, the prevalence was 22.4% (31). Using urinary iodine levels as the indicator, 60% of the school children had ioduria of <50 µg/g of creatinine and 36% had ioduria of

TABLE 4
PERCENTAGE OF CHILDREN FROM 4-11 YEARS WITH PEM IN THE METROPOLITAN AREA, AS CLASSIFIED
BY ANTHROPOMETRIC INDICATORS

Age (Years)	Sex	Ht/Age (< -2 SD)		Wt/Age (> -2 DE)		Wt/Ht (> -1 DE)	
		I	II	I	II	I	II
4 - 9	Female	43.3	50.2	20.8	20.6	13.9	22.5
	Male	36.0	32.8	15.4	30.0	13.1	27.3
	Both	39.5	41.8	17.8	25.3	13.7	23.1
10 - 11	Female	40.1	52.3	17.1	30.1	13.9	22.5
	Male	36.6	53.6	12.9	34.1	13.1	23.7
	Both	38.2	52.9	14.9	32.3	13.7	23.1

Source: Reference #31.

I= Within capital city (urban)

II= Surrounding area (suburban)

TABLE 5
PERCENTAGE OF ADOLESCENTS, FROM 12-18 YEARS WITH PEM IN THE METROPOLITAN AREA, AS
CLASSIFIED BY ANTHROPOMETRIC INDICATORS

Age (Years)	Sex	Ht/Age (> -2 DE)		Wt/Age (> -2 DE)	
		I	II	I	II
12 - 13	Female	44.3	60.9	24.0	39.1
	Male	49.6	62.1	19.5	29.1
	Both	47.3	61.4	21.4	33.1
14 - 18	Female	62.5	62.0	39.1	51.0
	Male	53.8	46.4	11.5	21.4
	Both	59.2	56.4	24.5	40.5

Source: Reference # 31.

I= Within capital city (urban)

II= Surrounding area (suburban)

<30 $\mu\text{g/g}$ of creatinine, which represents a severe iodine deficiency. The most severely affected group were females from 12 to 19 years of age from urban areas with weight-for-age deficits of greater than two standard deviations and arm muscle areas below the 10% percentile of the reference population (31).

With respect to the concentration of iodine in salt for human consumption, 83% of salt specimens had content below 60 $\mu\text{g/g}$; 13% had levels between 60 and 100 $\mu\text{g/g}$ and 4% had levels > 100 ppm (31).

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TABLE 6
ANTHROPOMETRIC INDICATORS IN THE ELDERLY
IN TWO COMMUNITIES IN THE METROPOLITAN
DISTRICT

Index	Suburban	Urban
Women		
Age(years)	68.5 ± 7.3	67.8 ± 8.2
Weight (kg)	44.5 ± 8.5	53.2 ± 11.2
Height (cm)	141.5 ± 6.4	146.5 ± 6.3
BMI (kg/m ²)	22.2 ± 3.7	24.8 ± 4.4
Height / MUAC	0.98 --	0.97 ± 0.02
Men		
Age(years)	70.1 ± 7.9	71.8 ± 8.0
Weight (kg)	49.9 ± 8.2	60.4 ± 12.7
Height (cm)	155.1 ± 5.7	158.8 ± 5.9
BM (kg/m ²)	20.7 ± 2.5	23.9 ± 4.3
Height / MUAC	0.97	0.96 ± 0.02

BMI: Body mass index (weight / height²)

Source: Reference #34, 35.

Vitamin A

Deficiency is also a problem that has been documented since the 1950s. This deficiency showed an important reduction when the measure of sugar fortification with vitamin A was implemented; however, just as with the iodination programme for salt, fortification of sugar was discontinued, which gave way to a recurrence of hypovitaminosis A. Table 7 presents the percentage of vitamin A in three studies conducted in a peri-urban community of Guatemala and a rural community of the metropolitan area (34, 35 y 37) More than 60% of the subjects studied had intakes of vitamin A that did not satisfy the recommendations of three age groups (preschoolers; mothers of childbearing age; and elderly). In relation to serum levels of retinol, the lowest percentage of deficiencies were in the group of elderly, 7% with levels < 30 µg/dl. The greater percentage was in pregnant women 52% of whom had levels < 30 µg/dl, but

physiological changes that occur during pregnancy such as expansion of plasma volume could partially explain the big difference with respect to other age groups and non-pregnant women in the same community.

With respect to iron deficiency, the values for haematocrits an indicator of risk of anaemia from different studies conducted in peri-urban areas of Guatemala City (35, 38, 39, 40 and 41) are presented in Table 8. The greatest prevalence of subnormal haematocrits in the urban population is found in preschoolers and the elderly. In Table 9, the haematological indices of women from 14 to 29 years in Guatemala City, from a rural highland region and from the coastal plain are shown. The least degree of deficiency was demonstrated in the urban women (40).

OTHER MICRONUTRIENTS

In Table 10, the values for vitamin status for the elderly of a poverty-stricken urban community and for a rural community of the metropolitan region are shown (35,41). In both groups, there were deficiencies among the vitamin B-complex, specifically in riboflavin (vitamin B2), vitamin B6 and vitamin B12. The urban elderly had a greater degree of deficiencies than did the rural group.

In children of a peri-urban community of Guatemala, zinc status was studied; Cavan et al (42) found 7% of the population with plasma zinc levels <70 µg/dl and 6% with hair zinc content <70 µg/dl.

CONCLUSION

In conclusion, the information reviewed allows for the identification of nutrition and health problems that affect primarily the inhabitants of the poverty-stricken rural areas of the metropolitan region of the capital city of the nation; these reflect the status of the populations with very scarce economic resources and with less accessibility to health-care service. In addition, these areas host a population immigrant from other regions of the country and the nutritional status could reflect influences from the conditions of their places of origin. Very little information is available for the middle- and upper-classes of the metropolitan areas in which nutritional problems of over-consumption might be expected to be the most common. The findings show that nutrient deficiencies are more frequent in the rural interior of the country than in the metropolitan area. Nonetheless, Guatemala City has a high percentage of its poor population suffering from chronic protein-energy malnutrition. Deficiencies of vitamin A, iron and iodine are about as common in the metropolitan area as in the rest of the Republic. Nutrition with respect to other micronutrients, e.g. trace elements, has been less well studied. Given the important role they play in physical growth and health maintenance, that situation must be rectified rapidly.

TABLE 7
PERCENTAGE DEFICIENT IN VITAMIN A INDICATORS
IN COMMUNITIES OF GUATEMALA CITY

Groups studied	n	Indicator		Reference
		Dietary intake	Plasma retinol	
Preschool children(<6 years)	150	63.0	12.0	37
Women of reproductive age	48	89.9	15.0	37
Pregnant women	51	65.0	52.0	37
City elderly (>60 years)	110	67.0	7.0	34
Country elderly (> 60 years)	164	---	21.0	35

TABLE 8
HAEMATOCRIT VALUES IN SUBURBAN COMMUNITIES OF THE METROPOLITAN AREA

Groups studied	n	Median (Min - Max)	% Def. (<38)	Reference
Preschool children (6-36 months)	82	38.0 (30 - 54)	37.8	38
School children (5-10 years)	531	42.3 (32 - 52)	7.0	39
Women of reproductive age	104	20.2 ----	3.8	40
City elderly (> 60 years)	110	43.0 (27 - 54)	6.1	41
Country elderly (>60 years)	164	41.0 (21 - 52)	18.0	35

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TABLE 9
PREVALENCE OF ABNORMAL HAEMATOLOGICAL INDICATORS IN WOMEN OF THREE
REGIONS OF GUATEMALA

Haematological variable	(Guatemala) City (urban)	South Coast (rural)	Highlands (rural)
Haemoglobin	7.6	12.5	45.4
Haematocrit	3.8	6.2	36.3
MCV	---	---	56.6
MCH	0.9	---	36.3
Protoporphyrins	4.0	18.7	39.3
Serum iron	16.3	37.5	60.6
TIBC	---	6.2	12.1
Ferritin	15.0	26.0	47.0

Source: Reference #40

TABLE 10
PERCENTAGE OF ELDERLY WITH VITAMIN DEFICIENCIES IN TWO COMMUNITIES OF
THE METROPOLITAN AREA

Vitamins	Cut off point	Population	
		Country (n= 164)	City (n=114)
Retinol (µg/dl)	< 30	21.0	7.1
Vitamin E (µg/dl)	< 500	15.0	3.5
Thiamin (C.A)	> 1.30	1.0	2.6
Riboflavin (C.A)	> 1.29	70.0	20.3
Vitamin B6 (C.A)	> 2.20	0.0	15.0
Vitamin B12 (C.A)	< 200	38.0	36.3
Folates (ng/dl)	< 3.0	9.0	1.8

Source: Reference # 35, 41.

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HEALTH AND NUTRITION IN MEXICO CITY

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SUMMARY México City, considered today as the most populated city in America, was founded almost 700 years ago in a fertile and already well populated valley. The religious, political and military capital of an extensive empire, Mexico was already one of the biggest cities in the World at the time of the Conquest. Completely destroyed and rebuilt by the Spaniards according to revolutionary urbanistic concepts, during the following 300 years Mexico City was the proud capital of the wealthy vicekingdom of the New Spain and the largest metropolis on the continent. Keeping its status as national hub until the present day, during the last 50 years the city has received a strong migratory flow, partly originated in urban/rural disparities, which has reduced its average standard of life and has generated new and complex social, sanitary and nutritional problems. Understanding and solving those problems require an interdisciplinary approach.

INTRODUCTION

This is the final presentation of the first part of the workshop whose purpose has been to describe briefly the characteristics of eight of the largest urban centres in Latin America, and the problems each one of them faces regarding nutrition and health. The Organising Committee decided that Mexico City should be the final city to be described, as it is the site of the workshop. It is also the final destination on this imaginary trip from the southern end of the continent northwards.

Describing a whole city in a few paragraphs requires a summarising capacity which I do not possess and requires solid information which is not available.

I was born in Mexico City. When I was a child, it had a population of 3 million; its sky was blue and clear; it was surrounded by mountains, forests and some lakes, and most of the year the impressive view of the eternal snow of its two volcanoes was a feast for the eyes. Gradually I learned its history and learned its magic; both reasons for sincere pride.

During the last few decades I have seen the city deteriorate. Its own attractive, uncontrolled socioeconomic characteristic, the foolishness of an alienated society and the lack of responsibility of all (people, and both private and public authorities) have led to its explosive growth, the destruction of its resources and environment, the pollution of its air and the rise of violence- an example of what never should have occurred.

Despite these troubles, Mexico City is extremely vital. Beyond planning, its inhabitants have a notable capacity for adjustment and response to the problems which they solve as they appear with intuitive, creative solutions. Reason should advise us to abandon it; however perhaps without understanding why, 16 million people stay.

Since these lines are descriptive, particular analyses or methodological discussion of the few available studies will be avoided; these studies are not comparable and contain a mass of data without structure from which I intend to pick out a few in order to develop a theme for the purpose of the workshop.

Most of what can be said about Mexico City is similar to what has been presented for the other seven metropolises of the continent, but aside from numerous similarities, there are several differences with those other metropolises, the main and more general being:

- Mexico City is unfortunately the most populated urban centre on the continent, and the one that has grown most in the last decade.
- Mexico City is by far the oldest among the cities analysed.
- For Mexico City, overpopulation is not a recent problem.

Since nutrition is an interdisciplinary science, a few words about the history, geography, demography and socioeconomic characteristics of Mexico City are in order.

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WHAT IS MEXICO?

We Mexicans use the term "Mexico" for our country, for its capital city and for the valley where it is located and also for one of the 31 states composing the federation. None of these applications is sufficient. The official name of the country is the "Mexican United States", and the City is really composed of the urban area of the Federal District along with 27 counties in the State of Mexico.

During the 19th century, there were long and bloody fights between those proposing a centralist regime and those who wanted to imitate the political organisation of the USA. The centralist position was unjust, but it had Precolombian roots which were accentuated during the colonial period, since the capital of the Aztec empire became the capital of the extensive viceroyalty of New Spain. The federal position finally prevailed but it was artificial, a naive imitation of a model of a completely different country which even now has not been consolidated. The adoption of a federal system required the creation of a Federal District as a site of the federal government which was located exactly in the old centre of Precolombian and colonial power. This Federal District was divided into districts one of which was called Mexico City, but 20 years ago this district was further divided, and the name Mexico disappeared from the administrative language, but not from the mind of the population who still refer to the country and to the city as Mexico.

PRECOLOMBIAN MEXICO

Mexico, where "x" should sound like "sh", is part of the name of the Aztec capital, Mexico Tenochtitlan founded in 1325, and means "the place in the centre of the maguey (agave) or the moon"; with this name the Aztecs placed its capital in the centre of the universe, since "maguey" is a holy symbol. The history of Mexico is, however, much older.

It seems indisputable that the American continent was populated by Asian migrants who crossed the Bering Strait. When they reached the central valley of what is today Mexico, many settled and developed agriculture. One of the sites for the domestication of corn (one of the three most important foods of mankind) is in a valley neighbouring Mexico City. One of the oldest human remains on the continent (Tepexpan Man) was found in the valley of Mexico.

Once within the historical context, attention must be directed to the region known as "Mesoamerica" which includes the Centre and Southeast of Mexico today and most of Central America. Mesoamerica was the site of magnificent cultures and civilisations which during the peak of splendour had no rival on the planet; when Europe was submerged in the darkness of the Middle Ages and Eurasia was being destroyed by the barbarians, arts and sciences flourished in Mesoamerica and the Andean region.

The mother culture in Mesoamerica was the Olmec one situated on the coast of the Gulf of Mexico from which developed the Mayan culture (from Honduras to Yucatan), the Teotihuacan culture (a few miles north of the present Mexico City) and the Zapotec and Mixtec cultures in Oaxaca, to mention only some among many.

Teotihuacan was undoubtedly the peak of civilisation on the Mexican plateau. It is unknown who lived there, what they looked like and which language they spoke; the name Teotihuacan (the place where Gods were born, or where man became God) was bestowed by the Aztecs hundreds of years after the first collapse of the City as they admired the magnificent ruins, the same ones which can still be admired today. Teotihuacan flourished from before the Christian age until several centuries after Christ's birth. The centre of the city is still preserved, boasting not only impressive buildings, but also a complex network of water supply and sewage works. Its influence is apparent thousands of kilometres away to the south; since no military structures have ever been found, it is supposed that the power of the city was due to its artistic, technological and scientific creativity.

After the unexplained decline of this culture, many others appeared on the Mexican plateau. The Nahuas, from the North-West of the country gradually settled, specially in the valley of Mexico. The last tribe to arrive in the valley was the Aztecs, a violent and barbaric people who were not accepted by the settlers of the valley, but who were brave warriors and had very capable leaders who finally established themselves on a small island in the centre of Lake Texcoco where they saw the "divine signal" of an eagle standing on a "nopal" cactus while eating a serpent. They carried building materials from the shore to the island, and gradually they built Mexico Tenochtitlan.

The small island was located in what today is the "Centro Historico" of Mexico City, and the "divine signal" observed by the Aztecs became the symbol of the whole country, present on our flag, on our coins and on all official documents.

Hard work made the city grow, and war increased its power until a gigantic empire developed from 200 kilometres North of Mexico City down to Panama.

The city, artificially built on the shallowwaters of the lake, was crossed by numerous channels which facilitated transportation. In the centre there were magnificent palaces and temples, markets, schools and housing for myriads of citizens. Its splendour was praised as eternal by the poets of the time. A political genius, Tlacauehtl, was the real power behind the first four or five emperors, and he achieved expansion of that bloody empire which justly deserved the hatred of the rest of the people.

As with any other group at the peak of imperial power, the Aztecs considered themselves the elected people, owners of absolute truth and masters of the World. This privileged posi-

tion, however, conferred on them a heavy responsibility of saving the World whatever the sacrifice; therefore, every 52 years they were responsible for creating the new sun and the new age through sacrifice and prayer. That universal ceremony took place on the "Mount of the Star" (a parallel to Mount Sinai), today sadly affected by urban chaos.

When the Spaniards arrived, (about which Emperor Moctezuma already knew a great deal, since relay runners, who normally brought seafood from the Gulf coast to his table, also brought detailed descriptions of strange visitors over more than 400 kilometres of rough mountain land) the Empire was at its climax. The city as seen by Cortes, was larger and better organised than any European city, and along with other cities in the valley of Mexico, made the region one of the most populated in the 16th century. A network of roads and bridges connected the city with the shore of the lake, also acting as effective defences against possible attack. At the Southeastern end of the valley was Xochimilco, "The Place of Flowers", established in a fresh water lake on which hundreds of "chinampas" were constructed. The "Chinampa" is one of the most productive agricultural techniques ever developed, and it made it possible to feed the overpopulated valley without affecting its ecology. According to Spanish chronicles, Moctezuma was presented every day with more than 100 different dishes, from which he selected two or three, and the rest were given away to members of the court.

Bernal Diaz del Castillo, one of Cortes' soldiers left a detailed account of what he saw (1):

"One day.....we reached the wide road.....we saw so many cities and villages both on water and on land and that road so straight, we became astonished and we said it was a thing of enchantment as described in the book of Amadis, because the five towers and buildings they had in water, all of them built on stone. Some of our soldiers thought that it was a dream and I am trying to describe this, but I do not know how".

Francisco Lopez de Gomara notes(2):

"when Cortes arrived, the city had 60,000 houses. Those belonging to the king and members of the court were big and well built. Those belonging to the people were small, without doors nor windows but usually sheltering two, three and even ten dwellers; so there are many people. It is founded on water like Venice. The body of the city lies on top of water".

This estimate of 60,000 houses with several inhabitants in each one of them places the population of the Aztec capital between 200,000 and 500,000 thousand people, and even in the case of a gross overestimation, the city had at least 100,000 inhabitants, a notable number for that time. As there were many other cities in the valley, it is clear that it was an important population nucleus. That extensive ostentatious and seemingly

eternal empire was however condemned. Cortes found numerous allies in the subjugated people who hated the empire. Furthermore Moctezuma was rather a weak leader and he remembered well the prophecy of "the return of Quetzalcoatl" to end the glory of the empire. This belief facilitated the conquest although it was still not easy. The fight was long and ferocious, and victory could have smiled at either side. Virtually defeated and on the verge of death, Cortes managed to win the last battle; he was an able warrior, a natural politician but a specially tenacious and fearless man.

The surrender of Tenochtitlan in 1521 meant the conquest of all Mesoamerica. Cortes gained for Charles V of Spain a land larger than Spain itself, and for the church millions of potential Catholics.

COLONIAL MEXICO

Having defeated the empire, Cortes acquired a potential power above that of Charles V of Spain, but he did not take advantage of this.

With a mixture of avarice and religious fanaticism Cortes proceeded to erase the city from the map. Everything was destroyed and the stone was used to build a new city, wisely established in the same place as the imperial capital. Before falling into disgrace with Charles V, Cortes showed his capacity as a revolutionary urban planner; he wanted the new city to be exemplary, so using the main square as a central pivot, he developed a great grid of wide straight streets, some of them partially occupied by canals.

The destruction of the Aztec city meant the destruction of architectural wealth and also of all external signs of the former culture, its paintings and the books containing philosophy, rites, language, poetry, medicine etc. It is worth mentioning that nothing in Mexico commemorates Cortes, not a single statue, not a single street, as if after 450 years a Mestizo population was unable to forgive the conquest and the destruction.

The military conflict ending with the surrender of Mexico-Tenochtitlan was long and violent, but was only the beginning of another conflict, a lot longer and a more violent one between two civilisations: the process of colonisation.

The colonisation of Mexico was very different from the colonisation of today's Canada and the USA, and the colonisation of South America outside the Inca empire. In all these places, the indigenous population was scarce, and not organised into states each with their own strength; the colonisers were mainly European farmers, socially well organised and eager to live on their own work. The latter displaced the native Indians in a relatively peaceful way but without mixing with them. It was a colonisation without conquest, or almost without it.

In the case of the Aztec and Inca empires, the colonisers were soldiers eager to take over the mining treasures of the New World after having fought powerful well-established states; the process was therefore different. The surviving people were not displaced or exterminated, but converted into slaves to work the mines and the land. They were made to accept the religion, the language, the dress and eating habits of the Spanish, and a mixing of races and cultures emerged. After the conquest, Mexico was no longer indigenous, nor Spanish, but something different and new.

The racial mixing did not occur under ideal conditions. It was usually forced by the male Spanish conqueror on submissive Indian women, and this trauma is still present as a source of a variety of social and personal complexes of the Mexican population, clearly expressed today in attitudes, behaviour and language.

Cultural mixing also took place. The Spanish culture was partially established. Castilian became the national language without totally displacing most of the several dozen tongues which are still spoken today, and was enriched by numerous local expressions. The Catholic religion was established, incorporating many Indian beliefs, and without the disappearance of many of Precolombian components. Perhaps the richest example of mixing took place in relation to food; without losing Indian components, European ingredients were incorporated into new dishes which presently make up one of the richest, most diverse and distinct culinary traditions in the world. Colonial architecture followed European rules, but Indian hands gave it a special interpretation that can still be admired in many Baroque and Churrigueresque buildings.

The new capital of the extensive vice royalty of New Spain which spread over more than 4 million square kilometres from Canada to Central America, was born with this background. The new city was born in 1521 as the centre of political, religious, military and economic power. The Mexican silver peso was used for a long time as the standard currency in many parts of the world. Within a few years the city proudly boasted many palaces, hospitals, convents, a printing house (1539) and a University (1552). To Cervantes de Salazar (1554), Mexico was the most impressive capital on the American Continent, and to many its magnificence, spaciousness and modern design distinguished it above European cities.

When the Pilgrims landed in Plymouth, thus initiating the English colony in North America, colonial Mexico City was already 200 years old, Tenochtitlan, 400, and the valley of Mexico had witnessed a full thousand years of civilisation.

This Viceroyalty, several-fold larger and richer than Spain, could have been a hub of world importance, but the immense wealth extracted from its soil and sent to Spain or the Vatican, was intercepted by English pirates or was lost at the bottom of the ocean. Furthermore those were the darkest years of Spanish

Inquisition which killed human creativity and expression despite the exceptional cases of Sor Juana Ines de la Cruz and Juan Ruiz de la Cruz.

The colonial period lasted 300 years, a period longer than that of the Aztec Empire and than that of independent Mexico, and much longer than the cycles of rise and fall of modern empires. During those 300 years, Mexico City was by far the most important urban centre this side of the Atlantic Ocean, and in 1815 Simon Bolivar proposed Mexico as the "capital of America" (as it was the only city on the continent with internal force, without which there are no metropolises).

INDEPENDENT MEXICO

At the end of the 18th century and the beginning of the 19th century, Europe enters a critical period. England loses the USA, France gives up Canada and the Spanish Crown weakens. The ideas of the French Revolution thrive in America, and between 1810 and 1821 Latin America is liberated. To Mexico, independence means 11 years of war, which destroys its economy and decimates its population, and causes its intellectuals to flee.

Born with the worst prospects in 1821, the country enters a 100 years of chaos and civil war in which it loses more than half its territory to the USA, and has to bear a short-lived French invasion. The capital city of the Maximilian Empire adopted French forms and customs in its development which can still be found today.

After the crucial intervention of Benito Juarez, one of the most important political figures of the 19th century, who defeats the French, separates the Church and the State, and creates the bases of modern Mexico the country goes through a long period of dictatorship which tries to stabilise and develop the country. In practice, such a load of injustice was created that in 1910 the first social revolution of the present century broke out. This revolution finally gave birth to the new country around 1920-1930 which is no longer the Aztec Empire nor the Viceroyalty of New Spain, neither Indian nor Spanish, and whose geographical boundaries are different from the former ones. Mexico today is a very young country with scarcely half a century of stable life, but with millenary roots, not only Mesoamerican but also Iberic and Arabic; a young country born by a painful and slow delivery, which conditions national life.

For many centuries, Mexico City has been the centre of the country. As the symbolic centre of the Church's Hierarchy, the hub of several subsequent empires, as well as the political, religious, economic, intellectual and military centre of the region, the City inevitably attracts many Mexicans who visit it and settle here.

MEXICO TODAY

According to the last census, the Mexican United States in 1990 had a population of 81.1 millions with a density of 40.5 individuals per Sq.Km.(3). The Gross National Product (GNP) that year reached 185,000 million dollars giving a per capita income of 2270 dollars per year.

The income distribution is unfortunately quite uneven. In 1984, 50 percent of the households earned only 18 percent of the total income, while the most privileged 10 percent of society acquired 34 percent of the income (4). Known unemployment is 20 percent and the mean size of a family is 5.

MEXICO CITY TODAY

The evolution of the city's population since 1900 to date appears in Table 1.

TABLE 1
POPULATION OF MEXICO CITY
(thousands)

Year	Population	
1900	345	
1930	1029	Highest rate at annual 5%
1950	3136	
1970	9045	
1980	13000	
1990	15785	

Source (5)

As may be seen, by 1900 the city had a small population not much greater than that of the Aztec capital 400 years before. The population only multiplied two fold in the following 30 years, probably due to the effects of the revolution.

Since 1930, when the country was already in a period of political and economic stability, the city grew 871 percent until 1970, when, with 9 million inhabitants it already figured among the largest cities in the world. Such growth (more than 5 percent per year) was of course due to the natural reproduction of the people, but specially to the migration of rural dwellers. As with many other developing countries, Mexico established at that time an industrialisation policy based on protectionist strategies, and sacrifice of rural areas in favour of the cities. While the traditionally poor rural areas were exposed to increased exploitation, the cities were given all types of subsidies and services. It was only natural that rural dwellers decided to leave the hard miserable life of the countryside and try their luck in the cities.

For comparison purposes, Tables 2 and 3 present the demographic data on Mexico. The birth rate (6) during the last

TABLE 2
BIRTH AND MORTALITY RATES AND
DEMOGRAPHIC GROWTH IN THE MEXICAN
UNITED STATES
(per 1000 inhabitants)

Year	Birth	Mortality	Growth
1985	49	38	11
1905	49	38	11
1915	46	39	7
1925	49	32	17
1935	46	26	20
1945	44	18	26
1955	45	13	32
1965	45	10	35
1975	38	9	29
1985	32	7	25

Source (6)

TABLE 3
TOTAL POPULATION AND CHILDREN LESS
THAN 15 YEARS AND LIFE EXPECTANCY IN THE
MEXICAN UNITED STATES

Year	Total (millions)	Population less than 15 years (%)	Life expectancy (years)
1895	1.5	40.5	29.8
1900	13.6	40.6	29.8
1910	15.1	41.3	25.4
1920	14.2	39.0	31.5
1930	16.6	39.4	36.7
1940	19.8	42.2	45.7
1950	25.8	42.8	53.7
1960	35.0	44.4	59.5
1970	48.9	46.1	63.6
1980	67.0	43.5	69.0
1990	81.6	—	69.1

Source (6)

100 years has been extremely high, and only started to decrease in 1975. The general mortality was very high until 1915, but notably decreased between 1935 and 1955. Population growth reached a peak of 3.5 percent per year in 1965, due to improvements in sanitation and general living conditions, without parallel changes in reproductive behaviour.

As shown in Table 3, the national population has increased 7 fold in 90 years (6), placing Mexico among the 15 most populated countries in the world and the third in the continent. The fraction of the population younger than 15 years has

always been high, reaching 46 percent in 1970, implying a heavy load on the economically productive population, although also giving the country very interesting prospects for rapid change. Life expectancy has risen from the dramatic value of 30 years in 1895 to 69 years in 1990, indicating a decrease in infant mortality.

Comparison of Tables 1 and 3 reveals that the population growth in Mexico City was faster than that of the country as a whole. While the national population grew 294 percent between 1930 and 1970, the metropolitan population increased 879 percent in the same period,

During the seventies, city development crept into the State of Mexico (5,7) so that the figures from 1970 onwards really represent the metropolitan area and not only the Federal District. In 1980, 79 percent of the metropolitan population lived in the Federal District and 21 percent in the State of Mexico, but in 1990 the proportions changed to 62 percent in the Federal District and 38 percent in the State of Mexico.

It is estimated that in 1992 the metropolitan population numbers 16.1 million (19.7 percent of all Mexicans) and that grows 2 percent per year. Even though there is no official geographical definition of the metropolitan area, it is usually considered as the urban part of the Federal District and 27 counties in the State of Mexico, with an area of 4451.2 Sq. Km. and a density of 3617 persons per Sq.Km.(5). The population of the urban part of the Federal District (1480 Sq.Km.) is about 10.16 million with a density of 6871 persons per Sq.Km., contrasting with a rather low national demographic density of 40.5. Other important urban centres in the country are Guadalajara in the West with 3.16 million inhabitants, Monterrey in the Northeast with 2.77 million, and Puebla to the East of Mexico City with 1.6 million (5); it is worth mentioning that several million Mexicans live in California, and that Los Angeles could well be included in the former list.

THE RAPID URBANISATION PHENOMENON

From the previous section it is clear that the country has rapid accelerated urbanisation fundamentally due to migration of rural dwellers. Rural migration to cities is not a new nor infrequent phenomenon; it occurs in all parts of the world and has characterised the present century (8). It is important however to distinguish two basic models of rural migration:

- a) That seen in Europe and North America with the Industrial Revolution in which the prosperity and labour demand in cities attracted peasants with clear prospects of economic improvement, availability of services and personal development opportunities. Due to this type of migration, agriculture became a highly technical activity utilising a small fraction of the national labour force.
- b) The model presented in Mexico and many other developing countries during the last 15 years in which the process is not

due to urban prosperity but to rural misery. In this model, migrants desperately run away from the countryside to cities which have not enough employment nor services to receive them, and which will not offer great prospects of personal and economic development; by comparison cities offer better conditions than the countryside, but they are not really satisfactory, more of an illusion than reality. In this model, agriculture is not technical, thus generating a crisis of agricultural production. Moreover, quite often the migrants settled on lands surrounding the city which was formerly agriculturally productive, and this makes the city dependent on the supply of many products from distant places.

Of course a small fraction of migration in underdeveloped countries follows the first model, but in most cases it follows the second one.

According to some estimates based on current trends, by the year 2015, 82 percent (555 million people) of the Latin American population will be urban, while only 75 percent of the European and Anglo-American population and 50 percent of the African population will fit into this category (8).

Rural migration due to rural poverty overpopulates only specific cities which then suffer an economic, social, sanitary and nutritional polarisation; the usual contrasts deepen, and the mean indicators of wellbeing are reduced.

Illegal urban settlements are called "ciudades perdidas" in Mexico, "pueblos nuevos" in Peru, "favelas" in Brazil or "villas miseria" in Chile and Argentina. All are the same: virtual invasions in which rural groups more or less largely establish themselves around the city where there is no service at all and often not even reasonable topographic conditions (dry beds of rivers or lakes, steep slopes on mountains, ravines etc.). Rudimentary "houses" are built in a hurry on those sites using cardboard, pieces of wood or similar materials, which from the beginning are crammed into a narrow space. These houses lack any floor except the soil; they also lack tap water, sewage and electricity. In some cases, after some time, these houses will be rebuilt in better condition, but usually they will be finally destroyed when the former water course is flooded or when the edge of the ravine breaks.

Legal ownership of these constructions does not exist, and this generates problems and conflict with the original owners of the land. Sometimes the city administration regularises the properties, but not without cases of exploitation and corruption.

In these unhealthy, crowded, unsafe and uncomfortable neighbourhoods, there is no employment, making it necessary to travel to the centre of the city. Transportation, however, is not adequate. In Mexico City the inhabitants of such nuclei may spend 5 to 7 hours travelling to and from centres of employment.

Since employment is not sufficient in any of the big cities suffering this phenomenon, there is widespread unemployment or underemployment, generating high crime rates.

Family stability is weak. Overcrowding in the home and the need to earn income cause dwellers to be absent from home.

Pollution is outstanding in these places because of accumulations of rubbish and excreta; there is a notable lack of schools, health centres and recreational facilities.

The phenomenon of "street inhabitants" develops, specially children walking around the central streets of the city. These people look for income through both legitimate and illegitimate means, and are exposed to city aggression and to sophisticated systems of exploitation.

Whatever their extraction and rural origin, migrants suffer extreme cultural and environmental shock. Instead of the natural environment in which they used to live, they are now confronted with a mixture of bizarre walls and ceilings in filthy surroundings quite different from their original communities.

Cultural shock is even more intense. Most customs have to be changed. Values, activities, beliefs, relationships and behavioural habits are different, as are the needs and the availability of time and resources. On top of these deep changes, publicity and quacks impose the consumption of expensive and unnecessary products.

The migrant faces the transculturation process with self devaluation, an inferiority complex which makes him leave behind his original patterns of life and acquire those which he observes in his new environment. In this process there are gains and losses, but the latter are specially undesirable since they imply losing survival techniques gradually generated as solutions to chronic limitations.

The migrants gain wider availability and sometimes better prices for food than those in their original town, but lose healthier and more economical food habits.

Among the main food changes (9) observed in the case of Mexico City are lower consumption of tortillas and beans, and higher consumption of white bread, pasta, rice, sugar, fats and oils, salt, sweets, bottled soft drinks and fast foods. Thus the diet loses fibre and starch and is more abundant in sodium, sucrose cholesterol, and total and saturated fatty acids; in other words this change is the opposite to the one promoted by health authorities and, when reaching large enough proportions, favours a higher incidence of atherosclerosis, obesity and other chronic diseases which are increasing as causes of death in adults (10).

The search for illusive prestige through imitation of urban and foreign consumption patterns, the need to eat in the street, and the easy access to snacks and junk food favour the negative changes already mentioned and mean higher expenses than with the traditional patterns. Specially important is the decline

in breast feeding in the urban area (11). This change, in combination with poor hygiene and sanitary facilities, is accompanied by high morbidity from undernutrition and infections and, consequently, by high infant mortality.

INDICATORS IN METROPOLITAN MEXICO CITY

Both in the Federal District and in the State of Mexico, the mortality rate in 1987 (26.3/1000) is lower than the national rate (32/1000). The respective fertility rates (per 1000 women at reproductive age) were 96.1 for the Federal District, 98.1 for the State of Mexico and 136.4 for the whole country (10).

The mortality rate in 1987 was 7/1000 for the country, 4.3/1000 for the Federal District and 4.1/1000 for the State of Mexico. Infant mortality was 22.6 for the Federal District, 35.9 for the State of Mexico and 23.0 for the country (10).

TABLE 4
SOCIO-ECONOMIC INDICATORS IN THE
METROPOLITAN AREA OF MEXICO CITY (1988)
(% of mexican households)

Radio and TV	96
Refrigerator	76
Telephone	36
Car	35
Earthen floor	9
Running water	98
Drainage system	80
Illiteracy	14

Source (12)

Life expectancy in 1987 was 68.8 years for the country and for the State of Mexico and 72.4 years for the Federal District, with slightly more than 2 years more for women and almost three years less for men (10). In general the sanitary pattern revealed by these figures is reasonably good.

Table 4 shows selected socioeconomical indexes for Metropolitan Mexico City obtained in the National Nutrition Survey done by the Ministry of Health in 1988 (12).

The figures are self explanatory. Even though illiteracy is still high, most homes have radio and television sets. The number of telephones and cars is low, and not all homes have proper drains although most of them have tap water.

Metropolitan Mexico City would need at least 6.3 million jobs, but there are only about 6.1 million, so that there are at least 200,000 unemployed people. Since 175,000 additional new jobs are needed every year, there is a considerable gap. Among employed people, 1.1 million earn less than the minimum wage, equivalent to 4.20 US dollars per day.

Since there exists the possibility of a North American Free Trade Agreement, it is interesting to compare some indicators of the three signing countries.

While the per capita income reaches 18,530 US dollars in the USA and 15,160 US dollars in Canada, it is only 2,200 US dollars in Mexico. There is an eight fold gap between Mexico and the USA which is complicated by the extreme asymmetry of the distribution of income in Mexico and the demographic growth which is 2.2 percent a year in Mexico against 1 percent in Canada and the USA (13).

The economically active population is 29.3 million in Mexico, 13.5 million in Canada and 123.4 million in the USA, with an annual growth of 3.4 percent in Mexico and 1.7 percent in the other two countries; the type of employment is also quite different. The primary sector represents 23 percent in Mexico, against 3 and 5 percent in the USA and Canada respectively; the secondary sector is basically similar in the three countries (25-27 percent) and the tertiary sector is only 52 percent in Mexico, as against 70 percent in Canada and the USA (13).

The minimum wage in Mexico is 4.2 US dollars per day, as against 32 US dollars in the USA. The monthly minimum wage for the manufacturing sector is 282 US dollars in Mexico, 1985 US dollars in the USA, and 2055 US dollars in Canada (13).

Data on the urban diet in Mexico are very limited. Table 5 shows data obtained in the National Nutrition Survey in 1979 for Mexico City.

TABLE 5
COMPOSITION OF AN URBAN
FAMILY DIET(1979)
(per person per day)

Energy	2180	kcal
Protein	78	g
Triglycerides	103	g
Carbohydrates	255	g
Iron	21	mg
Calcium	980	mg
Cholesterol	385	mg
Retinol	580	µg
Vit. C	62	mg

Source (9)

Average energy intake is almost 2200 kcal per person per day, with a high contribution of fat (42 percent) and protein (14.3 percent), some excess of cholesterol, enough iron, vitamin C and calcium, and little retinol (9).

Table 6 presents some anthropometric data in preschool children and non-pregnant women in the metropolitan area of Mexico City obtained in the National Nutrition Survey of 1988 (12).

TABLE 6
ANTHROPOMETRIC INDICATORS IN
CHILDREN LESS THAN 5 YEARS OLD AND
IN NON-PREGNANT WOMEN, 1988
(% of cases)

Indicator		Deficient		Excess
		Normal Total	Serious	
Wt/Age	31.1	0.1	52.3	12.9
Ht/Age	24.7	1.1	71.1	—
Wt/Ht	13.0	0.6	68.5	13.6
BMI women	22.1	—	24.1	25.2(43.5)

Source (12): Encuesta Nacional de Nutrición 1988.

The best indicator of active undernutrition, Wt/Ht, indicates there were 13 percent undernourished children (0.6 percent severe cases) and 13.6 percent overweight children. Nearly 25.5 percent of the children had short stature and the Quetelet index in non-pregnant women was low in 22 percent, normal in 24 percent and high in 25 percent of the cases (12).

MEXICO CITY IN THE WORLD

In 1990, the Population Crisis Committee published an interesting analysis of living conditions in the 100 most populated cities in the world. These results are pertinent to this workshop (8). From the rich and abundant material of these analyses, a few figures are commented on in the following paragraphs.

The first cities appeared about 6,000 years ago, but the "urban explosion" started only in the last 50 years. In 1900 only 10 percent of the world population lived in cities, and in 1950 this proportion reached only 30 percent with only 26 cities over 2 million inhabitants and 10 cities over 5 million inhabitants. In 1990, however, there were 33 cities with more than 5 million, 15 reaching more than 10 million and 6 with over 15 million inhabitants.

Table 7 lists the 10 largest urban conglomerations and their population in 1990 and 1965 according to the Committee.

Three of these conglomerations are Latin American cities, and the three have been analysed in this workshop: Mexico, Sao Paulo and Buenos Aires. In 1965 only three cities in the world had more than 10 million inhabitants, and the largest in Latin America was Buenos Aires (8 million), closely followed by Mexico and Sao Paulo. In 1990, however, Mexico ranks second in the world and first in the continent, while Buenos Aires ranks 10th. From 1965 to 1990 Seoul was a rapidly growing city, while New York and Moscow virtually did not grow.

TABLE 7
WORLD URBAN CONGLOMERATES
AND THEIR POPULATION
(millions of inhabitants)

Conglomerate	1965 Population
Tokyo Yokohama	18.1
New York	16.5
Osaka Kobe Kyoto	11.4
Moscow	8.9
Calcutta	8.1
Buenos Aires, La Plata	8.1
Mexico	7.0
Sao Paulo	6.0
Bombay	5.4
Seoul	4.4
Conglomerate	1990 Population
Tokyo Yokohama	29.0
Mexico	20.1
Sao Paulo	17.9
New York	17.5
Osaka Kobe Kyoto	16.9
Seoul	16.4
Moscow	13.3
Bombay	13.3
Calcutta	13.0
Buenos Aires, La Plata	12.6
(London)	(11.0)
(Paris)	(10.0)

Source (8)

At the end of Table 7, London and Paris are included as important references, since for the last 200 years they were prototypes of large cities, and today, they occupy quite a secondary place population-wise.

According to the Committee, the annual growth of Mexico City, Buenos Aires and New York during the Eighties was 3.8 percent, 1.78 percent and 0.32 percent respectively. During the same period Tehran grew 4.7 percent, Djakarta 4.4 percent, Madras 4.2 percent, Belo Horizonte 3.85 percent, Guadalajara 3.4 percent, Los Angeles 1.83 percent, Boston 0.32 percent and Rome 0.29 percent.

According to the 1990 National Census, Mexico City only has a population of 16 million and not 20 million as the Committee points out, which establishes uncertainty about reliability of other figures in the study. Even though the data used by the Committee may not be strictly comparable between cities and countries since their origin is different, often subjective (opinions) and without uniform criteria, nevertheless, the study is extremely interesting and deserves analysis.

The study took 2.5 years to complete. The Committee sent 167 questionnaires to 200 experts in 45 countries and data was received about 98 cities. The questionnaire established 12 indicators, but the analysis of unemployment and of nutritional status was eliminated in the end, since the answers lacked consistency and were incomplete. No questions were made on purpose about culture or recreation, since national bias in this respect was likely. In the end only the following 10 indicators were used:

1. Safety: murders per 100,000 inhabitants per year according to police estimates.
2. Food costs: proportion of the family income spent on food (Metropolitan average).
3. Living: number of persons per room based on city estimates of the number of homes and the average number of rooms per home.
4. Quality of homes: number of homes with tap water and electricity (average of both indicators).
5. Communications: number of telephones per 100 inhabitants according to local companies adjusted for the number of incomplete calls.
6. Education: proportion of 14 to 17 year olds attending secondary school.
7. Public Health: infant mortality per 1000 live births per year.
8. Quiet and Silence: score of environmental noise from 1 to 10 estimated by those answering the questionnaire.
9. Traffic speed: estimate of the time needed to go from the commercial centre of the city to the airport at the peak hour in the morning.
10. Air quality: The lowest value for ozone particles or SO₂.

Each indicator was scored from 1 to 10, and a grand total was obtained with a theoretical maximum score of 100 points. Table 8 shows the marks obtained by Mexico City, Guadalajara, Monterrey, and other cities selected in each case as interesting for comparison purposes. We have eliminated the extremely subjective indicator of quiet and silence, but the proportion of the population estimated as living in depressed areas of the city is included.

The numbers speak for themselves, and it is clear that Mexico City does not rank well and is included in the "bad" category; Guadalajara and Monterrey showed better marks but they are quite far behind Melbourne, Montreal and Seattle Takoma with 86 points. Boston had 71 points, Tijuana 63, Buenos Aires 55, Santiago 50, Calcutta 34 and Lagos 19.

Besides the probable uncertainty of many of the data used in this exercise, it is also difficult to interpret them because of the use of averages.

TABLE 8
POINTS OBTAINED BY MEXICO CITY, GUADALAJARA, MONTERREY AND OTHER SELECTED CITIES IN THE INDICATORS
STUDIED BY THE POPULATION CRISIS COMMITTEE (1990).

Indicator	México City	Guadalajara	Monterrey	Other cities	Criteria*	
					1 point	10 points
Murders/year/100 000 inhab.	27.6	8.4	9.5	Cairo 56.0, Washington 14.8	>30.0	<1.5
Food expenditure (%)	41.0	40.0	45.0	Lima 70.0, Paris 21.0	>60.0	<16.0
Persons per room	1.9	1.6	1.9	Bombay 4.2, N.York 0.5	>2.4	<0.5
Household with water and electricity (%)	94.0	82.0	97.0	Lagos 50.0, Kms hasa 33.3	<50.0	>99.0
Telephones per 100 persons	6.0	12.0	12.0	London 50.0, Lima 2.0	<10.0	>69.0
Young people in secondary school.	62.0	67.0	74.0	Moscow 100.0, B.Aires 51.0	<40.0	>94.0
Infant mortality/1000 live births	22.0	26.0	19.0	Tokyo 5.0, Karachi 97.0	>97.0	<10.0
Traffic Speed	13.0	36.0	45.0	Atlanta 64.0, N.York 14.0	<17.0	>64.0
Cleanliness of air (ppm O3)	0.41	0.19	---	Los Angeles 0.35, N.York 0.28, Santiago 0.40, Sidney and Taipei 0.00	—	—
Population in deprived areas (%)	42.0	—	—	Kinshasa 60.0, Bogota 60.0, Calcutta 67.0, Casablanca 70.0	—	—
FINAL COUNT (points)**	38	53	51	Melbourne and Montreal 86.0, Lagos 19		

* The worst value is one point, and the best is 10 points which is considered the ideal.

** >75 "Very good", 60 to 74 points "good", 45 to 59 points "average" and <44 points "bad".

Source (8)

The proportion of the income spent on food depends on the local cost of the products and on the local cost of other expenditure items (transportation, housing, education, recreation, health etc). Thus a figure of 50 percent in New York would represent a much more critical situation than in cities where transportation is extremely cheap, and education and health services are virtually free.

The traffic speed as it was investigated is not probably a good indicator of the real traffic speed for the rest of the day, and it depends on the size of the city and how far the airport is from the centre.

According to the Committee's report, some cities would be virtually uninhabitable due to traffic paralysis or violence. Usually misleading averages are even more misleading when used to describe variables which do not distribute normally. Even though those indicators may reveal undesirable situations in general, such situations take place in specific parts of the city and therefore the situation may be even worse in those zones but much better in others.

EPILOGUE

These pages have tried to sketch Mexico City, with its old splendour and importance, and its alarming present situation. Due to its size and complexity, Mexico City's problems often have no precedent. The study of these problems and moreover their solution is a gigantic task which obviously demands a multidisciplinary approach and a united effort.

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PART II

**THE SOCIAL SCIENCES APPROACH TO URBAN
NUTRITION**

RECESSION, STRUCTURAL READJUSTMENT AND URBAN ALIMENTARY SYSTEMS

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UNRISD

SUMMARY During the last decade, Latin American societies have resented the impact of a deep recession accompanied by official policies of macroeconomic rearrangement and institutional restructuring that have affected the options of life of the population. This article analyses the way different groups in the big cities have been affected by the process of change, focusing the discussion towards the way that access to food has been modified.

Although it is possible in this matter to make reference to a series of general indicators such as changes in consumer prices, in real salaries and in the proportion of income designated to food, they conceal a great variety of special circumstances and specific types of crisis responses. The knowledge of these last ones constitutes the real basis to any effort to improve the options of life of the vulnerable groups.

The family and community strategies of food provision that are elaborated nowadays in the Latin American cities are conditioned by a whole network of economic, social and political relations, that overall can be visualized as an "alimentary system". This network incorporates many agents, from the agricultural producer up to the urban or rural consumer; and all these agents whether in their entrepreneurial or individual roles have adapted to the challenge of the crisis and restructuring, changing, by these means, the options of the other parts of the system.

Obviously the State constitutes a central element in the macrosocial context that conditions the food options of the vulnerable groups. And it is when policies related to the alimentary system are touched upon that a series of fundamental dilemmas of the distribution type are confronted, which could cause mobilisation of the affected groups. In this text some of the tendencies of change in the urban alimentary system, in the policies and in the supply strategies of some local groups, and their relation with the economic crisis of the eighties, are examined in more detail. (Special reference is made to Mexico).

INTRODUCTION

During the past decade, Latin American societies have felt the impact of a deep recession accompanied by official policies of macroeconomic adjustment and institutional restructuring that have affected the life of the entire population. In the majority of the countries of the region, and during most of the period, there has not only been a stagnation of the economy but also a frank recession. The gross national products have grown at a rate below that of the population growth, wiping out the benefits gained during the previous years, and making the present level of economic activity similar to that of about 1970.

Although the critical phase of the recession began in 1982, and was related to changes in the international financial system which led to the debt crisis, we are facing much more than a problem with debt payments. At a regional level, the happenings of the 1980's reflect a crisis in the model of development; and at a global level, these occur within a context of basic changes in the technological and organisational bases of the world economy.

The overriding discourse in this day and age at the international level defines the crisis of the Latin American development model in macroeconomic terms: according to this approach, the efforts to modernise the economies of Latin America during the 1950's, 60's and 70's were not viable because they were based on an inward looking 'industrialisation strategy, protecting the goods and services based on comparative advantages on an international level. Therefore, the current macroeconomic policies are orientated, almost without exception, toward the opening of the Latin American economies to the international market and the promotion of a developmental style based on promoting foreign exports.

There is, however, another way to view the aforementioned crisis in the developmental model, one in which its inviability is found in the markedly partial and unequal character of the modernisation which was encouraged. Industrialization has

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advanced from a restricted social base, investing little in rural development and concentrating the benefits of growth both geographically and socially. To satisfy the growing demands of the majority groups, less has been done about progressive redistribution of income than about internal and external debts, substituting an increase in the tax burden for loans, under the constant threat of a flight of capital overseas.(1) The large cities of Latin America are the product of this model of modernisation. The modern society of Latin America is being generated with large middle and working classes, and both, wealth and misery, are concentrated in them. Also in the large cities, one feels the strongest impact of the present economic crisis and the efforts for reform and structural readjustments.

These efforts respond to various imperatives, some of which are of a completely macroeconomic type. The first and most obvious is simply to generate funds to assure the servicing of the debt; but it is also urgent to promote a certain level of export or attract enough foreign investment or credit to be able to continue importing the goods and services which the Latin American societies need. Also, they must ensure monetary stability, reducing the risk of hyperinflation, as well as increasing incomes and reducing government expenses.

All of these macroeconomic imperatives have social and political implications. They benefit some groups or types of people, but worsen the situation for others; they create new incentive structures with which to build life strategies; and they imply profound changes in the role of the state in the economy and in society.

Moreover, the crisis of the 1980's stimulated other changes that are not so much macroeconomic but macrostructural; that is, involving reforms in the institutions and in the laws, which change the "rules of the game" within society. Restructuring the public sector in many countries (which includes the elimination or reorganisation of agencies and businesses) is an example of this phenomenon. The process of privatisation, accompanied by a whole series of legal reforms, is another.

In what ways have these changes conditioned access to food in the large cities of Latin America? With a certain level of generalisation, this is a question that can easily be answered: it is obvious that the fall in income levels and the cutback of many government programmes have increased the poverty, hunger and malnutrition. However, if we expect to design strategies to counteract this tendency, it is important to be precise. The families that face the problem of the economic crisis do so within a specific context that varies according to one's position within that economy, one's place of residence, one's social relations and one's political resources. In addition, the reforms in a series of state policies affect different groups within society in different ways, and one must look for a solution within a reality that is even more complicated both at the national and international levels.

In what remains of this chapter, I would like to consider the question of the impact of the crisis on urban food options through an analysis of four topics: 1) some trends in the employment arena and income levels during the last decade, along with some fundamental changes in the access to economic resources; 2) changes in food policy that accompany the recession and macroeconomic adjustment; 3) alterations in the food systems resulting from these trends; and 4) finally, the evolution of family acquisition strategies.

It is useful to make constant references in this analysis to the manner in which all observed tendencies affect what one could call the "right to food". As Amartya Sen has explained, each socio-political context and each economic regime contain complexities of their own rules that define the ways by which the distinct groups can assure their access to food in a legitimate way. This structure of possibilities or rights, which has become to be known as "entitlements", is now changing in Latin America—as it is throughout the world—and it is worth our while to understand the implications of this change. (2)

In a market economy, the primary way to secure access to food is to buy it, and one's purchasing power depends on income. Examining the available information on the proportion of the population that does not have a sufficient income to sustain the basic family food-basket (defined as the "extremely poor"), we see that this segment increased from 11 to 14 % in urban areas; this reversed a mildly positive trend of the prior three decades toward a slight improvement in the situation. The proportion of urban homes that can be considered as poor (defined as earning twice or less the cost of the basic family food basket), went from 30 to 36% during this same period.(3)

Some aspects of this trend which lead to the deterioration of the family purchasing power deserve to be underlined. In the first place, the CEPAL reports that, for the first time, the urban poor in Latin America became more numerous than the rural poor at the beginning of the 1980's. That is to say, with urban growth, poverty is more concentrated in the cities, despite its amazing prevalence in rural areas of the region.

In second place, the crisis appears to have an especially notable impact among households whose income has been close to the poverty level, pushing it below the cut-off point. This has created a group of the "recent poor" whose numbers grow more rapidly than those in households that live in extreme poverty.

This fact is clearly associated with some trends in the labour market of Latin American cities. The increase in the unadjusted urban unemployment rates has been notable in some countries, almost doubling in Santiago between 1981 and 1983 (when it rose to an alarming level of 22% in 1983), doubling in Buenos Aires between 1980 and 1986, and suffering an increase of 65% in Caracas. It is precisely the male heads of households who appear to have been the most affected by unemployment,

although there has also been an increase in the unemployment rates among young men and women.(4)

At the same time, the household surveys suggest that it is still the case that in those who have work, there has been a shift from jobs with greater productivity to those of lesser productivity, both in the industrial sector and in service industries. According to CEPAL, "the major reductions of the participation in employment affects public employees and salaried workers in the manufacturing industries... with a reduction in jobs of better quality in terms of stability, social security coverage and social benefits".(5)

The jobs in the service sector have increased, but the average product of this sector has fallen to a striking degree, and there has been a considerable reduction in earning in those who are described in the surveys as unskilled self-employed— that is to say, the vast majority of the sector of the "informal" poor.(6) In this way, job opportunities were restricted both for the very poor families and those who struggled to maintain themselves above the poverty line, and even in the urban middle class, which has suffered important setbacks in income in all countries of the region in the last decade.

The aforementioned trends have implied especially abrupt falls in living conditions of urban families when they have corresponded to periods of high inflation. It is useful to remember in this context that inflation has been an endemic ailment in a large part of the region for many years, and that some countries have reached extraordinary high levels: 8,160% in Bolivia in 1985; 33,600% in Nicaragua in 1988; 1,475% in Brazil during 1989. And it is precisely in the name of price stabilisation that some recessive policies have been implemented, which have led to the increase in unemployment rates.

In summary, then, the evolution of the employment market and the negative trends in the levels of wages and prices have set back some of the principle bases upon which the right to food in a free-market economy rest. And it is budget cuts as much as the progressive redefinition of the state in the economy which reduce or eliminate some more elements in the range of feeding options for urban residents.

In some countries, from as far back as the 1950's and 60's, (and later in others), the progressive organisation of the working class and other groups of salaried professionals permitted the creation of a series of mechanisms which significantly improved the mode of access to food. Through union stores, food dispensaries and other institutional channels, these sectors of the urban population increased their rights (or entitlements) and defended their incomes. With time, some of these benefits were extended to the urban population in general, by means of state programmes of sale of basic staples at controlled prices or by the expansion of subsidies to allow access to certain foodstuffs at costs well below their market price.

Of course, not all of the population benefits by these programmes: in the case of Mexico, for example, the subsidy on tortilla was general, and allowed almost all of the inhabitants of the metropolitan region to get access to the subsidy; but in order to obtain other basic goods at a better price, the buyer has to be able to go to special shops (that is to the unions, DICOSNSA, or others), which means spending extra time and travel: this was possible for some families, but not for others. The pattern of geographic placement of the government infrastructure inevitably contributed to the formation of differentiated supply catchment areas across which the prices could vary widely.(7)

It is obvious that the closing of many of these selling outlets (shops, kiosks) and the elimination of these subsidy programmes or the price controls that sustained them, signified a deterioration of accessibility of certain basic staples to the low-income clientele. In Mexico City, the infrastructure of government and union stores benefitted all of the lower class, and other (higher) classes resident in the same neighbourhoods as the subsidy outlets. Although this raised criticism from those who wanted to target the state resources only to the poorest groups, we should remember that— as we have just seen— it is precisely the groups that used to be able to keep themselves just above the poverty-line which have frequently fallen into poverty in the economic crisis of the 1980s.

Within the context of the prevailing austerity, the urban alimentary policy is increasingly being reduced to attempt to direct scarce government resources to programmes that mitigate the most serious problems of malnutrition, and to "target" a reduced core of subsidies toward the most vulnerable groups within society. The strategy, strongly supported by international organisations, is of vital importance to the extent that it manages to protect the health and alleviates the hunger of those segments of the urban population that live in the worst conditions.

However, it is important to remember that the "targeting" of the subsidies implies difficulties both of a technical and of a political nature. It is relatively more efficient when the subsidised foods can be delivered to easily identifiable groups, such as school-age children or mothers who attend clinics; and it is relatively less efficient when one tries to direct the subsidies to homes which are defined in terms of income levels. In this sense, the experience of Chile can serve as a lesson. The Chilean government was successful in preventing infantile malnutrition during a period of deep crisis, but the attempt to "target" a series of subsidies, by way of applying a periodic census which tried to distinguish the poorest from the less poor, has been severely criticised for its inefficiency and lack of respect for people.(8)

In addition, there are instances in which a general subsidy on certain basic foods has clearly beneficial effects for the collective low-income population, and in attempts to make the subsidy programmes reach their target has a negative effect on the welfare of the poor. Nora Lustig refers to this situation when

she says that, in the case of Mexico: "a general subsidy on corn and derivatives of maize, on beans, on bread, on rice, on pasta, on cooking oil, and on eggs.....produces a progressive redistribution of purchasing power. For this reason, the suspension of some general subsidies of basic foodstuffs, might have had a regressive result, despite the manifest intention of the targeting of the subsidies to help the poorest population. Also, it is not clear if, after introducing this targeting, the subsidies really reached the population with the greatest need".(9)

Thus, although there is undoubtedly an argument in favour of the rationalisation and restructuring of subsidy systems which become too costly and inefficient, Latin American governments have been pressured by the crisis and by the burden of debt to make cuts that cannot be justified simply on the basis of efficiency, and which depress the levels of intake by poor urban groups. Given this situation, many nations resort to foreign aid to get the food which is delivered to the public, as part of emergency nutritional programs, or they support certain attempts to control prices, or simply spend their effort on improving an inefficient urban food supply system.

Even in situations such as that of Mexico, in which a strong dependence on foreign food assistance has not emerged, the governments are confronting a dilemma that can only be resolved by increasing their dependence on grain imports. This dilemma developed because, by cutting the food subsidies in order to reduce state expenses, the prices of basic staples rise. This, in turn, contributes to inflation and is a cause of widespread popular protest. Both in the fight against inflation and to maintain political stability, it becomes necessary to reinstitute a policy of cheap food, but this cannot be done by resorting to the former level of subsidies.

Basically, there are two ways to assure the continuation of the prior policies of cheap foods for urban areas: 1) one can implement price policies for the national agricultural producers which depress their profits but assure a flow of inexpensive grain to the cities, or 2) governments can take advantage of low prices on international markets, pinning their policies even more on imports. In reality, the second option can be seen as a way of "importing" the subsidies that other nations give to their agricultural sector, in order to replace the subsidies that were formerly established locally.(10)

The implementation of these two strategies (low prices to the agricultural producer, combined with an increase in the volume of importation of basic staples), now affects the conditions of production and the living conditions of the rural populations in various Latin American countries: and this cannot help but have repercussions, although in an indirect manner on the options for feeding urban households (11). A corollary of rural impoverishment is migration, which increases the number of people with few resources who have to seek employment, income and home in the cities. Another corollary is the breaking up of the networks of mutual support that link the

members of extended families that live in the countryside with others living in urban zones. In summary, considering how the food resources that the urban families have available to them are changing, it is obvious that we must take into account the parallel evolution of livelihood options in rural areas.(12)

The combination of changes in the alimentary policies associated with the macroeconomic adjustment (the cutback of subsidies, the elimination of price controls and of various programmes associated with the economic crisis, itself, affects in a complex way not only the individual family's options, but also individuals that earn a living within food commerce. The farmers and livestock producers, the processing plants, the rural middlemen and the urban wholesalers, the large supermarket chains and the owners of stores, restaurants, and tens of thousands of family business that have stalls in a market or in the street or that sell prepared meals—all must adapt to the context of recession and structural readjustment, and this, at the same time, modifies the feeding and nutritional options of the population.

In the first place, this process appears to have created a growing polarisation within the alimentary system, a faithful reflection of the increase in inequality within Latin American societies collectively. As CEPAL comments in its most recent report, some groups within the upper income brackets have been favoured by the crisis of the 1980's: "in the majority of the cases, the most well-to do (comprising 5 percent) saw their incomes remain stable or rise while those with the lowest income (75 percent) saw theirs reduced, accentuating the contrast between wealth and poverty". As a consequence, a new demand for luxury goods and services in metropolitan areas in Latin America has developed, reinforcing the policies of opening up commerce, which facilitates imports.(13)

It is logical, with the market system, that this increase in inequality would introduce new distortions in the patterns of investment. It must be less interesting to produce or sell some basic products, or products of mass consumption, when the purchasing power of the majority is in decline. And in more than a few instances, the investment in productive activities of either type becomes less profitable than in financial speculation. This is specially probable when the opening up to foreign markets introduces elements of competition that threaten to make entire sectors of the small and medium sized industry (or agriculture) of a nation obsolete.

The policies of adjustment create, in addition, a strong bias toward the promotion of agricultural and livestock exports, which may or may not have repercussions in terms of the composition of the flow of edible products to the large cities of Latin America. In theory, with a perfectly balanced international market, the increase in exports cancels the import debt for edible goods needed to satisfy local demand. But with local scarcities and volatile, saturated and restricted international market, the increase in the exchanges implies a growing

vulnerability of the food system.

Leaving aside questions of international conflicts, which can cut off the mechanisms of supply in a violent manner (as in the case of Peru or Central American countries), the most important changes that have occurred in the primary mechanism of urban supplying during the last decade must be understood in relation to commercial strategies of the big private wholesalers. This is an important topic of research.(14)

In terms of the retail sector, it seems clear that the vast majority of all the shops and stalls that provide the basic elements of the diet, have been affected in a negative way by the crisis of the 1980's. These family businesses often operate at a level close to subsistence and with a low-income clientele. For them, any tendency of price rises for the products they buy, on the one hand, and the fall in public buying power, on the other, creates problems that frequently cannot be resolved. We are experiencing a constant process of bankruptcies and elimination of small business within the sector, which, nevertheless keeps growing. Small businesses constitute one of the few options of employment within reach of many families, a fact that assures their continuance.(15)

For the consumers, the economic difficulties of the small merchant can signify supply problems. It is common, for example, that a bias toward supply of junk products, which are sold on credit, is accentuated among neighbourhood businesses. A similar process appears to be occurring within the vast sector of prepared foods, where the quality of the foods offered to the public could be reduced in an alarming way under the impact of the crisis. To be able to survive, the small dining establishments and eateries in popular neighbourhoods must function with low prices; and this makes them reduce the ingredients which they use in their dishes, cutting back on the variety in the menus, and resorting to products which could be leftovers. Adulteration of foodstuffs is another problem that appears in times such as these.

The life strategy that most of the low-income families design in response to the crisis actually reinforces their vulnerability to the situation. The urban population responds to the compression in salary levels, the decline in real income, and the threat of unemployment with an attempt to work more. Men who are fortunate enough to retain their employment in industry work extra hours; those with a poor-paying job seek additional ones; women and children increase their participation in the workplace. This situation reduces the capacity of the homes to get foods. There is no longer time to seek the best products at the best prices. There is no time to cook. There is no time or resources to continue to raise chickens or pigs in the yard or patio of the house. The diet is cut back in certain extremely basic products, one eats less frequently, and one eats on the go in the street.(16)

If there is anything at all positive in this panorama it is the

effort of groups of neighbourhood organisations to maintain community kitchens or to pressure the government for aid for their cooperatives. Mexico, for example, has tried out Popular Supply Centres (Centros Populares de Abasto), supplied by Urban Solidarity Warehouses (Almacenes Urbanos de Solidaridad), both associated with the CONASUPO/DICONSA programmes and governed by user councils. However, programmes of this type, in which the beneficiaries constitute a group, can be threatened by attempts to target the subsidies, which insist on directing the low-priced products toward the poorest individuals.

With this observation, we return to our starting point in this discussion; i.e. the relationships between the economic crisis, the measures of structural readjustment, and the modification of the institutional structures and rules that condition the legitimate access to foods. At the present time, many of the public institutions that facilitated this access have been eliminated or have suffered profound modification to their programmes. This tends toward an extreme situation, in which the right to food is even more conditioned to a handful of options; to assure it in a private manner through an adequate family intake; to organise groups of mutual support; or to depend on charity handouts.

Both the complexity of the changes in the world economy and the challenge of austerity policies, or structural readjustment place real limits on the role that the public sector can assume within the food system in Latin American countries. It becomes especially important, then, that we promote public dialogue about the real options of food policy and to insist that the dialogue be sincere and above-board. The way in which subsidies on consumer items should be reorientated and reforms on price structure to the producers of basic goods; the degree in which it is acceptable to open the food systems up to overseas involvement; the way in which it is reasonable to restructure state programmes of commercialisation of basic staples—these are the topics that merit serious consideration. They form part of a larger debate on the type of development that will predominate in the Latin American region in the future.

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number of people in the category of extreme poverty in urban areas went from 22.5 to 35.8 million between 1980 and 1986, and the urban population from 65.9 to 94.4 million.

4. Ibid., Table 2; and Javier Martínez, *Efectos sociales de la crisis económica en Chile: 1980-85*. (Social effects of the economic crisis in Chile: 1980-85), Santiago, Chile, Economic Commission for Latin America and the Caribbean, October 1986, p. 19.
5. CEPAL, *Panorama Social*, op. cit., p. 9.
6. Between 1980 and 1986, for example, the income of their group fell by 17% in Buenos Aires, 10% in São Paulo and Rio de Janeiro (1979-1987), 21% in San José (1981-88) and 16% in Montevideo (1981-89). Ibid, p. 45.
7. These issues were the subject of two studies conducted within the scope of the investigation programme of the United Nations RISD on food policies in the time of recession. See Kirsten Appendini "De la milpa a los tortibonos: La restructuración de la política alimentaria en México" (From the field to the tortilla coupons: restructuring of food policy in Mexico) and Cynthia Hewitt de Alcántara (ed) "Reestructuración económica y subsistencia rural: El maíz y la crisis de los ochenta" ("Economic restructuring and rural subsistence: Corn and the economic crisis of the 1980's) both soon to be published by El Colegio de México.
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FEEDING THE CITIES: A CHALLENGE FOR THE FUTURE

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SUMMARY The growth of cities has to do with natural expansion and with rural migration, due to the weak economic conditions prevalent in the countryside. If the growth rate remains stable during the next thirty years, we can predict that the world population living in the cities in the year 2020 will reach 3.4 billion people. This phenomenon generates important problems in developing countries and they do not have the resources or the means to solve them.

Urbanisation affects food production because it imposes a new model which demands more fresh products, both vegetable and animal, with less traditional food which forces agricultural patterns to change. On top of this, cities are occupying new agricultural areas, and consume large volumes of water and fuel which accelerates the deterioration of natural resources.

From a human stand point, urbanisation offers precarious economic and social conditions. Immigrants are forced to live in slums without services or hygiene, until they can pull out. During this transitional period new food consumption models, which can also demand "new" imported goods are developed.

Despite this "westernisation" of the diet one can observe a better nutritional level in the urban than the rural population. This is due to the better quality of processed foods, and a larger variety of them; in this area street food plays a relevant role.

For the urban dweller better nutrition with accessible prices and quality control can be obtained through adequate urban infrastructure like markets, warehouses, effective distribution mechanisms and adequate transport.

Nutritional intervention programmes such as subsidies, coupons, consumer education, training of personnel have been implemented in many countries with a high level of success.

Nevertheless, all these measures may constitute an irresistible attraction to those that are left behind in the fields and can have a negative effect. A realistic policy of urban nutrition must consider the urban-rural phenomenon as a whole, beginning with a structured integral support of the rural areas.

INTRODUCTION

Urbanisation is the inevitable consequence of socio-economic development and industrialisation. The result of rapid far reaching revolutionary technological and industrial changes has been to draw to the principal cities the rural labour force, as well as people skilled in administration and commerce who lived in small townships. This phenomenon, which can be seen in the industrialised nations in the past century, also constitutes the primary process that has spurred urban growth in developing countries since the Second World War.

Nevertheless, in many Third World countries, the phenomenon of intense urbanisation did not commence — or did not continue — on the basis of the potential offer of employment in the cities, but rather was a consequence of the "expulsion" of the active rural population due to the deterioration in living conditions and earnings.

On the other hand, one must take into consideration that the countryside-to-city migration is not the principal cause of the growth of the urban population. In truth, nowadays, natural growth of the urbanised population is responsible for two-thirds of the growth of cities in the developing world (1).

However, it is certain that the rapid expansion of the urban population in the world is one of the phenomena of the Twentieth Century that will influence most greatly the social and economic policies to be adopted at national and international levels in the coming decades.

TRENDS IN URBANISATION

In 1980, developing countries had 75% of the world's population: it is estimated that, between years 1980 and 2000, this population will constitute the source of 84% of the increase in world population. During this period, it is probable that the portion of the population that lives in cities in those countries, will increase from 29 to 39% until it reaches 50% in the year

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2015. The mean world increase of urban population, which is estimated to be around 2.4% a year may seem modest, but this rate corresponds to an incredibly large number of individuals and is without historical precedent. According to a recent report from the Habitat Agency of the United Nations, a mere 1% increase in the migration from the countryside to the cities translates into 35 million new urban residents per year.

The pattern of urban growth varies notably between regions within the countries as well as within the geographic regions themselves.

According to recent U.N. data, the pattern of urban growth in Latin America, which has almost reached the level of industrialised countries, is 3%, equal to that of Asia. In Africa, however, the average growth per year is 5% with a rate of 6.6% in East Africa. These data result from a combination of factors such as the natural increase in the urban population, the fall in mortality, the growth in rural migration, as well as the reclassification of rural areas as urban. In the major part of the developing world, migration alone is responsible for 40 to 50 percent of the growth of metropolitan areas, not only by virtue of the number of individuals, but also due to the higher birth rates found among the migrants, the majority of whom are young adults at the reproductive age.

In effect, those who migrate from the rural zones to the urban centres are the younger, more robust, and more educated. Men outnumber women in Asia, but the contrary occurs in Latin America.

Table 1 illustrates data on urban populations in the principal regions of the world according to their degree of development, providing evidence that urban growth will be most intense in the coming years in the least developed regions.

It becomes clear from these data that the number of people that live in urban areas of those regions is greater, and increases more rapidly than in more developed regions. If the projections of the U.N. turn out to be accurate, by the year 2020 the population of the entire developing world will exceed 6.5 billion, of which 53.5%, that is to say 3.4 billion, will live in urban areas. Within only 30 years, those urban areas will have a population equivalent to that of the entire world in 1970. If the current rhythm of growth is maintained, it will require, respectively, 20 and 25 years to double the urban population of Asia, Latin America and the Caribbean, but less than 15 years for Africa.

This means that just to maintain the current living standards—which many consider to be inadequate—it will be necessary to double the availability of goods and services during the same

TABLE 1
URBAN POPULATION BY REGION, TOTAL URBAN,* AND PERCENTAGE () OF TOTAL POPULATION

	1950	1960	1970	1980	1990	2000	2010	2020
Most developed region	447.3 (53.8)	571.4 (60.5)	697.9 (66.6)	798.2 (70.2)	877.2 (72.5)	949.9 (74.4)	1011.4 (76.0)	1063.4 (72.2)
Less developed region	286.9 (17.0)	460.1 (22.2)	673.2 (25.4)	965.9 (29.2)	1357.1 (33.6)	1902.7 (39.3)	2611.45 (46.2)	3424.8 (53.1)
TOTAL WORLD	734.2 (29.2)	1031.5 (34.2)	1371.1 (37.1)	1764.1 (39.6)	2234.3 (42.6)	2852.6 (46.6)	3622.9 (51.8)	4488.2 (54.7)
Africa	35.3 (15.7)	52.6 (18.8)	81.2 (22.5)	129.2 (27.0)	210.5 (32.6)	340.0 (39.0)	528.0 (45.6)	765.6 (52.2)
Asia (excluding China and Japan)	122.8 (16.2)	175.4 (19.1)	261.5 (22.4)	395.8 (26.9)	578.9 (32.0)	827.0 (38.2)	1134.8 (45.5)	1474.5 (52.7)
Latin America and the Caribbean	67.6 (41.0)	106.9 (49.3)	162.7 (57.4)	236.3 (65.4)	325.1 (72.1)	419.8 (76.8)	514.7 (80.2)	609.8 (83.0)

From: U.N. Department of International Economic and Social Affairs, "Prospects of World Urbanization; Revised 1984-85". Population Studies No 101, United Nations, New York, 1987.

* millions

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intervals. The same projections of the U.N. (2) have calculated, additionally, that in the year 2000 the population will be concentrated in huge urban centres, called "predominating" or "major". Among these, more than 79 will surpass 4 million inhabitants of which 59 will be in developing countries and will account for one quarter of the Third World population (Table 2).

THE EFFECTS OF URBANISATION

The rhythm of current growth of the urban centres in developing countries is much greater than in industrialised

countries, at the end of the 19th century and the beginning of the 20th. Nowadays, many developing countries have an urban-rural population distribution similar to that of industrialised countries, without having had the means or the time to conduct orderly planning of the necessary urban infrastructure. The effects of urbanisation on the economy of the countries are numerous, but the most evident effects relate to food availability, consumption models, and nutritional needs. Satisfying the food demand of the cities requires policy decisions at the highest level. The evolution of the urban food demand requires

TABLE 2
URBAN COMMUNITIES WITH AT LEAST 2 MILLIONS INHABITANTS IN 1985 CLASSIFIED
ACCORDING TO THEIR POPULATION SIZE*

Classification in 1985	Community/Country or Area		1950	1985	2000
1	Tokyo/Yokohama	Japan	6.74	18.82	20.22
2	Mexico City	Mexico	3.05	17.30	25.82
3	San Paulo	Brazil	2.76	15.88	23.97
4	New York	U.S.A.	12.41	15.64	15.78
5	Shanghai	China	10.42	11.96	14.30
6	Calcutta	India	4.52	10.95	14.30
7	Buenos Aires	Argentina	5.25	10.88	13.18
8	Rio de Janeiro	Brazil	3.48	10.37	13.26
9	London	United Kingdom	10.37	10.36	10.51
10	Seoul	Korea	1.11	10.28	13.77
11	Greater Bombay	India	2.95	10.07	16.00
13	Osaka/Kobe	Japan	3.83	9.45	10.49
14	Beijing	China	6.74	9.25	11.17
17	Jakarta	Indonesia	1.82	7.94	13.25
15	Cairo/Giza	Egypt	3.50	7.69	11.13
20	Teheran	Iran	0.95	7.52	13.58
21	Delhi	India	1.41	7.40	13.24
23	Manila/Quezon	Philippines	1.57	7.03	11.07
25	Karachi	Pakistan	1.04	6.70	12.00
26	Bangkok	Thailand	1.44	6.07	10.71
27	Lima-Callao	Peru	1.05	5.68	9.14
28	Madras	India	1.42	5.19	8.15
29	Hong Kong		1.75	5.13	6.37
31	Dhaka	Bangladesh	0.43	4.89	11.16
33	Bogota	Colombia	0.70	4.49	6.53
34	Baghdad	Iraq	0.58	4.42	7.42
36	Santiago	Chile	1.43	4.16	5.26
38	Pusan	Korea	1.04	4.11	6.20
39	Shenyang	China	2.25	4.08	5.35
40	Bangalore	India	0.78	3.97	7.96
43	Caracas	Venezuela	0.68	3.74	5.03
44	Lahore	Pakistan	0.83	3.70	6.16

From: "The Prospects of World Urbanization, Revised 1984/85" (ONU)

* millions

substantial changes and a better quality and variety of agricultural products.

The zones of supply for the cities are even further removed and when it is no longer possible to satisfy food demands with their own national resources, one must resort to imports, thus increasing the level of economic and the political dependence of the country.

In addition, urbanisation results in competition between urban and rural areas by exploiting the natural resources and is responsible for the introduction of drastic socio-economic changes. As a result, all of these factors affect the nutritional status of the population.

Other effects of urbanisation on food consumption depend on the availability of infrastructure, such as means of transport and markets, sufficient supply of water, adequate sewage systems and environmental sanitation, warehouses and processing industries, with the objectives of assurance of quality and availability of food supply.

FOOD PRODUCTION AND NATURAL RESOURCES

Although there are few data on the impact of the "expulsion" of the rural labour force on food production, it would appear logical that the reduction in this force would create seasonal shortages in manpower. At the same time, the migration would increase the number of consumers in the cities and, hence, the index of family dependency.

In order to meet the growing urban demand for food, with a reduced rural work force, it is necessary to increase agricultural productivity. For this, one must resort to a number of mechanisms such as seasonal employment, especially of women, mechanisation of agriculture, adjustment in the calendar of harvests; subsidised inputs, seeds, pesticides, etc; and credits which benefit, above all, the larger agro-business.

The change in the composition of the urban food requirements necessitates substantial changes in the quantity and quality of agricultural products. For example, areas close to the rapidly growing urban centres ("green belts") change their traditional production to cultivate products that have much more demand in the urban population.

The impact of urbanisation on agricultural production is also shown through the loss of agricultural lands to build highways and new urban residential developments, as well as to provide water and fuel. It is estimated that about 10 million hectares of arable lands will be taken for urban development between 1980 and the year 2000.

The rural-urban competition for water is still more complicated. In order to satisfy the growing demand of the city, more and more water is dedicated to urban uses at the expense of agriculture. Also, great amounts of water are contaminated with industrial and urban waste, as well as agricultural waste

and agro-chemicals.

In addition, the growing demand for firewood is leading to rapid deforestation in areas surrounding cities and is responsible for price increases. This situation worsens the precarious situation of family earnings in poor urban families and reduces the availability of household food. This last factor, combined with a deficient sanitary environment, contributed to the prevalence of malnutrition and morbidity in the cities.

SOCIAL AND ECONOMIC CONDITIONS

Recently, it was thought that the population of the countries of the Third World was predominantly rural, with a concentration of administration and services in the main cities. In the light of the data and the projections on world wide demographic growth, we have been able to realise that the majority of the population of developing countries in general is affected by the urban problem. Unfortunately, in those countries few national governments and even fewer municipal city hall administrations have the power, the resources, or the qualified personnel to provide the required services and facilities for a better life for their rapidly growing populations; these would include employment, clean water, health, schools and transport.

The recent migrants to the cities generally lack ideal professional training or education for the available jobs. Therefore, they will not have regular income nor adequate housing or food during a transition period immediately after their arrival; hence, they live in the cheapest slum areas. These factors carry grave consequences for the physical and mental health of these families, which translate into a high incidence of diseases linked to the lack of drinking water and environmental sanitation. It is estimated that one in four children dies due to acute malnutrition (3).

The majority of recent immigrants look for work in the informal sector, as temporary workers in construction jobs, as vendors of street foods, in transport, in street services, not to mention theft and prostitution.

In view of the precarious state of their incomes, the high cost of transport to the areas of temporary employment, the contributions that have to be sent back to the parents that were left behind in the villages, the lack of time or facilities to prepare food, these families consume primarily cheap basic foods, as well as processed food of poor quality. As the adults and even the children are often outside the home in search of work, or in one way or another earning a living, they buy their food from street vendors who give little attention to the hygiene or security of what they sell.

In this transition period, the recent arrivals also find it difficult to figure out the network of social and health services geared to children, taking into account that many women do not know how to deal, nor how to deal with life in big cities, which aggravates even more the health and nutrition of their little ones.

In this panorama, one of the most dramatic social consequences for the welfare of the children is the interruption of breastfeeding, which is observed only half as often in the cities of Latin America, as in the corresponding rural areas. This can be explained by the attempt of women to join the work force, as well as the persuasive advertising campaigns for commercial weaning products. Unfortunately, the change to bottle feeding often means an overly diluted milk due to the high cost of powdered milk, as well as to its contamination due to poor maternal knowledge and the lack of sterilising facilities. The results of changing to the artificial feeding of infants are gastroenteritis, emaciation, marasmus and often, death. (4)

Simply getting food every day is, therefore, one of the major problems that the poor must confront in urban areas. The purchase of foods depends not only on the price itself but also the non-food expenditures; that implies, for example, going to a central market. To save the additional expenses of transport, the poor are obliged to purchase foods in small quantities, or singly in local establishments and from street vendors at higher prices.

In order to face up to the continuously growing and everchanging food needs, the absolute priority is for better commercialisation of foods for the very poorest. This could be done by way of peripheral markets with easy access to consumers and with efficient systems of organisation, administration, hygiene, quality and price control. As the cities grow, the demand for fresh fruits, vegetables and livestock products increases more rapidly than that for basic staples, especially cereal grains. That is to say that the proportion of perishable foods in the cities is increasing constantly, and that the supply and management of these foods need adequate facilities.

FOOD CONSUMPTION AND NUTRITION

With the exception of basic foods, urban diets generally provide greater quantities of the remaining food groups than do the rural diets. This situation derives from a series of factors such as earnings, ecology, eating habits, publicity, etc. In addition to the socio-economic factors, other variables, such as cultural factors, family structure, educational levels etc. play a more important role in the evolution of a traditional rural diet into the urban pattern.

Rural emigration often signifies a brutal rupture with traditional dietary habits for the new residents; this can cause a series of nutritional deficiencies. It has been shown that, in industrialised countries, urbanisation has a greater effect on food habits than on underlying nutritional status itself. A similar evolution is now being demonstrated in developing nations.

Urban populations, influenced both by the introduction of foreign food through the channels of food assistance and by the provisions available, thanks to commercial importation, wind

up preferring products such as wheat and rice which, however, are better adapted to the urban life-style. The latter have culinary qualities that make them easier to cook and prepare than the secondary cereals, traditional roots and tubers, which are native to the areas. (5)

These changes are even noted in Latin American countries, where such diverse traditional preparations of maize, such as tortillas or atoles, have permitted the adaptation of this grain to the urban life-style. Despite this, there is a growing intake of wheat among the cereal grains eaten in urban areas.

In addition to the basic foods, there are others that contribute to the diversification of the urban menu. The consumption of fresh foods, such as fruit and vegetables, meat and poultry, milk and dairy products is increasing rapidly. On the contrary, the consumption of legumes is falling rapidly, and vegetable oils are gradually taking the place of traditional animal fats.

Fish consumption and above all of fresh fish, is increasing with urbanisation; in countries with a rice-based food system, there has been a reduction in the consumption of salted or preserved fish foods in favour of the fresh product. As a result, there exists a general tendency in urban eating patterns to substitute progressively starches with sugars, animal proteins, fats and lipids.

These changes in the feeding system also have positive consequences in the supply and utilization of certain micro-nutrients, such as iron (from animal products), calcium and vitamins A and C.

Therefore, the process of urbanisation has an enormous influence on feeding, by supplying to the urban population nutrients that contribute to a better level of health and nutrition, at least until higher wages and the adoption of harmful eating habits put consumers into the category of overnourished: malnutrition "by excessive" consumption is growing rapidly in all of the metropolises of the world, especially in those in developing countries.

Nevertheless, during the changeover, residents of cities enjoy a better nutritional status than those in the countryside, above all thanks to a greater availability of health services and to a greater diversification of the diet. This concept means that nutritional adequacy of the diet is related not only to the satisfaction of energy and protein requirements, but also to the number and quantity of the distinct ingredients that enter the diet.

For this reason, the urban diet, which is more varied, provides important nutritional benefits. The Fifth World Food Survey of the FAO (6) shows, in Table 3 that infantile malnutrition in the rural environment is much greater than in the urban setting.

The reason is that practically all consumers of urban centres have access to a greater variety of foods, above all animal

TABLE 3
PERCENTAGE OF CHILDREN LESS THAN FIVE YEARS OLD IN RURAL AND
URBAN AREAS OF SOME COUNTRIES

Country and date	Low height in relation to age (1)		Low weight in relation to height (2)		Low weight in relation to age (3)	
	Areas		Areas		Areas	
	rural	urban	rural	urban	rural	urban
	%		%		%	
Brazil (northeast) (1975)	21,9	16,6	2,2	2,3	21,9 (4)	16,6 (4)
Camerun (1978)	22,4	15,5	1,1	0,7	23,0	12,2
Egypt (1978)	23,8	15,0	0,7	0,5	9,9 (4)	6,1 (4)
Haiti (1978)	28,6	15,7	6,4	3,8	29,5 (4)	14,6 (4)
Lesotho (1977)	33,7	17,2	4,3	3,0	24,9	17,3
Liberia (1976)	20,2	13,8	1,6	1,7	25,5	
Arab Republic of Yemen (1978)	42,1	13,0	6,7	2,1	47,0 (4)	22,8 (4)
Sierra Leona (1978)	26,2	17,4	3,2	3,2	32,4	24,3
Togo (1977)	20,4	11,4	2,2	0,8	16,5 (4)	8,9 (4)

1. Less than 90 percent of reference value. Indicative of long term undernutrition (chronic)
2. Less than 80 percent of reference value. Indicative of recent undernutrition (acute)
3. Less than 80 percent of reference value. Indicative of acute undernutrition, chronic or acute plus chronic.
4. Less than 75 percent of reference value.

products, fruits and vegetables. Although the levels of energy intakes in the urban area are generally lower than in the rural zones, dietary diversity along with lower energy expenditure could explain the reason why malnutrition is less extensive in the cities. The quality and the nutritional content of urban diets, especially with respect to fats, animal proteins, iron and vitamin A are greater than in the rural diet. In general, urban areas have lower rates of morbidity and mortality, a greater life expectancy, and fewer children with low birth weight problems and growth retardation (7).

The rates of infant mortality among residents of the poor neighbourhoods and slums are far higher, however, than among other inhabitants of the cities. For example, in a study undertaken in neighbourhoods in the city of Porto Alegre, Brazil, in 1980, the rate of infant mortality for slum residents was triple than of those who lived in communities with adequate urban infrastructure (76 per 1000 births compared with 24 per 1000). (8)

At the other extreme of the malnutrition spectrum in the urban areas, one can observe a growing incidence of chronic degenerative diseases, not only among the poor classes of the industrialised countries, but also among the well-to-do classes of developing countries. This phenomenon, which is affecting an ever growing proportion of the population in the majority of developing countries, is attributed essentially to factors such as the increase of income, the evolution of life-styles and rapid urbanisation.

These factors promote the "westernisation" of the society, principally of the diet, which contributes to an increasing incidence of chronic ailments related to diet, such as diabetes, obesity, cardio-vascular diseases, and dental caries. To date, these problems have not received the attention that they merit from the epidemiological point of view, as energy deficiency, malnutrition and deficiencies of other nutrients have monopolised the few resources dedicated to the fight against malnutrition. (9)

The importance of changes in eating practices due to the westernisation of the diet, even in a country such as Mexico, in which maize still constitutes the basic staple, is illustrated in table 4 (10).

All of these changes in patterns of intake modify the urban food demand in developing countries, and aggravate their dependence on industrialised countries, because in most cases, the best foodstuffs for an urban life-style are not produced locally and must be imported.

In addition, as a consequence of urban growth, an even smaller number of rural peasants must satisfy this food demand, which requires considerable effort by governments to adopt efficient systems of production, and change the patterns of agricultural production in a period of crisis, where the same agricultural system is trying hard to earn foreign exchange to alleviate the foreign debt.

In Table 5, taken from a FAO study (11), estimates of the increases in foodstuffs are illustrated, expressed as wheat-equivalents that would be necessary in developing regions to

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feed the additional urban populations for the year 2000.

If the 290 million tons of wheat equivalents of foodstuffs

TABLE 4
SUBURBS OF MEXICO CITY: AVERAGE CHANGES
IN DAILY FOOD INTAKE OVER A
PERIOD OF 18 YEARS

Food Group	g/Person/Day Year	
	1960*	1978*
Tortillas	332	222
Bread, Pasta	118	107
Rice	11	39
Wheat flour	0	15
Beans	45	43
Milk	205	272
Cheese	0	28
Meat and meat products	54	71
Eggs	8	53
Garden vegetables	104	30
Fruits	40	47
Fat/oils	26	31
Sugar	45	38
Commercial Beverages	52	219
Processed food	5	27

Source (10)

* Number of households in 1960: 100 and 1978: 400

that are lacking to nourish all of the additional urban population between 1980 and the year 2000, had to be produced locally, this would require, according to estimates, an increase in the productivity of the agricultural worker in Africa of 24 %, in Asia of 16% and in Latin America of 17% over the same 20 year

period. Up until now, the increase in food production has not been sufficient to address the food needs, the result of which has been a progressive increase in imports. But in the long term, the growing dependence on imports is not sustainable.

Producing more in order to supply the ever-growing volume needed to cover the urban energy needs and satisfy the demand in quality and variety, constitutes a truly impressive challenge for the governments and administrations faced with the irresistible growth of the urban population. But even if they had efficient systems to resolve these problems, the governments would still have to improve infrastructure to ensure that the products get to the markets without excessive losses and at a price accessible to the majority.

Moreover, the urban demand for fresh foods, i.e. perishable foods, is growing faster than that for grains and roots, and therefore, it is necessary to raise the efficiency of transport, storage, marketing, and food industry to a level that assures a stable availability of high quality foods for all the socio-economic groups. In particular, the establishment of peripheral markets, jointly with the creation of wholesale markets in strategic areas in the city, contributes to reducing prices and assures the availability and the quality of foods. For example, the development of supermarkets in Latin America has occurred specifically in residential zones, in which clients have cars to go shopping and refrigerators which allow the purchase of large volumes almost at a wholesale price. Naturally, residents of low-income urban zones neither have the means nor the capacity to utilise these services and are forced to pay much more for some foods of lesser quality in the small local shops or local door to door vendors.

Therefore the majority of commercialisation and distribution of foods constitutes a priority in the framework of a realistic policy of food and nutrition, not only of urban consumers, but also for small producers, and specially women who generally provide the bulk of the supply of fresh products.

TABLE 5
ESTIMATED INCREASE OF FOOD NEEDS
(WHEAT EQUIVALENT) MILLIONS OF TONS

Region	Total of the urban population 1980 - 2000	Migrants to urban areas 1980-2000	No increase 1980 - 2000
Africa	56,9	25,6	31,3
Asia	173,6	78,1	95,5
Latin America	59,6	26,8	32,8
Total	290,1	130,5	159,6

STREET FOOD

Foods sold and consumed in the street can be defined as "foods and drinks ready to eat, which are prepared and sold in the streets and in public places". The development of this industry, or rather of this "urban food artisan's craft" (12) is linked mainly to the urban life-style, and closely follows the expansion of the urbanised population. This activity has always existed, but the current proliferation of food vendors in the streets is partially the result of a demand for catering services, looked down on by the establishment of formal restaurants and cafeterias, and partly the result of the growing numbers of people out of work or without professional skills, who have found a way of earning a living in this informal activity.

Increasing numbers of workers and employees do not have time to return home to eat due to the long distances and the lack of rapid low-cost transportation. This gives a dynamic character to this market and impetus to increase the number of street vendors who serve food at a low price, in comparison to restaurants or even in comparison with household food.

Street food plays a positive role in the local economy of developing countries. The craft creates jobs for the unemployed or those with irregular work, mobilising whole families into the purchase of the ingredients, preparation and making and selling of dishes. Thanks to the low cost of this activity, due to the inexpensive, and almost always home-made equipment, the street vendors have the capacity to offer food of good quality, ready to eat and at very accessible prices. (13)

For workers with scant resources, or students, the availability of street food is a positive factor which allows them to integrate themselves into the city and this food, according to recent studies, has a high nutritive value. One can consider that those foods make a major contribution to the diet of poor families. Finally, with the proliferation of vendors, the competition is fierce, such that the prices remain low, yet another positive factor for the integration of poor families into the urban environment (14).

Street food offers other positive aspects in the social and economic realm, sometimes due to their informal nature. This industry gives work and income to a large number of women and girls. For example, in Peru and Guatemala, 50% of the vendors are women and this proportion reaches 90% in Honduras (15).

Street food also channels a demand for fresh traditional foods, offering small producers the opportunity both to earn money and promote traditional eating habits as they use local products.

Despite all of the aforementioned advantages, the street food industry is not taken into consideration in the national budget balance, as it is virtually impossible to estimate the economic importance of this informal activity. Also, the

sanitary and hygienic quality of these foods provokes unease among public health authorities and various countries are striving to incorporate this activity within the formal system of retail sales.

Therefore, the existence of street food industries places governments in the dilemma of either suppressing or assisting this activity, which plays such an important role in the urban food system of Third World cities, and which has an undeniable importance, not yet determined but certainly great, in the supply and demand of foods.

Conscious of the utility of this industry as a factor for the integration of the most underprivileged groups, many governments are struggling to reconcile the advantages derived from their informal character with a minimum of quality control measures and necessary authorisation for sale to ensure the health of the consumers.

A PROPOSAL FOR SOLUTIONS

The experience of the twentieth century shows that migration to the cities is inevitable and, probably, in the long run, it represents a positive point, given that, in one or two generations, the social and economic status of the migrants reaches a much higher level than that of the relatives that remained in the countryside. But the price that must be paid by the poor and unskilled immigrants while passing through this critical period which begins right after leaving the villages, is high, in terms of health, infant mortality and social and employment exploitation.

At a national level, the majority of Third World governments are viewing, with considerable consternation, the phenomenal and anarchical growth of the major cities, a growth that can no longer be contained within the limits of the long-range social and economic development plans. Certain countries have responded to this situation by designing "spacial policies" trying to constrain the growth via development of secondary urban centres. Up to now, the results of these policies have been mainly expensive and inefficient. Policies of sectorial development have continued to be contrary to the initiatives for decentralisation, and public or private investments have retained their decentralising logic. As a consequence, rural-urban migration has continued its accelerated rhythm.

The macro-economic policies and the prices continue to favour the major cities, which receive the major part of the national investment in electricity, water, markets, education, health and transportation. With respect to food, subsidies keep their prices low—for reasons of political stability—and continue attracting multitudes of poor people in need of food.

For these reasons, there are so many migrants that have moved in the recent decades to cities such as Nairobi, Manila, Mexico, Sao Paulo, Rangoon and Puerto Principe.

The lessons about the policies regarding the use of space in urban development that we can glean, then, are that coercion does not work. Only the attenuation of economic and social inequality between rural areas and the secondary cities on the one hand, and the major metropolitan areas on the other, can reduce the migratory movement. Certain developing countries have begun to take away more funds from the major cities and invest them in rural areas and secondary cities (16), taking advantage of the natural economic resources of the regions, specially the processing of products and marketing, in addition to the decentralisation of governmental services. The conclusion is that a successful urban policy cannot be achieved without simultaneously undertaking an ambitious programme of rural development.

Meanwhile, it is of urgent necessity to undertake measures to improve food and nutrition for the most underprivileged, who have already moved to the city and are living under the most miserable conditions.

URBAN INFRASTRUCTURE FOR IMPROVED FEEDING

Rapid urban development creates acute problems for nutrition and feeding, and problems for commercial distribution, as well as overburdening the infrastructure and services aimed at protecting the quality and security of the food supply.

The lack of services such as rubbish disposal, drinking water supply systems, and sewage is the cause of the growing contamination of food, which in turn leads to disorders and diseases that reduce the working capacity of the population. The lack of quality control for foods sold by street vendors, and the slaughter of animals in new peripheral communities can be responsible for the spread of disease. This is a risk with wider implications, since some of the food workers originate in these neighbourhoods. By virtue of the lack of education or the scarcity of sanitary facilities at the workplace, the standards of sanitary quality for processed foods might be less than that established at national or international levels. The cholera epidemic, which has broken out in South and Central America results, without a doubt, from the lack of adequate infrastructure for providing water and foods.

Among the priority measures which must be taken, improving the system of food distribution in the cities is the most fundamental to stimulate an efficient process for sale and to ensure an adequate supply of food at reasonable prices for the majority. Solutions to the problem of transport of fresh foods from rural zones, quite distant from the city, is fundamental to reduce losses and ensure a rapid turnaround by truck or rail, between the production areas and the central markets. Also, to reduce the expenses in marketing and distribution, governments should step in to improve the storage, processing and quality-control services. There is already abundant experience e.g. in Mexico and Brazil, that this has provided positive results for the needy groups. Nowadays, thanks to initiatives taken at the community

level, we can observe the establishment of informal community cooperatives in certain Latin American countries, which buy in bulk so as to take advantage of wholesale prices. Sometimes they rent transport as in the collective purchase of beef in Argentina and of basic staples in Brazil.

To resolve all of these problems, it will be necessary to take a series of educational, legislative and legal measures that can only be implemented through the special efforts of officials, producers, transporters, industrialists, marketers and also by consumers.

PROGRAMMES OF NUTRITIONAL INTERVENTION

As in the majority of the developing countries, the improvement in the infrastructure, the training of personnel, and changes in the pattern and quality of food production will take time. Taking into account the rapid growth of the cities and the limited resources, the nutritional intervention programmes are directed towards the most vulnerable groups (children, pregnant women, lactating women), which cannot wait for the large scale socio-economic development policies to bring them nutritional and health security in the short term.

Many programmes have been implemented in the last few decades in various parts of the world. The most effective have come about for their integration into primary health and maternal education programmes. For example, the World Bank has mentioned a considerable reduction in infantile malnutrition in Brazil and Colombia, using a combination of directed subsidies to facilitate access to foods, direct food distribution, and nutritional education (17). FAO, for its part, has carried out a series of studies in various urban centres in Africa, Asia and Latin America to identify those interventions best suited to improve the nutritional situation of the most underprivileged groups, and to identify barriers to their implementation (18). These studies are summarised in Table 6.

As shown in Table 6, there is a series of interventions to help resolve the food and nutrition problems of the urban poor. Many of them have been carried out in various developing countries, and their cost-benefit evaluation has clearly shown interventions aimed at improving access to foods at the household level, to be more efficient than those targeted toward specific individuals. Nevertheless, intervention in the at-risk groups is still necessary to satisfy the nutrient requirements of children. Of course, what follows would not make much sense if the macroeconomic policies for employment, health, credit, etc., essential for the alleviation of urban poverty and malnutrition, were not carried out simultaneously. These considerations, however, are outside of the scope of this document.

ACCESS TO FOOD

The concept of access to food constitutes one of the essential bases of the strategy of food security and consists in providing low income groups with the means of acquiring their basic

TABLE 6
 REPORTS AND RESULT FROM THE 1986 FAO MISSIONS TO URBAN CENTERS OF AFRICA ASIA AND LATIN AMERICA
 (NAIROBI, DACCA, JAKARTA, BANGKOK AND CITIES IN ARGENTINA, BRAZIL, COLUMBIA, CHILE,
 ECUADOR, MEXICO, PERU, URUGUAY AND VENEZUELA)

Problems	Interventions	Limitations
Prices of food too high for the poor: food/packaging food ratio	1. fair price stores. 2. Simpler packaging, communal purchasing, consumption cooperatives	1. and 2. depend on economic and political decisions
Prices of basic foods fluctuate when scarce and prices in parallel markets increase excessively	Availability of municipal stocks, especially for the poor, located in poor zones for easy access	Political and economic action
Not enough time for breast-feeding, preparation of food for unweaned infants, reduction in infant care, nutritional problems of the aged	Day centers at workplace, cheap food for weaning, communal kitchens	Lack of pertinent legislation for working mothers; shortfalls in technology and resources
Imbalanced food intake, deficiency of micronutrients, lack of family food security	Urban agriculture for fruit and vegetables, encouragement and production of cheap food mixtures rich in nutrients, fish ponds, small cattle raising	Legal restrictions on agriculture in urban centres; lack of space and extension services, lack of fruit nurseries
Poor enviroment, lack of cooking fuel, insufficient sources of drinking water, insanitary conditions	1. Piped water on street corners 2. Firewood groves in cities 3. Widening of sanitary services to poor areas 4. Education in environmental hygiene	Profitable interventions yet ones which demand political decisions
Long distances to markets	Establishment of markets with intervention, run in poor areas	Needs close planning and execution and perhaps subsidies
Lack of nutritional knowledge	Nutritional education	Illiteracy, lack of funds for programs, incorrect publicity
Lack of statistics on poor urban population and its nutritional condition and planning and follow-up programs	Mandate for the collection of data for urban statistics	Legal problems such as not considering shack districts as part of municipal administration
Shortage of personnel to carry out programmes	In-service training for personel, volunteers and young people	Difficulty in finding sufficient literate volunteers and a high drop-out rate
Insufficient nutritional elements in current community development activities	Awareness among city leaders and planners	Need for more political conscience
Wastage of resources and effort through lack of coordination between public sector and NGOs	Establishment of coordination mechanism	Danger that NGO commitment and initiatives would be diluted by formalised interventions

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staples or of giving them the wherewithal to produce them. To facilitate access, one can act on purchasing power with policies for jobs, training, and wages; alternatively, one can act on the supply of food, with a view to containing the increase in prices and their fluctuations, in order to stabilise the supply of food. This can be effected with the establishment of ration shops, consumer cooperatives or with the construction of food depots and community purchases, or both.

Measures to change the supply are generally more rapid although they are more vulnerable to the economic complex—than policies of socio-economic development.

SUBSIDISED FOODS

Subsidies assigned to certain basic staples to facilitate the acquisition by poor are very popular because they are politically visible and permit a large number of people to be reached.

These subsidies can be general or targeted and can be in the form of food coupons, thus constituting a transfer of income to the neediest. General subsidies are the most common type since they are the easiest to implement, but they almost exclusively favour urban consumers, and their benefits reach the rich as well as the poor. In order to better target them, various systems have been implemented, such as operating ration shops only in poor neighbourhoods, or passing out identification cards only to eligible participants.

Programmes based on coupons which have a monetary value and which can be exchanged in regular stores for certain basic staples (food stamps), have been tried for a long time, but not so much in developing countries, as the administrative costs are high. Nevertheless, recent experience in Brazil (19), and Columbia have provided promising results, especially because they have directed their efforts at strengthening the administrative-technical structure and at training personnel.

Direct food aid aimed at certain target age-groups are also a widespread measure to facilitate the access of foodstuffs to vulnerable groups.

Programmes of food supplementation can supply edible items in the same places where the beneficiaries are found, or they can be given out from a central point for the participants to take home with them.

These programmes are especially directed to mothers and preschool- children, and are usually based in maternal child centres, social services, and day-care centres as their distribution network.

School feeding programmes are also very well known and popular in Latin America. Even though their impact on height and weight parameters has not been firmly established, there is no doubt that this type of program is one of the most efficient from a cost-benefit point of view, because it allows undernourished children to recover a medium level of physical and

mental growth.

In particular, school-feeding increases enrolment and attendance, and awakens the curiosity and attention of students, allowing them to make maximum use of their studies.

Finally, another type of promising community action initiative has recently been launched in Latin America under the pressure of the economic crisis. There are self-help projects promoted by women's clubs, neighbourhood committees and cooperatives which, by virtue of their informal character, their flexibility and small scale are best suited to resist the price and supply fluctuations. They are also truly based on a community spirit and they function at a low cost.

Some of these projects are being successfully developed in Central America with the help of PVOs and bilateral organizations and have established infrastructure such as popular kitchens, food shops and day-care centres for mothers who work outside the community.

URBAN AGRICULTURE

Governments should assist the development of urban agriculture. This type of agriculture refers to the production of food within the urban or peri-urban limits, that can be horticultural (vegetable gardens), for basic staples, the raising of animals, or full-scale agriculture. Urban agriculture also represents a remunerative activity of easy access to many of the unemployed, especially women. The promotion of urban agriculture should be official and actively promoted as an important component of urban development and as an additional source of food—or of income—for the poor. The purpose of such a promotion should be to increase the health and nutritional status of the poor, to increase their income (50 to 70% of which is customarily spent on foods) and to promote employment. Urban agriculture also has the advantage of producing fresher and less expensive foods, of contributing to the health of the ecology of the cities with the creation of green areas, eliminating rubbish, and recycling domestic waste.

CONCLUSIONS

The phenomenon of urbanisation is irreversible and it is still accelerating in various regions of the world by virtue of an endogenous increase in urban populations and through growing internal and external migration.

To address the problem, the regional governments dedicate the majority of their resources to the improvement of urban infrastructures, to establishing industries to generate employment, to assuring the regular supply of food, all of this at the cost of agricultural investment which is declining in almost all developing countries.

The urban masses enjoy a far superior political clout than the more numerous, but dispersed and isolated rural populations.

For this reason, little effort is spared in helping them to survive and to integrate themselves within the urban fabric. An essential element in such a policy is food, a vital necessity and at the same time a visible manifestation of the concern for the poor by the governmental authorities.

From the rural side, in contrast, the investments are specific and modest, except for export crops that allow for the payment, albeit partial, of the foreign debt. So widespread is the practice of subsidising consumption in developing countries—almost exclusively benefiting the cities—that subsidies for the production of traditional basic staples are exceptional and rare.

Under these conditions, rural poverty increases, national production of foods declines, aggravating even more the economic and social dependence on the importing countries. On the other hand, because of lack of investment in collective rural services such as schools, health centres, hygiene, and transport, the phenomenon of "expulsion" of the productive rural labor force accelerates and the importance of the urban sector in the national economy increases even more.

As a result, a national urban food and nutrition policy should be formulated based on a just distribution of state investment to revitalise the rural area. In this context, it is interesting to note that the policies of economic adjustment proclaimed by the International Monetary Fund and the World Bank have begun, in certain countries, to invert this tendency and to increase the production of food in order to improve the income of the peasant farmers and reduce undernutrition.

What is certain, however, is that the producers will direct their resources toward agricultural or industrial activities that are most profitable, which are generally those of interest to the consumer with substantial buying power.

National food security is therefore based on a more balanced policy between the countryside and the city, both centralised and decentralised, regarding both the supply and the demand and integrating the agro-food chain with development.

On the part of the poor urban consumers, it is necessary to emphasise the dyad of nutrition-health because one cannot improve one without the other. With respect to nutrition, the most efficient action, in addition to the basic social and macro-economic policies, is that which facilitates access to foods, because, with the aid of a nutritional surveillance system, they allow one to direct the effort to the neediest.

On a long-term basis, one could contemplate influencing food demand to restrain the role—often damaging—of commercial publicity so that the poor can obtain an optimum nutritional value in the foods that they buy. Many programmes are already operating, especially in Latin America, which are disseminating education to the consumer, which control prices for retail sales and control the quality and the safety of food. These interventions are fortified also with initiatives of self-

help of the community, by the informal sector of street food vendors, and by national non-governmental associations. Nevertheless, confronted with a largely urban future, it is imperative that we mobilise international cooperation for developing the capacity for the countries themselves to nourish their own cities by way of broad policies of urban and rural development. Certain efforts have already been brought to fruition under the auspices of international non-governmental organisations such as the World Association of Cities in the International Congress of "Man in this World" celebrated in Madrid, Spain in February 1986.

Facing the magnitude of urbanisation problems that will characterise the third millennium, it will be necessary to involve the technical agencies of the United Nations which have adequate technological bases to advise and aid the governments and to mobilise those indispensable international resources to ensure harmonious balanced development of the countryside and the city. What needs to be taken into account is the external pressures, the time that it takes for these efforts to show an effect, and the social forces that struggle to gain the attention of those in power.

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WORLD FOOD PROGRAMME EXPERIENCES IN DEVELOPMENT AND FOOD POLICIES IN COLOMBIA

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SUMMARY The World Food Programme of the United Nations has as its responsibility the implementation of food distribution projects as a compensatory strategy for socially vulnerable groups. In the last 26 years, since the programme was started, the emphasis has been on attending rural areas. However, in the light of recent demographic changes, some regional offices are considering interventions in urban areas. In this context an experimental project was started in Cúcuta, Colombia in the border area with Venezuela. The objective was to distribute food to Colombians that were migrating to Venezuela and also to Colombians that were returning back home because of economic changes. Both groups were stationed in Cúcuta.

The project had 3 basic components:

1. The sale of subsidised packages of food to families in Cúcuta who showed nutritional deficiencies.
2. The exchange of food for work performed in projects for social welfare.
3. Operation of a rotating fund for the development of micro-industries in Cúcuta and the support of social welfare projects in the area.

The results were extremely satisfactory. In addition to combating nutritional deficiencies, 170 microindustries were created, 17 schools and an equal number of health centres were built. On the basis of this success, the possibility of implementing similar projects in Medellín, Cali, Barranquilla and Cartagena, but on a larger scale, are under study. Another pilot project was also started in the City of San Carlos, next to Medellín, geared also to fighting nutritional deficiencies and stimulating self-constructed housing projects, based on the concept of self-help.

EXPERIENCES

The World Food Programme, as its name indicates, is a United Nations agency whose main objective is to transfer commodity surplus (food) from developed countries, which are willing to donate them, to those countries quite well disposed to

accept these commodities through WFP, to alleviate nutritional problems, as well as to improve development programmes, in which the commodities contribute to the implementation of infrastructure work.

The World Food Programme initiated its activities in 1963, when the Annual FAO Conference of 1961 set up an international institution within the United Nations system, capable of implementing activities in a multilateral manner and therefore apolitical.

In 1963, after exhaustive discussions, the WFP was created with a food commodity fund equivalent to 20 million dollars and an initial five-year trial period.

After three years of its implementation, the absolute need of its continuation was obvious and the United Nations General Assembly fully supported the WFP as an unlimited duration agency to function with the support of voluntary food commodity contributions from donor countries.

Considering the severe situation the world was facing in the sixties, the Programme covered mainly two areas: the first one, emergencies due to natural disasters (the majority) or human action (the minority) and the second, rural development in which the Programme was implemented, through projects aimed at covering nutritional deficiencies in these rural areas.

Generally speaking, 30 years ago —mainly in Latin America— 70% of the population was located in the rural area, and 30% in urban areas. The changes have been so important in the last three decades, that at present we find ourselves facing an opposite situation, i.e., 70% is living in the cities and only 30% in the rural areas. In this sense, the WFP has emphasised its development action, taking into account that "development projects" in rural areas are more important for the Programme than projects designed to cover only nutritional aspects.

However, the Programme has never stopped assisting the most vulnerable groups, such as pre-school children, pregnant

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and lactating women, etc. In this regard, the WFP strategy is increasingly emphasising the self-improvement of those groups, so that when the WFP projects come to an end, dependency on food assistance will be complemented and improved, by the production of local food commodities, bearing in mind the benefits of self-sufficiency.

Speaking of urban areas, the actions carried out by the WFP are not yet significant since this is a new working phase for the Programme, and most of its projects, implemented by the WFP, in urban areas are designed towards the granting of food assistance to cover nutritional deficiencies of poor urban groups, such as the traditional "glass of milk", etc.

Here I would like to convey to you, two slightly different experiences on the matter of WFP activities in urban areas, which took place in Colombia, in which development aspects were emphasised as a priority.

The first experience refers to a relatively small project implemented in the city of Cucuta, near the border with Venezuela, with a cost of approximately 1.5 million dollars in food commodities.

When the Venezuelan economy was extremely attractive, Colombian citizens used to enter Venezuela in search of the positive economic opportunities offered by that country.

Due to changes in its economic policy and, mainly, to the abolition of subsidies in Venezuela, the City of Cucuta (the meeting point of the Colombian emigrants to Venezuela), was affected, by such a situation of emergency, that the Colombian government had to request WFP assistance to cope with the emergency. Thousands of Colombian emigrants to Venezuela were held back in Cucuta, apparently in transit to Venezuela, causing this situation of emergency. The problem was augmented by the arrival of hundreds of Colombian citizens returning from Venezuela into Cucuta.

The WFP accepted the challenge proposed by the Colombian government, and implemented an emergency project, whose strategy was slightly different from the usual WFP regulations of providing food commodities to affected populations.

The project was designed, based on three fundamental components.

The first one was the non-free distribution of food commodities, but instead —once the affected families were selected, using as an identification parameter (family) nutritional factors—, the WFP food basket would be sold to those families, at a very low subsidized price.

The second component was the distribution of the food basket as a compensation for various jobs to be performed by one of the members of the selected families. The work to be carried out was planned and coordinated by the "Corporation of the north Santander District", with the assistance of the

Colombian Institute of Family Welfare (Instituto Colombiano de Bienestar Familiar).

The third component was that, from the proceeds obtained from the sale of the food commodities, two thirds of this fund would be used to establish a rotatory credit fund to support the implementation of small productive projects, i.e., urban micro-enterprises; and the third portion, from the same funds would be applied to a "lost fund" (a fondo perdido) to purchase construction material and carry out social infrastructure works such as health centres, schools, sewage improvement, road repair, etc.

The Project proved to be so successful, from its implementation, that the WFP was able to obtain additional funds to continue its operation, as well as to increase the rotatory and social funds, when only half of the project duration had elapsed.

Perhaps the most interesting phase of the project was the creation of microenterprises, since —considering that the majority of the Colombians planning to emigrate to Venezuela had different types of training or, at least, basic education— when they were offered funds to create microenterprises, they had very little problem implementing them. This was so evident that at the end of the project, that is, after a year and half we found that there were more than 170 active microenterprises. The fund is still operational and I am certain that new microenterprises continue to be created.

The other interesting aspect is that during the life-time of the project it was noted that families suffering from nutritional deficiencies, who received WFP food support during the food-for-work-phase and also through the purchase of food rations, showed, as was expected, an important improvement in their nutritional level. However, the most important point was that when the project commodities were exhausted, the families' nutritional improvement did not remain steady, but —on the contrary— continued to rise. This was possibly thanks to the support provided by the infrastructure and rotatory funds as well as to the nutritional education (dietetics) received by the beneficiaries of the food basket. This, in fact, means that the proceeds/profits obtained by those families when they were given the opportunity to develop, which when added to the social infrastructure work performed (by them) for their own benefit and to the education they received, allowed them to become not only self-sufficient but productive.

This emphasised something very well known, i.e. that undernourishment is one of the consequences of poverty, and that, as a corollary, if we fight against poverty, undoubtedly we will improve the levels of nutrition.

Recapitulating, it could be stated, paradoxically, that the emergency operation of the City of Cucuta really became a development project, at the moment in which the food commodities were exhausted and the WFP assistance, as such, came to an end.

Based on the experience achieved with this project by the WFP Office in Colombia, a second pilot project was carried out in the municipality of San Carlos, near the City of Medellin.

This project, with a total value of commodities close to one hundred thousand dollars, was executed by the non-government Agency called "Antioquia Presente" and also supported by the Government authorities of the Antioquia Department (capital, Medellin).

The City of San Carlos was in a pathetic state, mainly due to the violence that had affected the area for a long time, as well as to the natural disasters that worsened the already dramatic situation of this city.

The WFP, in conjunction with the authorities of Antioquia, decided to intervene with a pilot project, which was the "seed" to attract programmes of higher importance.

The project had as a base two fundamental parameters:

The first, to provide a balanced diet to cover, in part, the nutritional requirements of the population through communal restaurants, called in Colombia "almozaderos", and, the second, to provide a family food basket to the beneficiary families covered by the project, a member of which would be willing to

carry out work in compensation for the food received.

The project, being so small, was basically focused on the resettlement of the families that had lost their houses or possessions, mainly due to the flood caused by the overflowing of the river; and to assist some other families that, in some way, were escaping from violence. In this regard, the organisation "Antioquia Presente", and the government authorities of Antioquia, were both responsible for the design of the new housing areas, the acquisition of the land, and the purchase of the necessary construction materials and inputs. The families interested in the project were registered and included in the programme and, once they were participating, they started receiving the programme's benefits, that were, in the first place, the "almozaderos", and in the second place, the food basket for their participation in the self-help schemes.

In view of the previously mentioned success, three major projects covering the cities of Medellin, Cartagena and Barranquilla were implemented in Colombia.

The project objectives remain the same, the fight against poverty and, thus, against malnutrition, and additionally in the three last cases, the rehabilitation of poor groups.

NOT-FOR-PROFIT ORGANIZATIONS: THEIR ROLE IN THE SOCIAL WELFARE OF METROPOLITAN POPULATIONS

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SUMMARY Services to improve nutrition are provided by many organisations: by the government and private enterprises, by those which are local and those which are national and even international, by those for whom this is their central task as well as by those for whom it is a secondary concern, or even an unexpected byproduct of their mission. Such services are also provided by not-for-profit organizations (NFP's) in the so called independent or third sector. It is the purpose of this paper to analyse this sector and assess its usefulness in enhancing nutrition in metropolitan areas. We will 1) give an overview of the not-for-profit sector, 2) summarise the justification for this form of organisation, particularly emphasising environments with few resources, 3) offer some thoughts why such NFP's may be appropriate vehicles for the improvement of nutrition and 4) consider the implications of policy and planning of not-for profit participation. The presentation will finish 5) with an analysis of the experience of programmes delivered by not-for-profit organizations.

GLOBAL VIEW

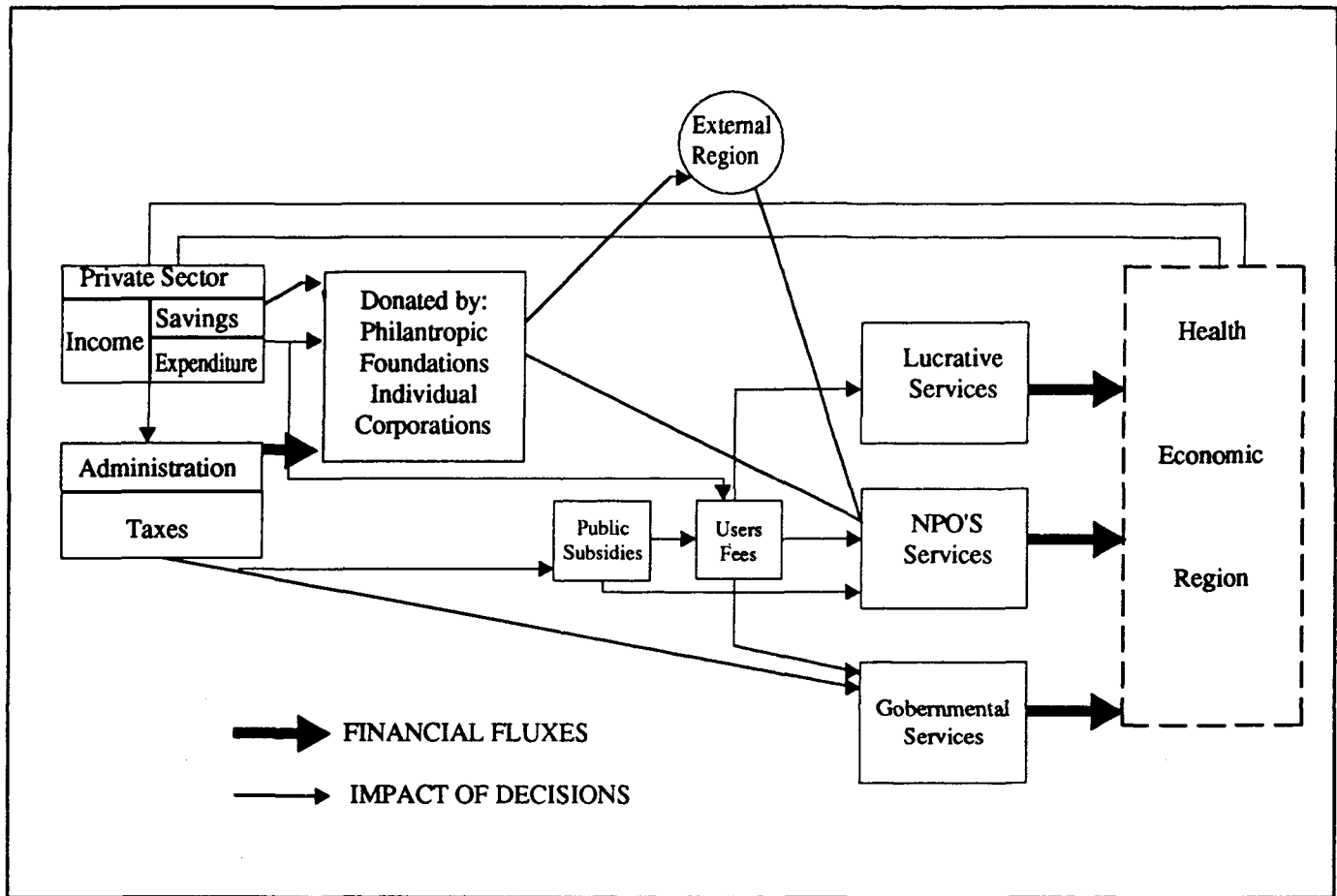
Not-for-profit organizations (NFP) are engaged in the delivery of many types of services in most parts of the world (James 1988, McCarthy 1992). The sector includes enterprises in the welfare or charity domain, as well as in health, education, arts, and culture provision. Churches and the many affiliated enterprises in the religious domain are included. For some purposes it is useful to include in the NFP category membership entities such as labour unions, credit unions and other financial enterprises, recreational groups, those which cater to shared vocational and advocational interests, chambers of commerce and even political organisations. A particularly important part of the NFP domain is the foundation, an entity which is established to channel funds and other resources to beneficiaries which include service delivery.

Not-for-profit enterprises have several important characteristics. These distinguish them from organisations in the private and in the public sector (see Figure 1). Unlike private sector enterprises, NFP's can not distribute surplus: there is no "profit" for stockholders. They must, of course (though this is often overlooked) match expenses with revenues. If there is excess, this can be dedicated to expanded service, capitalised and returned to those who provided the revenue. NFP's, unlike for-profit enterprises or the public sector, receive significant shares of their revenue as donations or gifts from individuals, other NFP's (such as foundations), businesses, or as grants from various levels of the government. In addition to monetary support, NFP's are recipients of in-kind donations (surplus material, property, etc.) and perhaps of greater importance, volunteer labour ranging from holding positions on governing boards to work as consultant experts to fund raising, to menial client-directed activities and maintenance (see Figure 1). In the USA, one estimate is that this represents an input (5 million workers) equal to two thirds that of the employed workforce (Weisbrod 1988).

NFP's may, and often do, practice price discrimination in what they ask for their services (for example, giving free of charge services to the needy or charging only nominal fees — or to the donors, who tend to include the wealthy). NFP's are treated distinctively with respect to the tax code and other laws: for example, in most nations they are exempt from certain taxes, and gifts to them may reduce tax obligations for the donors. All these characteristics are part of the web of incentives to support NFP's. Most societies have set these in place to encourage their existence and activities: activities which are expressive of some public interest. This purported public interest is insured in several ways: in particular in governance by boards which are expected to represent the larger public (and clients), and by a charter which spells out the mission of the organisation. Prohibition on generating (and distributing) any profit is universally seen as a necessary condition for public image.

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FIGURE 1
MOVEMENT OF FUNDS AND ITS IMPACT (FLUX)



As elsewhere in the world, NFP organisations exist in all parts of Latin America, though we have limited organised information on this sector here (Consejo 1981, Smith 1989, Stearns and Otero 1990). Like NFP's in the USA and other OECD nations, they are active in a variety of service fields, and rely on support in part outside their community (indeed, in some cases successfully raise funds internationally), and have distinct organisational structures, definition of mission, and relationships with other enterprises (Powell 1987, Reiner 1988, Weisbrod 1988).

Simply to give some perspective on NFP's, recent summaries from the USA show that these constitute a large part of the service sector and that this is one of the major growth sectors in the economy (Independent Sector 1986, Weisbrod 1988). There are well over one million entities (compared with some 3 million for profit enterprises), employing almost ten percent of the labour force. About two fifths of these are religious bodies and service organisations in the welfare, education, health, arts,

and other subsectors. NFP's are represented in the most rapid growth areas in the economy (indeed constitute a significant part of such growth), and in many metropolitan areas they are the most important activity. Certain services are heavily identified with non-profits: religion, of course, is virtually 100%, general hospitals 65%, higher education 20%, nursing homes 22%.

Why NFP's? There are several rationales for this form of enterprise. Perhaps the best and clearest is that the NFP form is appropriate where, either in terms of mission or priority, there is less than public consensus: but there is some considerable interest that a particular service should be offered. This opens the door for NFP's as experimental entities, testing the waters, so to speak. It also helps explain the growth of NFP's in circumstances where resources are scarce, and where a particular service is not judged by the majority (or the leadership) to be necessary. NFP's also arise where donors seek to establish control over a particular domain.

"If not for profit," as has been asked, then for what purpose (Young 1983)? Enhancement of assets, market share, or size of organisation, all are criteria which have been found to motivate management. An expanded entrepreneurial arena (not the least the building of a political base or other network) are also common purposes. But altruism clearly does have a role to play: with clients or beneficiaries defined as the public at large, a sharper identified client group, or donor-members themselves.

Such a motivational and institutional context makes for advantages where services are delivered by NFP's. Their time horizon will be longer than that of a government agency; indeed some of the oldest enterprises in nations such as the US are NFP's. Their distance from private or public bureaucracies makes them more acceptable or approachable to clients who otherwise would not perhaps be served. Their situation in a decentralised map of service delivery affords a variety of innovations to be tried out. Of course, they are also more vulnerable, as their resource base may not be assured.

What impact on the delivery of nutritionally-directed services in the urban environment can NFP's have? can they do better than other organisational forms? We can see the following effects:

Under conditions of resource scarcity (and this not only refers to monetary considerations, but also to such resources as administrative capabilities) NFP's can more effectively meet client needs in a decentralised fashion.

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FOOD POVERTY IN LATIN AMERICA

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SUMMARY The paper begins looking for a conceptual framework for the analysis of poverty in general and of food poverty in particular. After discussing these problems and some related ones, such as malnutrition, food needs and underconsumption, a theoretical integration is attempted between the concept of "entitlements" developed by Amartya Sen and the concepts of ways of access and satisfiers, and of sources of household well-being developed by the author of this paper. Conclusions arise from this conceptual framework including the distinction between the human need for food and the animal's food needs, providing the distinctions between food poverty and insufficient nutrition. In addition, the conclusion is reached that food needs are primarily satisfied via commercial means, implying that the source of well-being, the shortage of which leads to food poverty, is current income. Therefore, the determining factors of food poverty must be sought among the determining factors of household income, where the conceptual framework of "entitlements" is particularly fruitful.

The text then takes a quick look at ways of measuring poverty and reaches the main conclusion that the dominant method used in Latin America, which I have christened as a variant of the Normative Food Basket, is in fact an excellent way of measuring food poverty.

Based on the above conclusions, the author proceeds to analyze poverty and food poverty in the last twenty years in the region. In contrast, estimates made by Alexander Schejtman (Joint Agricultural Division CEPAL-FAO) on malnutrition in Latin America, in addition to data on child malnutrition from UNICEF, are also presented. The evolution of poverty in Latin America in the 70s and 80s is complemented with analysis of the socio-demographic characteristics of homes and with analysis of the association between certain macro-economic variables and food poverty. In both cases, an attempt is made to express the empirical variables analyzed with the concepts developed in the first part.

BACKGROUND

In this section I propose to resume, with neither details nor an explanation, a series of conceptual conclusions that, though they may be provisional, I have found useful in structuring my work in poverty, and which I propose to use in this paper to introduce what I call food poverty.

As I have said elsewhere, any conceptual look at poverty goes back to basics: the generic conception of basic human needs and the specific way in which they exist in a concrete human society.

Therefore, in the beginning I must state that:

- a) Through his labor, man does not only change nature but also himself. Therefore, human abilities and needs are just as produced as goods and services. The above gives us three consequences: Firstly, the historical nature of human needs, Secondly, the rejection of the idea that needs originate from he who needs as if he were their original source. In other words, the rejection of the abatement of needs since for the individual they are as attributes for a substance. Thirdly, a rejection of the view that holds production as a mere instrument in the service of the satisfaction of pre-existing needs, which leads to a much more complex idea of the relationships between production and needs which acknowledges, however, the determining nature of production (1).
- b) Despite the fact that the historical starting point for production was the original set of man's biological needs, this origin also led to needs generated by production which direct the process of ulterior production. This historical and ever more multilateral, more universal nature of human needs, contrasting with the permanent and biologically determined needs of animals, may be seen in two ways. In the

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humanization of man's biological needs, which Marx expressed brilliantly in his famous introductory sentence to *Criticism of the Political Economy*: "Hunger is hunger, but hunger satisfied with cooked meat, food with a knife and fork, is a hunger very different from that of he who devours raw meat using hands, nails and teeth" (2). Also, the historical nature of human needs is seen in the creation of new needs, of a non-biological nature, such as scientific curiosity, esthetic needs and religious needs.

- c) Determining concrete social needs in a specific society is a complex task, for which only very general methodological guides, at best, have been developed. Here I should point out that the nature of the production process (working conditions) and the nature of the consumption process (restitution and reproduction of the effort of labor), are the fundamental elements that must be analyzed to understand the formation of social needs. For example, as J. P. Terrail said, "as trade relationships expand and beat back precapitalist production and consumption forms, traditionally domestic activities (cooking, sewing and mending, child care) tend to escape to an ever greater extent from the family environment. This change favors the phenomenon of women in the workplace, which in turn accelerates the change. Family lifestyles tend to undergo in-depth change. The concentration of production means the mass urbanization of the population and the availability, for the work force, of suitable forms of housing and transport. Increasing the average necessary degree of qualification of the work force and the disappearance of traditional ways of passing on knowledge mean the generalization and prolongation of public instruction, etc." (3).

This example illustrates the path to be followed for an analysis of concrete social needs suggested by the author. Now, let us explore other paths often adopted in practice though their conceptual framework, methodology and limitations are rarely made fully explicit.

The aid of the experts, especially in the field of food, is often enlisted to determine social needs. Nutritionists, it is supposed, are in a better position than anyone to determine a human being's nutritional needs. However, as we shall see from examples further on, it is one thing to determine protein, energy, etc. needs and another very different thing to establish food needs, not to mention, for the time being, basic elements for a human diet, such as fuel for cooking. That is, what experts in nutrition can contribute, putting the enormous difficulties present in that determination of needs to one side, is only one small step. The next one, transforming these requirements into a food basket or a diet, is a matter where it is difficult for there to be experts who can provide the answers or external normative guidelines.

Whereas the nutritional requirements of cattle may easily be transformed by an exercise in linear programming into the balanced feed that maximizes the rancher's profits, in human food -except perhaps in the case of slaves- we cannot think of balanced feed/foods. The problem of diet is determined culturally.

Another possible path, not exclusive of the former but perhaps complementary, useful more than anything else for non-food needs, is the analysis of legislation and popular demands. This was what I did, for example, when I defined some of the items of the Normative Basket of Essential Satisfiers in 1982. The needs for education and leisure are obvious. The rules stipulated in national legislation lay down minimum norms defining the basic satisfiers (4). Whether or not these norms reflect adequately the population's real needs is a question that has not been answered. This procedure finds little application in the field of food.

Another path consists of going directly to the population and attempting to capture its sense of what is necessary and desirable. This method has been used to masterful effect by Mack and Lansley (5) in Great Britain, and recently copied in Bogota by a Columbian government team under my guidance. It consists of defining a list of goods, services and activities that could be considered necessary. For each of the elements on the list a sample population is asked if it feels an item mentioned is necessary or simply desirable but not necessary. Afterwards, to identify situations of poverty, as was the case in the aforementioned examples, the population may be asked if it has these items or not, and if not, whether this is out of an inability to cover their cost. The first set of questions allows what a society as a whole or a part thereof considers necessary to be determined.

Obviously, this procedure also has its weaknesses and it must be borne in mind that it discovers the perception of need and not needs themselves. However, it seems very interesting to explore its potential use for human nutrition. In the two surveys mentioned above, the problem of food is faced in a very generic way, through critical items such "a special meal on Sundays or occasions such as birthdays" or "milk everyday for the children", since the purpose of both exercises was to analyze poverty and, therefore, all basic needs. Nevertheless, a survey of this kind concentrated on food would be very interesting. For example, it is well known that one of the fundamental methodological problems of defining food baskets is the initial list of foods to include.

This list is normally chosen based on the foods that make up the largest part of a family's food expenditure. Objections may be made to this manner of proceeding since the reality observed is taken as a basis for the norm, without verifying if families consume these foods, and only these foods, because they want to or because their resources are limited. An alternative path could be to consult the population as to whether or not it

considers necessary a food drawn from reasonably wide-ranging lists. Critical items, determined by living and working conditions, such as the consumption of food outside the home, or others determined more by custom, such as the role of food in social intercourse and community life, would also be aspects worthy of treatment in a survey of this kind. The importance of this focus is that it questions the idea that the researcher may define basic satisfiers without consulting the population.

A creative combination of all the focuses mentioned could be the recommended path to take in order to look at the definition of basic satisfiers in a concrete society.

Taking up the initial thread, let us now look at food need and try to define the concepts of malnutrition or deficient nutrition and food poverty. The starting point in the case of food is the humanization of the aforementioned biological needs. From the viewpoint of biology, human food need is exactly the same as that of certain animal species. However, as we glimpsed with the quote from Marx (2) on different types of hunger, from the viewpoint of the satisfaction of human needs, human food must be seen as a complex phenomenon, where not only what is eaten, but also how it is prepared and consumed, are important factors. What is eaten, how it is prepared, how it is eaten and in the company of whom, are elements that make up the human food need. Eating like animals do, without cutlery, plates, table and chairs, is one of the most extreme ways of offending human dignity, degrading man to the category of animal, as torturers through the ages have known so well. Satisfying a human being's nutritional requirements, though a condition of the human food need, is not a sufficient condition. To the extent that, for humans, eating is much more than nourishing themselves, the food need is defined with social, and not solely biological norms. I understand food poverty as that home situation that does not allow access to "the types of diet" developed by Townsend (6), and participation in the activities that involve the consumption of food (such as entertaining friends, celebrations, parties, etc.) that "are normal or at least are widely encouraged or approved of in the societies to which they belong" (Ibid). I would understand malnutrition as the insufficient ingestion of foods or their inadequate assimilation, eventually leading to weight loss and other symptoms. This paper deals with the subject of food poverty, and in terms of access to diets that would not shame those who consume them (7).

A suitable and highly fruitful framework for the analysis of the factors that determine hunger and, especially, of famines is, in my opinion, that of entitlements developed by Amartya Sen (8). The concept of entitlements refers to "the ability of persons to obtain food [and other goods, I would add] through the legal means available in a society, including the use of production and commercial possibilities, entitlements *vis à vis* the State, and other methods..." A person's set of possible entitlements depends on two parameters: his initial lot and the "map of entitlements of exchange with nature and other persons (which must be

interpreted in the same wide sense as entitlements themselves, including, for example, rights acquired with respect to the State)" (Ibid). Therefore, a person may find himself in conditions of poverty due to a very small initial lot, in which case his poverty could be structural, or due to an unfavorable displacement in his exchange entitlements map (e.g. a drop in the relative prices of goods sold compared to goods bought), in which case poverty may be transitory. This strategy is useful both for analyzing the conditioning factors of poverty on the level of specific homes and to analyze the general poverty rate on a social level. For example, in most Latin American countries, wages fell in real terms during the nineteen-eighties, which can be seen as a negative displacement in the map of the exchange entitlements of those who sell their labor, and which led to an increase in poverty among wage-earners. By way of contrast, the death of an active adult in a home is a reduction in its initial lot and may also mean its impoverishment. Amartya Sen has fruitfully applied this conceptual strategy to hunger and especially famines.

In different papers, I have developed analytical strategies that complement that of entitlements. These are the forms of access to basic satisfiers, the analysis of the Mexican legislative framework establishing the rights of the population to satisfy basic needs, a typology of the modes of production prevalent in the Mexican economy and a strategy to analyze the sources of household well-being, closely linked to the typology of forms of access (4,9,10). The usefulness of the analytical framework of entitlements is improved by integrating these concepts. For example, typifying social and class rights and those of particular strata within the classes allows us to define the initial lots of each population group in this aspect. The typology of forms of access in a set society is an indispensable step in the configuration of both initial lots and the map of exchange entitlements. As Amartya Sen himself states: "The exchange entitlements of a person depend, naturally, on his position in the class structure, as well as on the modes of production in the economy" (11).

WAYS OF MEASURING POVERTY

In this section, I shall try to quickly go over the different methods of measuring poverty, in order to show that the method most often used in Latin America and to a certain extent in the world is, in fact, a way of measuring food poverty.

I have called this method the Normative Food Basket (NFB) method (1,10). It consists of the following steps: a) Based on information taken from income and household expenditure surveys, and based on the recommendations of nutritional needs by age, weight and size, sex and type of activity, a NFB is defined for the average population (or for each household). This consists of a list of foods and quantities of each one that, for the group in question, satisfy the predefined nutritional requirements (normally proteins and energy). Then, the quantities of the

foods are multiplied by the prices which, in principle, each home pays, although in practice this is often done with one set of prices (or a rural and an urban set). The result of the multiplication and sum of the costs of all the foods is the total cost of the food basket. (We should note that fuel and all other costs associated with food cooking and consumption are excluded). This cost is interpreted as the extreme poverty, or indigence, line. b) This line is then divided by what is known as Engel's coefficient (the % of family expenditure spent on food) to obtain what is known as the poverty line. c) The poverty line, normally expressed in per capita terms, is then compared with the income, also per capita, of the home. Homes with a per capita income lower than the poverty line are considered to be poor. Those with an income lower than the extreme poverty or indigence line, are classified as extremely poor. Persons receive the same classification as the home. To see why with this method we are measuring what I have called food poverty, I should describe some of the steps in greater detail and make their implications specific.

The procedure's critical point is moving from the "extreme poverty" (cost of the NFB) to the poverty line. The first observation to be made here is that although the food basket is highly detailed, the other satisfiers-for which there is not even a generic list of items-end up in a big black box whose cost is the only thing we know about it. In other words, whereas in food an attitude that could be defined as "normative" is adopted, in the other needs there is a position that could be described as "revealed needs" to draw a similarity with the theory of revealed needs developed by Paul Samuelson. Based on the income and household expenditure surveys, we are looking for the population stratum that fits the following two requirements: its acquisition of food places it above nutritional requirements; and being the lowest income stratum among all those that fit the first requirement (in practice, the group with a food expenditure closest to the cost of the food basket) (12). The food habits of this group can be used as a basis for the definition of the food basket. In addition, the food expenditure percentage of this group (its Engel coefficient) is the figure used to change the extreme poverty line into a poverty line. We know the group chosen satisfies its nutritional requirements, but we do not know its situation in other needs. The implicit assumption made explicit by Oscar Altimir in his pioneering work on the subject is "that those homes above the minimum food threshold are also above the minimum thresholds for other basic needs" (13). As has been shown in work by Beccaria and Minujin (14) in Argentina, Katzman in Montevideo (15) and the Regional Project to Overcome Poverty of the UNDP (16) in many Latin American countries, the empirical evidence shows overwhelmingly that this assumption is false. Its falseness is not only empirical, since the assumption bears with it an implicit distinct conception of the satisfaction of basic needs. In effect, if we think for a moment about the heart of the assumption, we will see that it implies a process of simultaneously coming close

to satisfying all needs, which is the same as saying that there is no kind of hierarchy between them, nor individual variation in the order of satisfaction. It would suffice to observe one to know what the situation of all the others is. Since the satisfaction, real or potential, of food is the hardest to observe empirically, it would be better to observe education or housing satisfaction and immediately obtain the general overview. In reality, as Mack and Lansley have shown in their exhaustive study in Great Britain (5), poverty needs "constant action to seek out the balance between different sets of needs. This is an action that never works. Impossible decisions have to be taken as to which needs will remain unsatisfied. Some will neglect basic aspects of clothing to ensure adequate food while others will make do with a monotonous diet so their standards in more visible aspects of life will be acceptable. As living standards fall more and more below the minimum, even this limited degree of choice is lost" (17).

If the assumption that is used as the basis for the NFB procedure is not only empirically false but conceptually weak, we should ask ourselves if the poverty and extreme poverty lines, drawn as they are, measure anything. In the average of the reference stratum, whose diet is used to construct the food basket, and whose Engel coefficient is used to transform the cost of this basket into the poverty line, it is obvious that directly comparing per capita food expenditure with the per capita cost of the food basket is the same as comparing total expenditure or the per capita income of the household with the poverty line. Let us formalize this. Let E_r be the average Engel coefficient for the reference stratum chosen. By definition, this will be equal to:

$$E_r = G_{ar}/G_r \quad [1]$$

Where G_{ar} and G_r are food and total expenditure respectively, per capita for the reference stratum. Let us also recall that the poverty line is obtained thus:

$$LP = LPE/E_r \quad [2]$$

Where LP and LPE are the poverty and extreme poverty lines. The condition of poverty is often defined as:

$$G_r < LP \quad [3]$$

However, the reader should see that this is the same, for the reference stratum, as:

$$G_{ar} < LPE \quad [4]$$

Since all one has to do is divide both sides of [4] by E_r to obtain [3].

This proves, coincidentally, my statement that Altimir's assumption (13), that he who satisfies his food need satisfies all needs, is the same as saying that the chosen reference stratum (known only to satisfy its food need) is not poor, making the whole NFB procedure a case of circular reasoning (18).

The conclusion drawn from the above is that the poverty line

procedure based on the NFB is a way of measuring food poverty, at least for the reference stratum. However, what happens in the other strata? Those lower than the reference, as we know from Engel's Law, which has been empirically proven throughout the world, spend greater percentages of their income on food, meaning that they cannot transform inequality [4] into [3]. However, we also know, from empirical studies, although the percentage spent on food decreases with income, the absolute value of per capita expenditure on food also increases, such that we may be sure that, on average, homes in strata lower than that used for reference would spend less, per capita, than this group on food. Thus, if the reference stratum were very small and on food spent exactly the cost of the basic basket, we could say that the NFB method of drawing the poverty line allows us to identify with almost total certainty that population whose per capita food expenditure is lower than the cost of the food basket, a population we have tentatively qualified as food poor. Although these conditions are not fulfilled, since the reference stratum chosen generally spend slightly more on food than the price of the food basket and are generally very large in number, in the last part of this chapter we interpret Latin American poverty data, calculated using the NFB procedure, as indicators of food poverty. Although it has to contain errors, the degree of error is much lower than that arising from interpreting these figures as general poverty.

As far as the extreme poverty line is concerned, I have said elsewhere (1,10) that the definition of extreme poverty as those households that, even by spending all income on food, could not satisfy food needs, is unacceptable. This is because food cannot be eaten uncooked; at least fuel and some kitchen fittings are required; because food is not eaten with the hands directly from the pot where it was cooked; at least some tools are needed to eat it; because nudity in public places is a crime the world over; and because without transportation expenses the place of work cannot be reached, to mention but a few of the most obvious contradictions (18).

To move on with the interpretation of what it means to be below the poverty line, we must go a little deeper into the procedure used to arrive at food baskets and the results obtained. We can distinguish between two ways of constructing the basic structural elements of the baskets. The first consists of observing, using balance sheets, the per capita consumption of each food and the second observes the dietary structure of some reference stratum. In general, both procedures provide the list of foods in the basket and their approximate relative proportions. After, the basket must be finely tuned so it will exactly satisfy nutritional, or at least energy, needs. There are also two procedures for this aim: linear programming or other methods. Those seeking a minimum-cost solution can use linear programming, and incorporate dietary habits -obtained from balance sheets or from income and expenditure surveys- as restrictions in the model. Those not using linear programming or not seeking

minimum-cost diets, are looking for diets that give an approximate reflection of the habits of the reference stratum by satisfying nutritional requirements. The final makeup of the basket may be highly varied, depending on the reference stratum chosen or the average diet obtained from the balance sheets, the nutritional requirements that the basket has to satisfy and the procedure adopted to determine its contents.

It is illustrative to compare the food baskets defined for Mexico by COPLAMAR (19), by CEPAL-UNNP (16) by the CEPAL study led by Oscar Altimir (13) in the nineteen seventies, and the basket defined by the Salvador Zubirn National Nutrition Institute (NNI). Altimir bases his work on the average diets obtained by the FAO's balance sheets, on the energy and protein requirements defined by the Mixed Special Expert Committee FAO/WHO of 1971, and although he did not use a linear programming model, he tried to define a minimum-cost normative food basket. In the CEPAL-UNNP work, on the other hand, the basis used was the habits of a reference stratum -generally located in the second lowest income quartile; the nutritional requirements were those decided by the 1981 group of FAO/WHO/UN experts, and it did not try to devise minimum-cost baskets, rather basically to reflect the dietary structure of the reference stratum. In the COPLAMAR work on food, which originally was part of the work carried out by the National Food System (NFS), multiple reference strata were chosen and for each one a basket was composed, using a linear programming model that introduces the food habits of each reference stratum as restrictions, expressed as maximum and minimum consumptions of each food. Finally, from the 15 solutions obtained, two that were called COPLAMAR models 1 and 2 were chosen. The first is based on the habits of the fifth national decile and the second, on the sixth urban decile. Model 1 was chosen and model 2 was used as a contrast. The nutritional requirements used as a basis were those of the NNI. Table 1 shows the differential results for Mexico obtained with each procedure. Although a strict comparison between the two options cannot be drawn, since they refer to different years, emphasis must be placed on the great difference in the proportion of foods of an animal origin in the CEPAL-70 (low content) and COPLAMAR 2 (high) baskets, with respect to the other three that have similar levels. With reference to total grams per capita in the basket, once again CEPAL-70 is at the lowest extreme and NNI at the highest. Columns 3 and 4 present the average calory and energy (high quality) requirements of the national population in the three studies. The largest difference is in proteins in CEPAL-70, 20% lower than the other three, because this study defined a protein utilization efficiency (PUE) of 0.7 for all countries, whereas that used by the COPLAMAR and NNI studies was 0.55. For its part, the CEPAL-UNNP study used a PUE of 0.6. For this paper I was not able to express the COPLAMAR baskets at a price of a date that would allow its comparison with the first two. As far as the NNI basket is concerned, I know of no studies that show its costs. In any case,

it is worth stressing the fact that the CEPAL-UNNP costs 50% more than CEPAL-70. This is due both to the greater weight of the basket and, especially, to the higher proportion of animal products in the latter. The differences between the CEPAL-70 and NNI baskets (both based on balance sheets) would seem to be due to the differences in protein requirements and the fact that CEPAL-70, but not the NNI basket, attempts to be a minimum-cost basket. Continuing with this comparative analysis, though extremely interesting, goes beyond the scope of this paper. Let us, then, return to the original proposal that led us to this comparative analysis: improving our understanding of what it means to be below the poverty line.

The evolution of the dietary habits of the populations of Latin America in recent decades has been towards a growing weight of the proportion of foods from animal derivatives and a drop in the relative weight of basic grains (cereal and leguminous). This has been widely documented by the CEPAL/

TABLE 1
COMPARISON OF VARIOUS FOOD BASKETS FOR MEXICO

	1	2	3	4	5
CEPAL-70	20.0	979.4	2285	28.6	1.00
CEPAL-UNNP	33.0	1077.1	2139	34.8	1.53
COPLAMAR 1	30.2	1014.2	2082	35.0	n.a.
COPLAMAR 2	42.9	1184.7	2082	35.0	n.a.
NNI	30.1	1406.6	2082	35.0	n.a.

1: % of animal derivatives in the basket's weight;

2: Total weight of the basket in grams per capita per day.

3 & 4: Average energy and protein (ideal) requirements per day and per person;

5: Coefficient of the basket's cost and that of the CEPAL-70 basket.

FAO Joint Agricultural Division (20).

In this historical context and in view of nutritional requirements modified between the 1971 and 1981 committees of experts, which in general terms means a drop in recommended energy and an increase in protein intakes, we must investigate what it means in food terms to be below the poverty line. The first thing to note is that it does not necessarily mean inadequate nutrition. An individual or a family nowadays can have a diet similar -after corrections to account for the changes in recommended nutritional intakes -to that which would exist as a norm if the consumption patterns of the social environment had not become more expensive, a diet that would fully satisfy nutritional requirements but below current norms based on diets with a higher proportion of animal products. However, by

saying -as I do- that this person is food poor, I am introducing a concept of human diet adjusted to the socially dominant patterns in each concrete society, both in time and in space. That is to say, a person who maintains a diet for a large number of years without changing it, in a social environment where prevailing diets tend to become more expensive as a result of general increases in income, could enter the category of food poverty, without his nutritional state having altered. This concept of food poverty corresponds to the relative concept of poverty I have outlined when explaining, in the first part of this paper, my conception of food poverty. Extreme food poverty undoubtedly leads to biological deficiencies, malnutrition, absolute poverty.

The huge range of reasonably considered solutions to a food basket, that we tried to illustrate in Table 1, alerts us to several inevitable problems in any form of planning a basic human food basket which, as we have said, cannot take the form of a balanced diet. One of these problems is choosing the reference group to be used in comparisons to define this relative poverty. As Amartya Sen points out (8), when choosing reference groups one has to look at the groups the people involved actually compare themselves with, and this can be one of the most difficult aspects of the study of poverty based on relative shortages. The viewpoint of this relative poverty cannot mean, however, abandoning the overall viewpoint. More than alternatives, these viewpoints complement each other. Otherwise, the study of poverty degrades into the study of inequality. In the Indian communities of Guatemala, Peru or Mexico, where inequality is lower than in urban centers, one would end by finding very little poverty. Inadequate human nutrition is a sufficient, though not indispensable, condition for food poverty. As the INCO's (Instituto Nacional del Consumidor: National Consumer Affairs Institute) surveys on food expenditure show, the strategy adopted by families who suffer a fall in income is to substitute the cheapest foods for the expensive ones. With a purely absolute view of food poverty, we would probably find no change in the family's situation. On the other hand, with the view proposed herein of food poverty, those changes would be immediately identified as impoverishment, unless we were to modify the reference standards or guidelines. This alerts us to another problem in our viewpoint, concerning the speed with which changes should be made into norms, and if this speed should be the same both for increases and falls. During a depression, should we change the normative basket to adjust it to the reference group's lowest levels of consumption? The response of rigid relativism, as Amartya Sen has said, would be yes. In a totally widespread famine, this approach would indicate very little or zero food poverty. Standards should not be changed instantly in the event of either a boom or a depression. A person who goes to a marathon dinner one day does not feel food poor with a normal meal the next day. In pragmatic terms, the food baskets would have to be redefined based on, for example, mobile averages

from the last ten years. As for choosing the reference stratum, the basis here should be not the satisfaction of nutritional requirements but the absence of poverty in general, based on the norms defined in the previous period.

FOOD POVERTY IN LATIN AMERICA. 1970-1990 (23)

In 1970, food poverty (hereinafter FP), as defined above and using empirical approximations, affected 130 million people, 47% of the population. Between 1970 and 1980, the number of poor rose by 14 million, reaching 144, with a significant percentage drop: from 47% to 41%. One way of appreciating this change is calculating what could be called the marginal poverty rate, equal to the increase in the number of poor persons divided by the increase in the total population. Whereas the number of food poor rose by 14 million, the total population grew by 76, giving a marginal poverty rate of 18.4%, well below the average rate. Between 1980 and 1986, the last year for which there are empirical studies covering Latin America, the number of poor increased by 31 million reaching a total for the region of 175 million. With this increase, the percentage of poor persons -which fell in the seventies and which presumably fell in the fifties and sixties- changed direction and rose from 41% to 43%. The marginal rate in this period, when the total population rose by 49 million, is 63%, much higher than the average rate. The contrast between both periods is very marked, as shown by the fact that the marginal increase of the second period is 3.5 times greater than that in the first.

This evolution is closely related to the changes in economies during both periods, as we shall see later. However, firstly let us take a look at how this dynamic has behaved in the Region's urban and rural environments and how it has changed between countries. For this exercise we only have data on poverty for households and not per person. The FP rate in urban and rural areas, which showed great contrasts in 1970, has tended towards less inequality. In 1970, 62% of homes lived in FP, whereas the figure for urban areas was 26%, a ratio of 2.4:1. Between 1970 and 1980, the urban poverty rate fell minimally by one percentage point to 25% whilst rural poverty fell by 8 points to 54%. The ratio between them fell to 2.2:1. In the period 1980-1986, urban poverty rose very quickly from 25% to 30%, whereas in rural areas it fell another point to 53%. The ration dropped to 1.8:1. These relatively uneven changes, together with accelerated urbanization, have meant over sixteen years the complete transformation of the rural-urban structure of food poverty. In effect, in 1970 62% of the country's poor households were in rural areas; by 1980, half this number, and 41.5% in 1986. In other words, in these 16 years the FP structure was turned around from 60-40 to 40-60 rural-urban. This is partly explained by rapid migration to the cities, a process which sees poor people moving from the countryside to the city, and partly also by the fact that the crisis had a greater impact on urban areas in Latin America. This urbanization of poverty in Latin America

and the seriousness of the problem of the increase in poverty during the crisis is sharply reflected in the increase in the marginal urban poverty rate in the period 1980-1986, measured in persons, a rate of 65%. This means that two out of every three new inhabitants of Latin American cities join the ranks of the urban poor.

Although there are no empirical regional studies available from later than 1986, various correlation analyses between the food poverty rate and the evolution of the per capita GDP, on the basis of the evolution of this macroeconomic aggregate from 1986 through 1990, allowed the evolution of FP to be estimated. The results must be interpreted as an estimate of FP with no changes in income distribution. This estimate indicates a total of 204 million FP in 1990, which would be 47% of the region's population, and an absolute increase in the number of food poor in this lost decade of 60 million people, 4.3 times the increase seen between 1970 and 1980. The estimated food poor percentage for 1990 is the same as the 1970 figure. This means that in terms of poverty there are two lost decades, not one. Note that these 1970 and 1990 rates are the same despite the fact that the Region's per capita GDP is much higher in 1990 than in 1970. This may be explained by two factors: a) a basic asymmetry in the relationship between the evolution of per capita GDP and that of poverty; during periods of rapid growth, poverty falls slowly whereas in periods of crisis poverty increases rapidly; and b) the change in the population's food consumption patterns, which explains that in most countries the poverty line used for 1980 and 1986 is higher than in 1990. Though the cost of the Mexican food basket is 50% higher than the one defined for 1970, the variation in the cost of baskets in other countries is much lower. In fact, those of Argentina and Uruguay fall between both studies. Brazil's baskets, representing a great weight in regional calculations, only grew by 4%; in Costa Rica and Peru there were moderate increases of 15 and 12% and in Columbia and Venezuela the increases were of a third. Projections made by the Regional Project to Overcome Poverty in Latin America of the UNDP (16) show, for an annual rise in per capita GDP of 1.28%, a 44% food poverty rate for the year 2000, very similar to that of 1986.

Most food poverty in Latin America is concentrated in a few countries. In 1986 Brazil accounted for 36% of all food poor in the region, with an absolute figure of 62 million. If we add Mexico's poor (17%, with 30 million), we have more than 50% of the total. If to these we add Columbia and Peru's food poor, we have two-thirds.

The correlation between FP and per capita GDP -with a transversal cut for 1986 with data for 12 countries- is very high. The relationship improves yet further if instead of per capita GDP expressed in market exchange rate dollars we use purchasing power rate (ppr) dollars. The best fit was with a straight line. It is interesting to analyze the deviations from this pattern. Mexico and Argentina have very similar ppr dollar

GDPs and yet poverty in Mexico is almost 2.5 times greater in Mexico (37.4% vs. 15.5%). There are even worse contrasts between Brazil and Chile on the one hand, and Costa Rica on the other. Whereas the former two have substantially higher ppr dollar GDPs than the second, they have a 60% higher FP rate (45.3% and 44.4% vs. 27.2%). Whilst the explanation of these rates lies in the much higher concentration of income in Brazil and Chile than in Costa Rica, the explanation of the first contrast seems to lie in the higher poverty line (in ppr dollars) in Mexico than in Argentina.

Measuring the poverty rate, the percentage of the total population living in conditions of poverty, must be conceived as only a first step in measuring poverty. It has to be complemented with measurements of poverty intensity that tell us how poor the poor are, and then with some integrating measurement of poverty that apart from considering the percentage poverty rate and the average intensity of poverty, considers income distribution among the poor. One such measurement is the so-called poverty gap. This measures the average distance between the income (or expenditure) of poor people and the poverty line, expressed as a proportion of the poverty line itself. This relative gap, or poverty intensity, would have to be reinterpreted from the perspective adopted here in order to obtain a direct association with lacking food resources. Given a poverty gap, the food gap would depend on it and the percentage of income (expenditure) put aside for food. Since this latter factor is variable among the poor, and the worse the poverty the higher the percentage of expenditure spent on food, a suitable calculation would require knowing the Engel coefficient for each home. In this case, the poverty gap could be calculated directly, comparing food expenditure of the household against the cost of the specific food basket for that home, and dividing the result by the basket's cost itself to standardize the data. However, we do not have that information. To approximate, we could provide the data as they were calculated in the CEPAL-UNDP research (16), and let the reader simulate different Engel's coefficients for the poor to obtain alternative poverty gap results. The intensity of poverty fell between 1970 and 1980 for the Region as a whole, from 45.4% to 43.2%. It rose between 1980 and 1986, to reach 46.1%, higher than in 1970. This means that as a result of the crisis, not only is there a greater proportion of poor people, but that they are poorer not only then in 1980, but also than in 1970. Given the very high correlation between the poverty rate (H) and intensity (I), it is to be expected that between 1986 and 1990 not only has the former increased, but also the latter. Therefore it is highly probable that in 1990 it will be very close to 50%. That is, the average income of the poor in the urban environment would be equal to the cost of the food basket. If we assume, for example, that on average the poor spend 60% of income on food, the 1990 food gap would be 40% of the cost of the basket. The reader may make other simulations.

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LONG-TERM ALTERNATIVES FOR THE ERADICATION OF POVERTY IN MEXICO

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SUMMARY Starting from a brief conceptualization of the ways of quantifying poverty, measured from a family's capacity to satisfy its essential needs, the results of the evolution of poverty and extreme poverty in Mexico for the last three decades are presented.

Insufficiency of income is examined in relation to inequalities in income distribution, taking both factors as determinants of poverty. This set of relations is analysed in terms of food consumption.

From the above mentioned theoretical framework, three long range scenarios, projected to the year 2007, are constructed, the objective being to eradicate poverty. The difference between them lies in the ways of combining economic growth with income distribution.

Within this context the present orientations of the Mexican economy are briefly analysed in particular in relation to possible repercussions derived from the Free Trade Treaty with Canada and the U.S.A.

INTRODUCTION

The process of industrialisation of the country which followed after the second world war was characterised, among other aspects, by high economic growth rates for a little over thirty years. Some studies suggested that this accelerated economic growth, by concentrating its benefits in the highest-income brackets, denied these fruits to large sections of the population, condemning them to live in conditions of poverty and extreme poverty. Other research, on the other hand, maintained that although income appeared to be concentrated, the rapid economic growth would lead, sooner or later, to a reduction in absolute poverty, as a part of what was known as the trickle-down thesis.

The crisis undergone in the eighties, a result of the accumu-

lation of large foreign debts; the deterioration in the terms of trade of our oil exports and the increase in interest rates in international financial markets interrupted the economic growth seen in previous decades, impoverishing growing sectors of Mexican society.

Today, and after a decade of economic progress, Mexico is embarking on a process of growth once more, with new bases. Four decades of industrialisation to introduce imports aimed at the domestic market, and industrialisation, is beginning to aim towards supplying foreign markets in the context of a Free Trade Association with Canada and the United States.

Mexican society has, however, a massive debt as a result of the historical impoverishment of its population, and its growth over recent years. The current administration has understood this, encouraging new schemes of community support to those socioeconomic groups with the greatest needs, under the auspices of the National Solidarity Program (PRONASOL).

However, the problem of poverty in Mexico is huge and demands an in-depth analysis to evaluate its scale and trends and, above all, to identify the possibilities of a solution in the medium and long-term.

This paper has a dual purpose. On the one hand, that of quantifying the historic trends of poverty and extreme poverty in Mexico and, on the other, to present the most important results of a forecasting exercise that looks at different long-term scenarios to eradicate Mexican poverty and to indicate some features of the direction of economic growth that could be compatible with such objectives(1).

The content of the paper is as follows. In the second section the concept of poverty is briefly discussed and the procedures to measure it are explained. In the third part, long-term trends in poverty and extreme poverty in Mexico are presented, and expected medium-term (1988-1995) trends are noted, with no economic growth. The fourth section offers the main results of

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the exercise of forecasts for the eradication of poverty in Mexico towards the end of the first decade of the XXI century, and there is a discussion of the type of direction of economic growth that could be compatible with the eradication of Mexican poverty.

THE CONCEPT OF POVERTY AND MEASURING IT

The **Regional Project to Overcome Poverty** of the **United Nations Development Program (UNDP)** defines the condition of **poverty** as "the lack of suitable means to cover a minimum number of what are called basic needs". The concept of **basic needs**, as defined by the Project, "includes only those needs that obviously and directly need a productive effort for their satisfaction". These needs are the following:

- a) A diet that meets nutritional requirements and cultural guidelines, components being not only food and water, but the energy and means to prepare and consume them
- b) The maintenance of health, meaning personal and non-personal (public health) health services and the means for home and personal hygiene and for prevention of illness and drugs for curative treatment
- c) A dwelling suitable to the size of the family, and suitable materials ensuring protection and privacy, and that has inside drinking water, drainage (or similar) and energy services, as well as basic equipment and furniture
- d) Basic education
- e) Access to basic information, recreation and cultural services
- f) Clothing and footwear
- g) Public transportation, and
- h) Basic communications such as mail and access to telephone services.

In the same vein, human beings need the security that they may have access to the basic needs for their whole life and in any circumstance, for which they need employment or other source of income that allows them to obtain them, as well as a social security systems to provide this security(2).

Based on this conceptualization of basic needs, and with the adjustments described later, in this paper the incidence of poverty and extreme poverty in Mexico is quantified using a method called Poverty Lines. This involves taking a basket of goods and services considered to be essential and its monetary cost is compared not only with the available household incomes but also with the amount of expenditure on consumption. This allows the percentage and absolute numbers of the population that do not cover the consumption requirements necessary to satisfy their basic needs to be identified.

The basket of goods and services is the Regulatory Basket

of Essential Satisfiers (CNSE in Spanish), designed originally by the General Coordination of the National Plan for Depressed Zones and Marginalized Groups of Mexico (COPLAMAR(3)), and used in the different stages of the Regional Project to Overcome Poverty in Latin America, referred to the Mexican case(4). Included in the items that form the CNSE, those relating to food and housing, and some non-received governmental health and hygiene items, make up the Sub-Minimum Basket (CNSM).

To establish whether or not homes are in conditions of poverty or extreme poverty, the average incomes of the different deciles of households are compared with the monetary cost of essential needs. A household is poor when its income is lower than the cost of the CNSE. The home is in conditions of extreme poverty when its income cannot cover the monetary cost of the Sub-Minimum Basket (CNSM), that is, it does not cover its most urgent needs for food, nor manages to cover education, health and hygiene costs normally not received through government transfers(5).

HISTORICAL TRENDS IN MEXICAN POVERTY

Figures 1 and 2 show poverty and extreme poverty incidence rates in the rural and urban areas of the country in the period 1963 to 1984. In accordance with these figures, extreme poverty tended to systematically fall throughout the twenty years, from around 70% in 1963 to 57% in 1968, 34% in 1977 and 30% in 1984.

This aggregate behavior followed the systematic reduction in extreme poverty in urban areas of Mexico, falling from 67% in 1963 to 20% in 1984. However, the incidence of extreme poverty in the rural environment increased in the sixties, fell in the seventies and grew again in the first years of the eighties, to reach a rate in 1984 of around 53% of the national population.

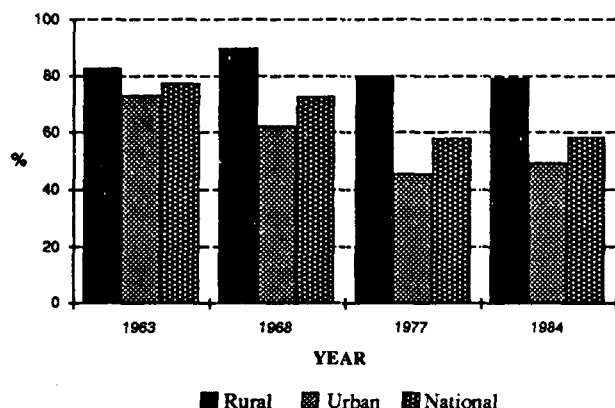
The poverty rate (poverty and extreme poverty), on the other hand, also shows a long-term trend towards a fall in the sixties and seventies, and relative stagnation in the first half of the eighties. On a national level, it went from 77% in 1963 to 72% in 1968 and 58% in 1977, to rise to 59% in 1984. In this case too, the drop in urban poverty was greater than that in rural figures, except for in the first half of the eighties (Figure 2).

In the sixties and seventies, the poor population was roughly equally split between the rural and urban sectors. By the first half of the nineteen-eighties, the absolute proportion of urban poverty had increased to account for 60% of the country's poor. Therefore, in absolute terms, the problem of poverty today is a mainly urban problem, inasmuch as almost two-thirds of Mexico's poor live in these areas. In addition, in the first half of the eighties, almost all of the absolute increase in the poor population was concentrated in urban areas, thus stressing the mainly urban repercussions of the crisis.

In rural areas, the crisis was apparent in a notable increase,

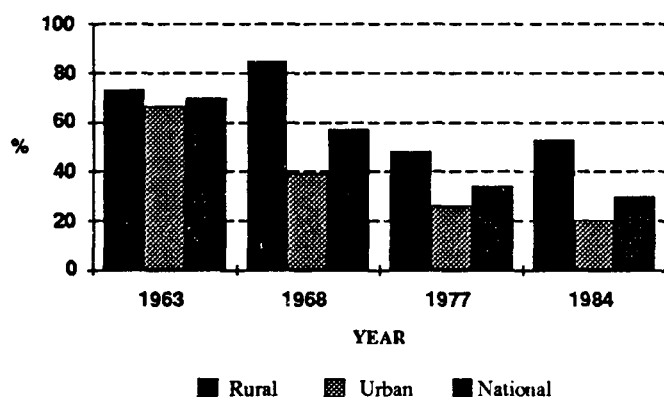
LONG-TERM ALTERNATIVES FOR THE ERADICATION OF POVERTY IN MEXICO

FIGURE 1
RURAL, URBAN AND NATIONAL POVERTY
INCIDENCE RATES
(%)



Source: E. Hernández Laos (1991)

FIGURE 2
RURAL, URBAN AND NATIONAL EXTREME
POVERTY INCIDENCE RATES
(%)



Source: E. Hernández Laos (1991)

in both absolute and relative terms, in the population in conditions of extreme poverty. Currently, the relative poverty rate in Mexico is not only greater in rural than in urban areas, but in the former the conditions of poverty are more acute, since a greater proportion of the rural population lives in conditions of extreme poverty and the intensity of the phenomenon grew in the first years of the last decade.

Several writers have emphasised the need to evaluate poverty using indices that consider poverty's two dimensions -its

incidence and its intensity(6). Therefore, and to summarize long-term trends in poverty on a national level, including some preliminary 1988 figures, we estimated the value of the Sen Poverty Index (P), which explicitly considers both dimensions of poverty(7):

$$P = H [I + (1 - I) * G_p]$$

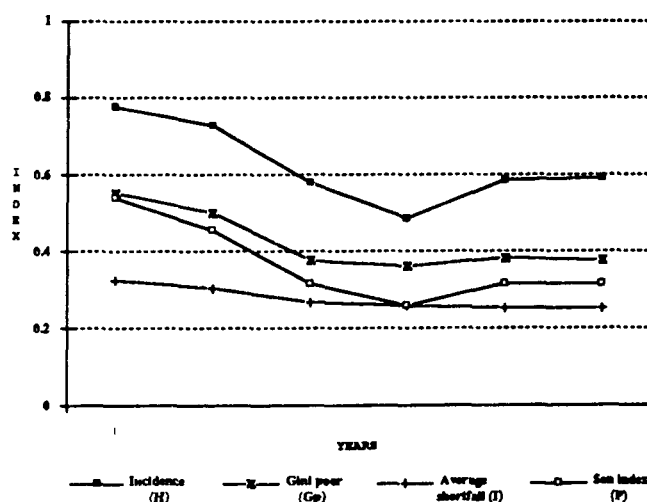
Where H is the proportion of poor persons in the total population (poverty incidence); G_p is the Gini Coefficient of income in poor households and I is the shortfall in the income of the poor divided by the income they would receive if they were on the poverty line(8).

This index, providing a numerical focus for comparisons of well-being, is a standardized indicator of poverty that goes from zero (no poverty) to one (total poverty). Given an incidence rate (H), the index increases if the poverty intensity (I) increases and/or if there is a concentration in poor persons' income (G_p), the latter meaning that extreme poverty rates rise. Given the intensity of poverty, the index rises if the incidence of poverty in general (H) is greater.

Figure 3 summarizes the long-term poverty trends in Mexico using the aforementioned index. In accordance with calculations, between 1963 and 1981, a period of uninterrupted economic growth, all indicators considered in the index fell, showing there was less poverty in the country.

The poverty rate fell by nearly 30 percentage points from 78% to 48.5%. The average shortfall in poor persons' income, expressed as a proportion of the poverty line, also fell from 55% to 36% in this period. Finally, the income distribution between

FIGURE 3
LONG- TERM POVERTY TRENDS IN MEXICO
(1963-1988)



Source: E. Hernández Laos (1991)

poor households apparently showed less inequality, as seen in the Gini coefficient, falling from 0.325 in 1963 to 0.268 in 1977(9). Beginning in the first years of the eighties, however, the index's components registered the opposite trend, towards greater poverty, especially in the first years of the crisis (1981-1984). Between 1981 and 1988, the incidence of poverty grew from 48.5% to 59% of the national population and its intensity grew from 36% to 37.6%, supposing a constant income distribution beginning 1984(10).

As a result of the trends described, poverty in Mexico fell by half in the sixties and seventies, the Sen index dropping from 0.541 in 1963 to only 0.258 in 1981, and grew by a fifth in the eighties to 0.316 in 1988.

By that year, poverty was similar, simultaneously considering incidence, intensity and differential impact in poor households, to that recorded in 1977, in other words, in the years before the oil boom.

What may be concluded from all the above? Statistical evidence allows us to say that the process of economic growth followed by Mexico in the sixties and seventies aimed at the substitution of imported manufactured goods tended to significantly reduce relative poverty levels in Mexico, measured by the Poverty Lines method.

However, the above trends were interrupted at the beginning of the eighties, a historic turnaround that increased poverty (absolute and relative) in Mexico as the economic crisis deepened and different political measures aimed at combating it were implemented.

Towards the end of the last decade, Mexico had poverty levels similar to those of 1977, indicating that the crisis did the job of wiping out the rapid economic growth seen during the fleeting oil boom.

These trends are very interesting inasmuch as they show the enormous social cost, in terms of poverty, suffered after a decade of economic progress as the crisis in the eighties deepened. This social cost was added to the country's poor and extremely poor population's historical shortages that existed before the crisis, representing a huge social debt(11).

MEDIUM-TERM TREND FORECASTS

In accordance with CONAPO forecasts, between 1988 and 1995, around 9,200,000 people will have joined the Mexican workforce(12). If economic growth had not begun again beginning 1990, and if it is not maintained in the coming years, the increase in the working population will have difficulty in finding paid employment in the formal economy, meaning that apart from the six million active people who joined the informal economy between 1982 and 1988, there would have been these additional nine million. In such conditions, by 1995, around 40% of the 38,900,000 people making up the EAP in that year

will be unemployed and/or underemployed in extremely low productivity jobs, which would make poverty in the country dramatically more acute.

If growth is not maintained, the country could record an absolute consumption deficit towards the beginning of the next administration (1995), making Mexico go back thirty years in terms of the economy and social well-being. If these trends keep up, by 1995, 53% of the Mexican population will be living in conditions of absolute poverty; 24% in extreme poverty and 34% with insufficient consumption levels to satisfy their essential needs.

If these trends become real, the increase in the population in conditions of poverty that would be recorded between 1988 and 1995 (12,200,000 people) would exceed the expected increase in the national population (11,800,000). The poor population would continue to increase at an annual average rate double that of population growth. The impoverishment of Mexicans would continue to reduce numbers in the middle-class social strata and the polarization of society would continue, especially in the urban zones in the central part of the country, which could have serious repercussions on the nation's political and social stability.

In addition to the need to recover growth in order to turn these trends around, it is clear that public action must go hand in hand in the short-term with immediate measures that would allow the worst consequences of the crisis on the poorest strata in the urban and rural population to be lessened.

These measures, aimed at specific population groups in conditions of extreme poverty and which represent the chapter requiring the most urgent attention in the payment of the social debt described earlier, began to be implemented beginning 1989 in the context of the National Solidarity Program(13). In less than three years of operations, the program has carried out highly diverse actions in favour of the poorest groups in the country, with a cost equal to just over ten billion current pesos(14).

Although the importance of this program is not in question, it will be necessary to carefully evaluate its effectiveness in fighting extreme poverty, both from the microeconomic point of view (an evaluation of targeting in the application of resources) and macroeconomically speaking (an evaluation of the effects of the program on income distribution and the country's productive structure)(15).

Given the scale of the problem of poverty in Mexico, eliminating it will need, apart from attention to the most impoverished groups in the country with actions such as those undertaken with the National Solidarity Program, sustained economic growth and a process that will lessen the enormous inequalities in income distribution, as made obvious by the long-term scenarios discussed below.

LONG-TERM SCENARIOS TO ELIMINATE POVERTY

If the problematic birth-rate established by the National Population Council is obtained, Mexico will have a population of 110,000,000 by the second half of the first decade of the next century(16). The United Nations forecasts that this figure will be reached around the beginning of the century(17).

According to the CONAPO's projections, around 50% of the population in 2010 will be less than 14 years of age; 65% will be of active age (15 - 64) and 5% will be of retirement age (65 and over). This means there will be approximately 2 active persons for every inactive person. Moreover, forecasts indicate that by that year the economically active population will account for 40% of the population(18).

For the purposes of the forecast scenarios, the final reference year is 2007, when a population of 109,800,000 is foreseen. Of these, 54.6 million (49.7%) will be men and 55,200,000 (50%) will be women. A population of this composition is chosen because it can take advantage of the COPLAMAR forecasts on the size of the essential needs of a population of these dimensions(19).

For the prospective exercises the amount of final consumption (bought commercially and/or self-produced) needed by all Mexican households to satisfy their essential needs in 2007 was calculated. The assumption was made that basic education needs (primary and secondary school) and health care will be covered with governmental transfers in kind, in other words, through current expenditure. Disbursements for the construction of schools, hospitals and care clinics will come from investment items.

In the item for dwellings, for the entire population to have a decent place to live, 30,400,000 dwellings will have to be renovated, extended or constructed. In all cases we mean popular housing, with the necessary characteristics to satisfy minimum comfort and hygiene standards for a typical household of 4.9 persons.

The sum of expenditure on private consumption, public consumption and investment goods makes up the final basic exogenous demand, specifying the sectorial source of the final goods and services needed at the end of the planned horizon (Table 1).

To include the effects of the variable income distribution that determines poverty rates, three different scenarios are assumed. The first (hypothesis I) assumes that in the year 2007, distribution will be like that in 1984. Hypothesis II assumes a family income distribution similar to that of the United Kingdom (after tax) at the beginning of the seventies. Finally, hypothesis III assumes an income distribution similar to that of Czechoslovakia towards the middle of the sixties (Table 2).

The three distribution scenarios are compatible with the satisfaction of the whole population's basic needs. The differ-

ence lies in the fact that the greater the inequality in distribution, the greater the national family income would have to be to eliminate poverty(20). The different levels of income needed translate into different levels of family saving and amounts for household consumption, of which the sectorial sources of goods and services consumed are specified(21). The above serves as a basis to quantify the total final demand vectors for 2007, for each of the scenarios.

To estimate the economic effort needed to satisfy the final demand of each of the scenarios, the 1980 input-product model structure was used, with the assumption that technology and relative economic prices will remain constant throughout the planning horizon. Despite the limitations of the assumptions, we feel that the forecasts are illustrative of the size of the economic effort needed by each of the forecast scenarios aimed at eliminating poverty in Mexico(22).

Should current distributive systems remain in place until the year 2007, (hypothesis I), to eliminate poverty in Mexico, the gross value of production would have to increase at an annual average rate of 7.4%. In this case, the gross national product would be just over forty billion pesos (around 1.5 billion dollars) at 1980 prices, or to put it another way, five times greater than in 1988.

Domestic consumption, public and private, would have to grow at an annual average rate of 7.3%, to reach a figure greater than seventeen billion pesos (600,000,000 dollars). Of this figure, 77% would correspond to excess consumption and only 23% to basic goods and services. A production on this scale would demand a rapid gross capital creation that would have to grow at an annual average rate of 10.4% between 1988 and 2007 (Table 3).

Eliminating poverty, guaranteeing the satisfaction of the needs of the entire population, without modifying income distribution would require, to sum up, a considerable productive effort in terms of growth and capital accumulation.

The other two scenarios show alternative paths for economic growth to reach the same aim. Hypothesis II assumes that by 2007, Mexico will have a less concentrated income distribution. Should this be the case, production worth 19,300,000 pesos (700,000,000 dollars) at 1980 prices would have to be generated. To achieve this, an accumulative average annual growth rate of 4% (Table 3) would be necessary. By that year, domestic consumption would be 8,700,000,000 pesos (300,000,000 dollars) at 1980 prices, 55% non-essential and 45% in basic goods and services. This growth path would need an average annual capital accumulation rate of 6.2% (in real terms) between 1988 and 2007.

The third scenario (hypothesis III), by assuming a more equitable income distribution, demands a lower growth effort to eradicate poverty. In this case, gross production would have to

TABLE I
FINAL BASIC DEMAND REQUIRED TO SATISFY THE ESSENTIAL NEEDS OF THE WHOLE POPULATION IN THE
YEAR 2007¹ (BILLIONS OF 1980 PESOS)

Sector	Absolute	%
Agriculture, farming and fishing	198.6	3.9
Mining	9.2	0.2
Manufactures	1 378.0	27.1
. Food, drink, tobacco	387.1	7.6
. Textiles, clothing, leather	328.6	6.5
. Wood products and furniture	39.8	0.8
. Paper, printing and publishing	117.5	2.3
. Chemicals, rubber and plastics	133.7	2.6
. Non-metallic minerals	9.1	0.2
. Basic metallics	27.2	0.4
. Metal goods, mach. and equip.	227.4	5.3
. Other manufacturing industries	67.9	1.3
Construction	795.9	15.6
Electricity	52.8	1.0
Trade, restaurants and hotels	686.3	13.5
Comm., storage and transp.	474.9	9.3
Finan. serv. and property leasing	654.0	12.8
Soc., pers. and communal serv.	843.2	16.2
Total Sectors	5 092.9	100.0

¹ Includes normative private consumption (food use of dwelling and other satisfiers specified in CNSE), plus public consumption in health and education and investment expenditure on schools, hospitals and housing construction and repair.

Source: COPLAMAR estimates, reconverted to 1980 prices. *Op cit*, figure 55, p. 93.

grow at an annual average of only 1.8%; domestic consumption to 1.9% and gross capital creation to 3.9%. In this scenario, 72% of domestic consumption would be in basic goods and services and only 28% in non-essentials (Table 3).

The economic growth paths, in accordance with each of the scenarios, would demand different productive structures. Hypothesis I would mean, for example, an extremely rapid growth in the production of all economic sectors: more than 10% a year in the construction industry and more than 5% a year in agricultural activities.

As a result, towards the second half of the first decade of the next century, production would be geared up towards manufactures (textiles and clothing, metal goods, machinery and equipment), construction, financial services and property leasing, at the cost of a lower relative participation on the part of agricultural production, trade, restaurants and hotels, and social and personal services (Table 4). This productive structure would be aimed at mainly satisfying the demands of higher-income consumers, since just over three-quarters of household consumption would be non-essential and only one fourth, basic consumption.

Hypothesis II implies less spectacular sectorial growth rates. Manufacturing would have to grow at an average annual growth rate of 4.2% (also with an emphasis on textiles and clothing, wood products and the paper and publishing industry), while financial services and property leasing (rent paid or charged for housing) will have to also grow at the relatively high annual average rate of 5%.

In this scenario, agricultural production would grow by 2.6% a year, slightly faster than the growth in population. By 2007, the productive structure proposed in this scenario would encourage manufacturing, construction, communications and transportation and the provision of property leasing services, including the rent (paid and charged) of housing (Table 4).

Hypothesis III, by assuming a more equitable income distribution than the other paths, places very modest demands on sectorial growth in order to eradicate poverty. Only some manufacturing (textiles and clothing, wood industry and paper and printing products), construction and property leasing would need annual growth rates higher than 3%, while agricultural production would have to grow on average at less than 1% a year (Table 4).

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TABLE 2

FAMILY INCOME COMPATIBLE WITH THE SATISFACTION OF ESSENTIAL NEEDS OF THE WHOLE POPULATION IN 2007, WITH THREE INCOME DISTRIBUTION HYPOTHESES (BILLIONS OF 1980 PESOS)

Deciles of Homes	Hypothesis I		Hypothesis II		Hypothesis III	
	Absolute	%	Absolute	%	Absolute	%
1	271.4	1.34	271.4	2.50	271.4	4.50
2	544.7	2.69	488.5	4.50	392.1	6.50
3	777.8	3.84	597.0	5.50	485.4	8.00
4	1 012.7	5.00	705.9	6.5	543.0	9.00
5	1 282.1	6.33	804.2	7.50	573.1	9.50
6	1 456.3	7.86	902.8	8.50	603.3	10.00
7	1 985.9	9.80	1 144.2	11.00	663.7	11.00
8	2 547.9	12.58	1 331.6	13.00	724.0	12.00
9	3 461.4	17.09	1 691.5	16.00	784.1	13.00
10	6 778.9	33.47	2 510.5	24.50	995.4	16.50
Total	20 119.1	100.00	10 447.6	100.00	6035.5	100.00

Note: Hypothesis I assumes an income distribution like that in 1984 (Gini=0.45). Hypothesis II assumes an income distribution like that in the U.K. (after tax)(Gini=0.2). Hypothesis III assumes an income distribution like that of socialist countries in the seventies.

Source: Own calculations. See: E. Hernández Laos and M. Paris Fernández, "Mexico in the first decade of the XXI century. Future social needs", in *Foreign Trade*, Vol. 38, no. 11, Mexico, November 1988, pp 963-978.

TABLE 3

GROSS PRODUCTION STRUCTURE IN 1985 AND FOR 2007, ACCORDING TO THREE INCOME DISTRIBUTION HYPOTHESES COMPATIBLE WITH THE SATISFACTION OF THE WHOLE POPULATION'S ESSENTIAL NEEDS

Denomination	Billions of 1980 pesos				Implicit growth rates		
	1985	Hypothesis I	Hypothesis II	Hypothesis III	Hyp.1	Hyp. 2	Hyp.3
Intermediate demand	2 798	15 281	7 203	4 378	8.0	4.4	2.1
Final demand	5 295	24 985	12 084	7 513	7.3	3.8	1.6
Consumption (Private and governmental)	3 631	17 134	8 746	5 457	7.3	4.1	1.9
Gross fixed capital creation	883	7 851	3 338	2 056	10.4	6.2	3.9
Change in stock	31	0	0	0	n.d.	n.d.	n.d.
Exports*	749						
Gross production	8 094	40 265	12 288	11 891	7.6	4.0	1.8

* Exports were not considered explicitly in the model. The other items in final demand include an imported content that is assumed to equal an export flow financing it.

Source: Own calculations. See: E. Hernández Laos and M. Paris Fernández, *Op. cit.*

TABLE 4

GROSS DOMESTIC PRODUCT IN 1985 AND FORECASTS FOR 2007 COMPATIBLE WITH THE SATISFACTION OF THE ESSENTIAL NEEDS OF THE WHOLE POPULATION UNDER THREE INCOME DISTRIBUTION HYPOTHESES.

Sectors	1985		Hypothesis I			Hypothesis II			Hypothesis III		
	GDP	%	GDP	%	Rate	GDP	%	Rate	GDP	%	Rate
Ag farm and fish	416	8.6	1 322	5.7	5.4	730	6.4	2.6	484	6.9	0.7
Mining	182	3.8	934	4.0	7.7	436	3.9	4.1	270	3.8	1.8
Manuf	1 050	21.8	5 523	23.7	7.8	2 600	22.9	4.2	1 548	21.9	1.8
Food, drink, tob	275	5.7	872	3.7	5.4	435	3.8	2.1	284	3.5	-0.5
Text. clo lea	134	2.8	818	3.5	8.6	437	3.9	5.2	285	4.0	3.5
Wood ind & prod	40	0.8	313	1.3	9.8	137	1.2	5.7	79	1.1	3.1
Pap print & pub.	61	1.3	345	1.5	8.2	189	1.7	5.3	130	1.8	3.5
Chem rub & plas	184	3.8	858	3.7	7.3	417	3.7	3.8	256	3.6	1.5
Non-metallic min.	73	1.5	424	1.8	8.3	178	1.6	4.1	111	1.6	1.9
Basic met.	61	1.3	393	1.7	8.8	168	1.5	4.7	101	1.4	2.3
Met mach & equip	194	4.0	1 322	5.7	9.1	547	4.8	4.8	280	4.0	1.7
Other manuf. ind.	27	0.6	178	0.8	8.9	91	0.8	5.6	57	0.8	3.4
Construction	266	5.5	2 297	9.9	10.3	957	8.4	6.0	632	9.0	4.0
Electricity	62	1.3	246	1.1	6.4	131	1.2	3.4	89	1.3	1.6
Tr rest & hot	1 313	27.3	5 486	23.6	6.7	2 537	22.7	3.1	1 451	20.6	0.5
Comm. & transp..	307	6.4	1 501	6.4	7.5	806	7.1	4.5	546	7.7	2.7
Fin serv & prop	487	10.1	2 761	11.9	8.2	1 454	12.8	5.1	970	13.7	3.2
Soc pers serv.	734	15.2	3 205	13.8	6.9	1 641	14.5	3.7	1 071	15.2	1.7
Total Sectors	4 818	100.0	23 373	100.0	7.4	11 328	100.0	4.0	7 059	100.0	1.8

Source: Own calculations. See E. Hernández Laos and M. Paris Fernández, Op. Cit

THE DIRECTION OF ECONOMIC GROWTH COMPATIBLE WITH THE PROPOSED SCENARIOS

The scenarios described make it clear that paying the social debt, both that which was accumulated historically and the part deriving from the crisis in the eighties, will have to be done in the long-term if poverty is to be eradicated in Mexico. This would demand specific actions in the framework of a development strategy, also long-term, that takes into consideration the structural relationship between income distribution systems and the sectorial direction of the productive apparatus.

If income distribution is not changed for the better, in other words, if it is not made more equal, extremely rapid economic growth will be needed for more than twenty years, for the lowest-income groups to have access to essential needs and to cease being poor.

This rapid growth will also mean that towards 2007 the productive structure of Mexico will become geared up towards the production of nonessential goods and services to meet the needs of a relative minority of the population which would own the largest part of national wealth. In conclusion, there would be an economy in the service of a polarized society where, although there would be no poverty in absolute terms since all households would at least have a consumption equal to the CNSE, the absolute gap between households would be enormous, much greater than today.

It is obvious that economically, socially and politically speaking, a long-term strategy like this one to eradicate poverty in Mexico is not very viable. From a purely economic point of view, multiplying the country's productive capacity by five in twenty years, with the sectorial characteristics required by this scenario (hypothesis I), is not realistic(23).

Looking at the other extreme, the same social objective (the eradication of absolute poverty) would be obtainable with economic growth rates of less than 2% a year, if an enormously far-reaching process to redistribute wealth were undertaken that would necessitate changes to the country's political and social structures to make them compatible with an egalitarian society such as those of socialist countries just a few years ago.

This process of change would need a radical change in the legal basis for property ownership and would demand direct State action to attend to the social needs of the whole population. The deep changes undergone by socialist countries in recent years, in an attempt to adopt market economies as a way of solving serious economic problems,(24) shows that this path to eradicate poverty in Mexico in the long-term is also impracticable.

A strategy such as that suggested by the second scenario (hypothesis II) is the most feasible. It includes reasonable economic growth (an annual average of 4%), which conforms to the rate programmed in official strategy, and needs gradual changes in the way income is distributed. However, it does need abrupt changes in the country's social and economic structure to induce the changes needed in income distribution and to promote the social direction of growth or to consider growth in the framework of the latest events and trends on the international economic stage.

The preoccupation with equity should be expressed, firstly, through a macroeconomic policy that goes beyond orthodox restrictive formulas and that stresses economic growth and a more equitable distribution of income. Employment and consumption must be increased in the poorer strata using measures such as increases in real wages, changes to the relative price structure to favour agricultural products and an increase in public spending to support social consumption in basic items such as education, health and housing.

The implementation of policies of this nature will meet enormous obstacles, both internal and external. From the internal point of view, a strategy such as that indicated, without the necessary structural changes, could provoke macroeconomic imbalances that would put pressure on the balance of payments, increase the fiscal deficit and push up inflation, because the fight on the distribution front would prevent the minimum price stability necessary to continue the desired policies(25).

From the external point of view, the strategy should be drawn up in the framework of the modernising process the Mexican economy is currently undergoing. It will have to take into consideration the changes seen in international conditions deriving from the realignments in the major geopolitical areas and those caused by other major world economic, technological and political changes.

The joining by Mexico of the new international context, the target of the country's process of modernization, must give

close consideration to the imminent signing of the Free Trade Agreement (FTA) with Canada and the United States since it will change the country's productive structure in the medium-term, have an effect on domestic real wage rates and employment and will modify how domestic income is distributed.

We cannot say in advance what profile Mexico's productive structure will have in the medium-term as a result of the FTA, among other reasons because it will depend on how negotiations are carried out. In any case, nothing guarantees that the new profile of the productive structure resulting from the accord will function in satisfying the essential needs of the whole population, as shown in the intermediate growth scenario indicated in the previous section.

From a wide perspective, the path the country's productive specialization could take might be expected to follow an extremely complex pattern. In the primary sector, for example, Mexico could substantially increase its agricultural exports to the United States in the case of some products(26). However, in the important Mexican primary sector item, that of the production of basic grains, especially maize, Mexico is at a considerable disadvantage (in terms of costs) in comparison with the United States. Therefore, it would appear improbable that negotiations would allow the indiscriminate import of these products for the simple reason that their cultivation is the main pillar of the largest part of the Mexican agricultural population and, if allowed, it would accelerate the migration from the countryside to the cities in the very short-term which would lead to a notable worsening of poverty and extreme poverty both in the rural and urban environments(27).

In the service sector, some activities such as financial intermediation would be expected to be slowly dominated by foreign consortia as would other highly specialized areas such as technological, economic and accounting consultancy services.

The situation is not so clear in the case of the industrial sector. Recent studies show, for example, that Mexican manufacturing are far behind in productivity, despite the rapid growth seen in recent years(28). On average, the added value per person employed by Mexican industry is only 33% of the figure for American manufactures, and that difference is similar in most sectors analysed(29).

Nevertheless, the greatest comparative advantage currently offered by Mexico is one of the determinants of the recent impoverishment of society: the low cost of its labour in international terms. A study by the ILO shows, for example, that by the middle of 1988, the average industrial wage of the U.S. was nearly nine times higher than in Mexico, that of Canada being 9.4 times greater(30).

However, as is known, wages alone are not representative of the degree of competitiveness of labour on international markets, because of the low levels of labour productivity of our

industries. Taking these indicators together, another study shows that Mexican labour has a comparative advantage of around 60% over a series of countries, including the United States(31).

Therefore, it should be expected that Mexico will rely, in the short and medium-terms, on the low cost of its labour to maintain its competitiveness in foreign markets while the process of specialisation takes hold in manufacturing in those sectors where new technologies will be incorporated more rapidly allowing advantage to be taken in scale economies, lower unit costs and increased competitiveness in the medium and long-term(32).

Once the specialisation process gets under way, and depending on the nature of the respective negotiations on sectorial liberalisation and their short, medium and long-terms, we may forecast slow changes in the productive structure and income distribution of the country.

As domestic employment increases, the result not only of greater exports but also of the multiplier effects of expected growths in gross investment, so those households located in the middle strata of distribution will increase their share of income, which could reduce some of the inequalities in the distribution of household income. The rise in average labour productivity levels in the primary sector would support this process of redistribution, especially in its own export sector.

However, there are no indications that this process is generalised, at least in the medium-term, as export activities will continue to be highly capital intensive and have limited effect on unqualified labour, which would slow down the increase in the equilibrium wage(33).

In that case, we could instead witness a transition stage when a distribution split would take place. On the one hand, there would be a highly capitalized export sector with growing real wages for qualified labour, a sector that would employ the higher-income strata. On the other, a non-exporting sector, subject to the growth of the internal market, with less dynamic job creation and more stagnant real wage rises, that would employ the middle and lower strata of distribution. The rural agricultural sector, where most extreme poverty is concentrated in Mexico, would continue to play an important part in these latter, lower strata.

In the long-term, the split could be gradually eliminated, as the real equilibrium wage increases with the average productivity of the economy and approaches levels existing in the United States and Canada. However, this process will be slow to mature and it cannot be expected to spontaneously arise in the next decade or two.

Hence the relevance, for a long-term strategy aimed at eradicating poverty and extreme poverty in Mexico, of implementing actions aimed at neutralising those trends that concen-

trate income that will result from the unrestricted application of market forces; actions directed at making income distribution compatible with the aim of satisfying the essential needs of the whole Mexican population by the year 2007.

CONCLUSIONS AND RECOMMENDATIONS

After a decade of crisis, Mexico is once again enjoying economic growth on new foundations. We are leaving behind an economy based on the expansion of the internal market, turning it towards other countries, in the process of the globalisation of world markets.

In this new process, one of the main challenges for Mexico lies in facing, with determination, the problem of poverty affecting large sections of the population. In accordance with the figures presented herein, although this problem became relatively less serious in the sixties and seventies in urban areas, it prevails in rural parts with high indices of extreme poverty.

The crisis in the eighties significantly worsened Mexican conditions of poverty and destitution. In urban areas, the number of households in conditions of poverty grew both relatively and absolutely; in the countryside, the shortages of households that were already poor were made worse and an ever greater proportion were driven into extreme poverty. The relative poverty index in Mexico is currently not only greater in rural than in urban areas but in the former, the conditions of poverty are more acute, with more than half of the rural population living in conditions of extreme poverty.

In absolute terms, however, the problem of poverty is a mainly urban problem, since almost two-thirds of the poor population live in these zones. The middle-term trends show that, if sustained economic growth is not re-established in the nineties, by 1995 53% of the national population could be in conditions of absolute poverty and 24% in conditions of extreme poverty.

Given the scale of the problem of poverty in Mexico, its eradication has to be a long-term project. In effect, the scenarios presented in this paper suggest that this aim could be reached by the end of the first decade of the next century, if any of the following three paths of economic growth are followed:

- a) rapid economic growth (higher than 7% a year) without changing family income distribution;
- b) moderate economic growth (4% annual), together with a process of income redistribution, similar to that of the U.K. at the beginning of the seventies, or
- c) slow economic growth (less than an average annual 2%), and a dynamic process to redistribute income, to reach a situation similar to that of socialist countries.

The reasons are given in the paper as to why the first and last scenarios should be rejected, and suggest the second as viable.

This implies combining moderate but sustained economic growth that would bring change, also moderate, in the distribution of income, allowing the poorest households in the population a greater share of this income. An economic growth path such as this would allow for the essential needs of all Mexicans by the year 2007.

As has been indicated, many internal and external obstacles must be overcome in order to implement a strategy such as the one shown. From the internal viewpoint, greater attention to the struggle to redistribute income, without the necessary structural changes, could provoke recurrent macroeconomic imbalances that would put pressure on the balance of payments, increase the fiscal deficit and push up inflation, making it difficult to achieve the desired objectives.

From the external point of view, the strategy should be drawn up in the framework of the modernising process the Mexican economy is currently undergoing, resulting from joining world markets, in the context of the Free Trade Agreement with Canada and the United States.

The paper gives reasons why a middle-term worsening of economic inequalities could be expected. Hence the importance, for the long-term aim of eradicating poverty, of a policy to neutralize those trends that concentrate income resulting from the unrestricted application of market forces in the coming years.

In addition to the need to encourage a medium and long-term strategy like the one indicated, the State's continuation to promote, through the National Solidarity Program, actions aimed at specific groups of the population in conditions of extreme poverty will be of fundamental importance. Hence the transcendence of the parliamentary institutionalization of PRONASOL; permanent activity by the program could constitute one of the pillars of a long-term strategy to eradicate poverty in Mexico.

It would be recommended that a process of institutional evaluation be established in parallel, to precisely measure its effectiveness in fighting extreme poverty, both from the microeconomic point of view (an evaluation of targeting in the application of resources) and macroeconomically speaking (an evaluation of the effects of the program on income distribution and the country's productive structure).

NOTES AND BIBLIOGRAPHY

1. In preparing the paper, the writer made free use of the results of previous research, to be soon published in a book. See: E. Hernández Laos, Economic growth and Poverty in Mexico. An agenda for research, Autonomous Metropolitan University, Doctorate Program in Economic Science, Mexico City, 1991.
2. Technical Document and regional declaration on poverty, Regional Project to Overcome Poverty (RLA/86/004). United Nations Development Program, Bogota, Colombia, February 1989, p. 11.
3. See: Macroeconomics of essential needs in Mexico. Current situation and perspectives for the year 2000, Mexico City, Coplamar-Siglo XXI, 2nd edition, 1990, Methodological Appendix II.
4. Governmental transfers needed to cover items such as basic education, personal and non-personal health services and water and drainage infrastructure are not included. The complete list of satisfiers in the CNSE is found in Macroeconomics of essential needs... Op. cit., pp. 134-149. Just as examples, there follow those concepts including some of the basic needs contemplated therein. In food, apart from comestibles, the goods necessary for preparation and consumption; in housing, not only the use of the dwelling and water, drainage and electricity services, but some furniture and household equipment; in health, apart from personal and non-personal health services, the goods and services for home and personal hygiene, as well as a small group of products for personal care; in culture and recreation, reading material, a group of recreational goods and services and a small number of electronic goods; and in clothing and footwear, a parcel for each age and sex.
5. The poverty lines used in this paper differ, to a greater or lesser degree, from those used in other studies on the problem of poverty in Mexico. This has been analyzed in detail elsewhere. See: E Hernández Laos, "The evolution of poverty and fighting it through solidarity", in Debating Solidarity, National Solidarity Program Consultative Council-El Nacional, Mexico City, 1991, pp. 159-192.
6. See: "Poverty and social security research: an agenda", in: Social Security Research, 1977, Papers presented at a D.H.S.S. Seminar, H.M.S.O., London.
7. See: A. K. Sen, "Poverty: an ordinal approach to measurement", Econometrica, vol. 44, pp. 219-231. An extension to Sen's proposal may be found in: J. Boltvinik, "Towards an alternative indicator of development", copy, 1989. See also: S. Clark, R. Hemmings and D. Ulph, "On indices for the measurement of poverty", in The economic journal, vol. 91, June 1981, pp. 515-526.
8. In the equation, I is the average poor income deficit divided by the poverty line, that is: $I = (Z - M) / Z$, where Z is the poverty line and M is the average income of poor households.
9. The calculation of the Gini coefficient of poor income was carried out using logarithmic interpolation between the deciles of households below the poverty line in each of the years. We are assuming that the income distribution of 1981 was similar to that of 1977, and that the distribution observed in 1984 remained unchanged for 1988.
10. The effects of the prolongation of the crisis on income distribution are unknown, but it is worth stating that as the latter became more inequitable, our calculations would be severely underestimating the effects of the crisis on poverty. The National Household Income and Expenditure Survey, for the second half of

- 1989, currently being prepared, will probably change our appreciations of poverty trends in the latter half of the last decade.
11. The term Social Debt, coined by the International Labor Organization and the United Nations Development Program, refers to the social cost, in terms of the impoverishment of the population, of macroeconomic adjustment policies followed by most Latin American countries in the eighties in order to pay their foreign debts. See: Assuming the social debt: what it is, how big it is and how it is paid, ILO/PREALC, Santiago, 1988. Also: Mexico: adjustment with a human dimension. Social debt, employment and income distribution, 1980-1988, Project SPP/ILO/UNDP, Mex/86/008, Mexico, 1988.
 12. National Population Council, Op. cit., quoted by Raúl Benítez Zenteno, "Changes in population dynamics and structure in Mexico: looking toward the future", Seminar on Mexico toward the year 2000. Challenges and options, National Autonomous University of Mexico, February 1989, case 8, p. 35.
 13. December 6, 1988, the National Solidarity Program Commission was established, with the aim of "combating low living standards and ensuring compliance in the execution of special programs of attention to the Indian nuclei and the population in arid and urban zones in health, education, food, housing, employment, basic services and productive projects", see: Solidarity in national development, Mexico, p. 8.
 14. According to official figures, in that period, more than five million Mexicans benefitted from extended health cover; electricity reached five million people who did not have any; five million received drinking water; four million children study in schools made worthy of them; more basic supply stores, dairies and popular kitchens were set up; public works and municipal services were improved; the highway and road network was extended; the accumulated backlog of land without deeds for 14 years was dealt with by more than 70%, and various forms of support were channelled to Indians, seasonal agricultural workers, small producers, agricultural day workers, women and young people. Solidarity... Op. cit. p. 102.
 15. For an introductory look at this subject see: E Hernández Laos, "The evolution of poverty and fighting it through solidarity", in Debating Solidarity, Op. cit., pp. 182-192.
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 18. Ibid., p. 34.
 19. The methodological bases for the projections are described in detail in COPLAMAR, Op. cit., pp. 82-84 and 88-96.
 20. See: E Hernández Laos and M. Paris Fernández, "Mexico in the first decade of the XXI century. Future social needs", in Foreign Trade, Vol. 38, no. 11, Mexico, November 1988, p. 967.
 21. Ibid.
 22. Ibid.
 23. Firstly, because a rapid capital accumulation process would be needed equal to an investment coefficient (capital creation/GDP) greater than 30%, difficult to obtain without large direct foreign investment and/or foreign investment. Secondly, that massive influx of foreign capital would have to be permanent to be able to finance the rapid growth in imports, despite the possible favorable development of the exporting sector of the economy, which would mean unstable economic growth due to the presence of persistent deficits in the Mexican balance of trade. Finally, due to the high demands for energy and natural resources necessary to support the rapid growth in the national product. See: E Hernández Laos and M. Paris Fernández, Op. cit.
 24. See: E Hernández Laos, "Inside Perestroika. The future of the soviet economy". Internal work document, Doctorate Program in Economic Science, Autonomous Metropolitan University, Iztapalapa, Mexico City, February 1991.
 25. See: "Equitable development. Some suggestions for action", CEPAL, Document LC/R, December 1987, Santiago de Chile, p. 10.
 26. Such as fruits, vegetables, beans and flowers. In others, however, such as oilseeds, Mexico would be benefitted by more imports from the U.S.
 27. Therefore a series of very specific conditions in the FTA on periods for an opening to imports of these products is to be expected, as mechanisms are implemented, leading to an increase in domestic productivity of these crops. Such mechanisms could include, perhaps, a radical reform of the bases for the operation of common land in Mexico.
 28. See: E Hernández Laos, Industrial growth policy and the evolution of total productivity of factors in Mexican manufacturing industry, a report presented to the Ricardo J. Zevada Studies and Research Fund, Autonomous Metropolitan University-Iztapalapa, Mexico City, October 1990.
 29. In specific industries such as wood and its derivatives and in rubber and plastic goods, productivity in Mexico does not reach 20% of that obtained in the U.S. In other items such as clothing, footwear and in non-metallic industries such as cement and similar products, and in electrical machinery, average productivity levels of our manufactures are relatively higher, inasmuch as they represent a little over 40% of U.S. levels. These differences could perhaps give an idea of the kind of specialization to be expected of the signing of the FTA with Canada and the United States. See: A. Maddison and B. van Ark, Comparisons of Real Output in Manufacturing, Working Papers, The World Bank, April 1988 (wps 5). The most recent experience suggests that in some items Mexico has won relatively significant margins of competitiveness, judging from the notable rise in its exports, such as in automobile products, beer and others. However, it should be noted in this case that a large part of the supposed competitiveness in recent years was due to the undervaluation of the Mexican peso against the dollar, something which has been slowly corrected beginning 1988 with the implementation of adjustment programs.
 30. ILO, Labor Statistics Bulletin, Geneva, 1989. The same source indicates that for that year the average wage in newly industrialized countries such as Korea is 2.7 times greater than in Mexico.

LONG-TERM ALTERNATIVES FOR THE ERADICATION OF POVERTY IN MEXICO

Out of a 14-country sample, Mexican wages were only higher, on average, than those in Hungary.

31. Only in four out of eighteen industries (food, drink, chemicals and machinery) are wages in Mexico -corrected for productivity-comparable to international levels. In the other industries wages are relatively lower in Mexico than in the other countries: in six industries the difference is up to 50%; in seven between 50 and 100% and in one case (non-metallic mineral products) the difference is greater than 100%. See: E Hernández Laos and J. Aboites Aguilar, Productivity, technological change and labor flexibility in industrial transition: from import substitution to the promotion of manufacturing exports, Research project, Industrialization, Employment and Income Distribution Area, Doctorate Program in Economic Science, Autonomous Metropolitan University, March 1990, p. 3.
32. Hence the relevance for Mexico of attracting direct foreign investment in the strategic sectors that look to external markets. The policy of privatizing public companies and the relaxing of regulations governing the establishment of foreign investment in Mexico will make determined contributions to this.
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FOOD CONSUMPTION OF THE URBAN POOR: INTERVENTION MODELS IN MEXICO CITY

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SUMMARY The economic recession which affected Mexico in mid 1981 affected the low-income urban population with different intensities in terms of income and consumption. At first, the most affected social groups were the poor families connected to the formal sector of the economy. This forced them to develop alternative strategies (in terms of income and consumption) to attenuate the effects of the recession. This lecture presents the work done by the National Institute of the Consumer (INCO) in Mexico to understand the effects of the recession on the income, food levels, structure and food behaviour of the urban poor in Mexico City. It also focuses on the types of interventions that were implemented to support positive changes and weaken undesirable results. The methodologies that were used to monitor food expenditure and to understand behaviour when in relation to food consumption, are explained. The results of the research undertaken in INCO are described briefly to explain the reasons behind the intervention measures which were implemented in terms of information, direction, and education for the consumer. The areas covered are prices, places of purchase, quality control of food, nutrition direction, domestic technologies and organization for collective purchasing.

INTRODUCTION

The purpose of this presentation is to describe a concrete intervention experience in the field of nutritional education, orientation and information, which was carried out between 1984 and 1988, by the National Institute of the Consumer (INCO) in Mexico. This paper represents an interesting exercise in research in action, and demonstrates the wide range of action which this involves.

In 1976 the INCO was created. Its main purpose was the protection of the workers' salaries. Working together with the Consumer Council, its objective was to create a more harmonious

relationship between the individual consumer and the final point of sale of goods and services. Both institutions were created under the Federal Law of Protection to the Consumer.

This document focuses on the 1984 and 1988 period, when the official food Programme (Sistema Alimentario Mexicano—SAM) run by President López Portillo, was maintaining a low profile with the change of administration. Interestingly enough, the political presence which had been achieved by SAM during 1980-81, generated a contrary reaction during the administration of president Miguel De La Madrid. Even though De la Madrid put into action the National Food Programme (PRONAL) which was established for the 1983-86 period as a follow-up programme, it is important to accept that it was put into practice on a partial basis. This happened because the PRONAL was not assumed as part of the political priorities of his administration.

This programme assumed the establishment of an active coordination between different institutions of the federal government related to the food chain, for which a National Food Commission was established. In it, four subcommissions were instituted. One of them was the Nutrition and Consumption Sub-commission which was to be presided by the Secretary of Health.

Because of the traditional and well sustained interest held by the National Institutes of Health and by Professor Salvador Zubirán* to carry out well constructed action against hunger and malnutrition, and with the motivation of Dr. Guillermo Soberón, Minister of Health and the support of Dr. Héctor Fernández Varela, who was the Protection and Assistance Subsecretary, the Sub-Commission for Consumption and Nutrition was the only one within PRONAL that operated on a systematic basis. Political support for this Subcommission

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and the dedicated work of specialists constituted important support elements for the success of some of the interventions which will be described in this document.

Through this sub-commission, interesting advances in coordination and collaboration were achieved between the different institutions which carried out information or educational activities in the field of nutrition. The INCO was part of this Sub-commission; its work was guided by PRONAL, the National Health Programme, the sub-commission's agreements in which all other federal health institutions like the DIF, IMSS, ISSSTE and the Ministry of Health, participated.

In 1984 INCO undertook an institutional programme which defined food and nutrition as one of its five central topics for action in the field of research and consumer information. It also established in conjunction with PRONAL, the agreement that its target population was to be the one in the four lower deciles of the income distribution pyramid in Mexico.

INCO'S RESOURCES AND CAPACITIES

The nature of INCO's work generated more relevance in an urban population which operates within a context of markets, salaries, goods and services. This allowed INCO to focus its activities in the Mexico City area, without forgetting the rural consumer.

INCO's focus on food and nutrition is justified by the following:

Firstly, because of the economic situation which the country was going through, the majority of its population was in crisis and in a recession, with a clear decrease of its purchasing power and a lack of opportunities for adequate employment and salaries. High inflation was also prevalent and prices were out of control.

Secondly, it was necessary to recognise that food was the main expense for the majority of the population.

Under these circumstances, questionnaires applied by the Institute showed that families were adopting defence strategies to confront the economic crisis, changing some food products for others, reducing the consumption of some goods, and increasing others, and also changing the pattern in the use of their incomes. Further questionnaires showed that people were also modifying their income strategies, rearranging or augmenting the work force in different work markets.

In this situation INCO thought out three questions to be resolved which were to guide its actions in the field of consumer direction, information and education.

- a) What changes were families making in terms of its food habits? Which were positive, which negative and which irrelevant in the final nutritional balance? Were they making logical changes in terms of cost per nutritional unit? What

elements were determining the direction of these changes?

- b) Which of the INCO programmes and products were still useful? How could we change the content to make them more relevant to the low-income urban consumer's needs? Which was the best way in which INCO could contribute to help families strengthen their strategies to confront the crisis and make the situation less painful?
- c) Which were the best instruments that could be used by INCO to reach its target population? Which mass media vehicles were more accessible and in which did they believe more? Which was the best way to use face to face direction?

With these directions INCO was guided to act at four levels: research, content definitions, instrument development, and impact evaluation.

The Institute had one Technical Head Office with capacity to develop socio-economic research and with a laboratory which allowed it to know the quality and contents of the products which are sold in the market. It had a technical team and equipment which allowed it to do food analysis.

In another area it had the capacity to produce T.V., radio and written material.

Finally a complete area was focused on promotion, relationship with the consumer, individual or group; plus it also handled the telephone service.

The institutional programme operated in order to integrate in a harmonious manner the work of the overall institution, so that everyone focused on the main topics and target population. The risk of dispersion in an institution that works with consumption needs is enormous and the temptation to imitate consumer organizations in developed nations is also large and attractive. For example comparing the need for car stereos with lightbulbs, which in the food context would be the equivalent of comparing the need to import tinned asparagus against supervising the quality of the tortillas, exemplifies this situation. In the work developed by our Institute, a series of tendencies were clearly detected:

- a) There has been an accelerated urbanisation process in the Mexican economy which has developed since the fifties.
- b) There has been a reduction in the number of people who produce their own food and an increase in the amount of people who obtain their food in the market place. This means there is a larger gap between the producer and the consumer of food, and a larger number of Mexicans who depend on that which others produce.
- c) As a consequence of these two points there has been an increase in the commercialisation of food products, profit being one of the main motivating factors.
- d) There is a larger proportion of the population which eats

outside of the home, in restaurants and other business.

- e) There is an increase in the use of industrialised products, substituting these for fresh products.
- f) There is a growing process of oligopoly in the distribution of food products, derived from the expansion of supermarket chains which were developed in the fifties. During the period that was analysed there was an important presence of the governmental systems of food distribution (DICONSA, IMPECSA, COABASTO, ISSSTE, IMSS, and other chain stores owned by the unions from the oil industry, the university, etc.)
- g) There has also been a change in the generation and establishment of the food culture, shifting from the private family sphere, to the public scenarios of restaurants, supermarkets, stores, etc. and to the food culture constructed by mass media campaigns.
- h) There is also a growing dependence of the poor low-salary population on public programmes of food distribution at subsidised prices or outright gifts, as in the case of milk and tortillas.
- i) The consumer is confused when confronted with the large variety of sizes, brands and prices of the same products. This is a result of their low consumption culture. The Mexican consumer still does not know how to read labels, compare prices and the weight of products, and demand guarantees when the situation necessitates it.
- j) There is an excessive flexibility, and corruption in quality, weight, and price control of the products that are sold in the market, and the advertising that is produced around them.
- k) There prevails a food publicity that induces consumption and expenditure; this is not the right way to feed oneself properly. Food products are presented in a individualised manner, not as part of a full meal or in combination with other food products.

In the long run, there is a slow change of values in food consumption, from a private family orientated sphere to a public arena manipulated by profit. More recently it has passed from being a matter of national interest, of self-sufficiency, sovereignty, food security and the preservation of the national food culture, to becoming a matter of international commerce where the transnational companies set the pace and rhythm on the basis of their interests.

We shall point out some situations that have been appearing at present in terms of the food scenario in Mexico.

- a) The already mentioned economic crisis which was limiting the purchasing power of the majority of the population.
- b) The strong inflation which modified nominal prices and the relationship between food products and prices.

- c) The hidden inflationary process through changes in quality and quantity in industrialised food products in order to evade profit losses in a set-up of rigid price controls. The food industry began to sell lower quality and quantity products for the same price. Ingredients were substituted, sizes were diminished, as in the case of bread, and the quality norms were lowered in order to adjust them to the reality imposed by producers.
- d) There was also a growing presence of imported goods and publicity campaigns geared towards inducing a larger consumption of products from other countries.
- e) Temporary restrictions in the supply of certain basic goods in order to achieve higher prices, or mistakes in the policies of price guarantees as in the case of beans and red meat.

These were the long term trends and the concrete situations, within which INCO had to define its activities in the field of food products and nutrition, guaranteeing the highest level of protection for the poorest population.

These trends had positive and negative effects; some had come to stay and it seemed futile trying to fight against them. It was necessary to take them into consideration to send useful messages to the consumer so that they could combat the negative effects of these situations. We shall now proceed to analyse the activities within the global intervention which was generated by the Institute.

RESEARCH

The type of research which was developed within the Institute took place in three fields: population questionnaires; questionnaires in the food establishments; and laboratory analysis.

The questionnaires on population groups were geared towards the understanding of food habits and culture in the different social strata of the population, focusing on the behaviour of the low-salary urban groups; their purchasing and consumption habits and their strategies to face up to the economic crisis.

The questionnaires on food establishments gathered systematised periodical information on food prices: fruits and vegetables, groceries; seasonal food like fish during Lent and the food used to celebrate the end of the year. In support of the economic stabilisation policy of 1987, the Institute developed the capacity to obtain comparative information on the prices of food most frequently consumed in restaurants, cafeterias, taco stands, etc.

The laboratory studies allowed the formulation of comparative analysis of the quality of the different brands or fresh food sold in large volumes; it also contributed the quality norms that were established by the Ministry of Industry and Commerce. It finally allowed the consumer to simplify domestic technologies for the production, and conservation of food at

home.

Bibliographic research was also undertaken, and a series of informational monographs were prepared on the principal foods that were produced in the country. Small cards were prepared for fast consultation.

Some of the main lines of research work developed by INCO are described as follows:

POPULATION QUESTIONNAIRES

"Follow-up questionnaires on food expenditure in the low-income population".

The general objective of this project was to measure the impact of the economic crisis on the food consumption of the population with low economic resources, while at the same time identifying the strategies that families developed to confront such critical situations. The methodology consisted of doing a follow-up survey through periodical questionnaires to a group of low income families.

The target population were those families with incomes between 0.8 and 3.5 times the minimum wage in the metropolitan area of Mexico City.

The selection process was made in five stages and it was done in a random manner until the fourth stage. This was because it was desirable to have "type" families that contained pre-established indicators.

Families were classified through socioeconomic stratification depending on the occupational characteristics of the head of the family. The classification was divided into two categories: those in which the family's main wage earner worked in the formal market place and those whose main wage earner worked in the informal marketplace.

Formal work was presumed when the main wage earner was working in the marketplace at the moment when the questionnaire was applied. This is in a situation where the supply and demand of work are clearly differentiated and exercised by different individuals: the owners of the means of production on the one hand and the working class on the other. This implied the existence of a salary as the determining factor of the relationship.

Informal work was considered as the situation where the main wage earner in the family was in the market where the supply and demand of work come generally from the same person, or the demand for work was exercised by small units that produced or commercialised certain goods or services with very simple technology and low capital investments.

Each subsector was sub-divided into strata according to family salary. In the formal sector three levels were constructed:

- Low formal: with salaries between 0.8 and 1.5 times the minimum wage.

- Medium low formal: between 1.5 and 2.5 times the minimum wage.
- Medium formal: more than 2.5 and up to 3.5 times the minimum wage.

The informal sector was divided into two subdivisions:

- Low informal: with wages from 0.8 to 1.5 times the minimum wage.
- Medium informal: more than 1.5 and up to 3.5 times the minimum wage.

The questionnaire was applied in 258 homes.

The instruments utilized for the gathering of information were: a questionnaire of general information and socio-economic data and a booklet to register the purchase of food goods. In order to collect information, homes were visited three times every week. During this period every food purchase was registered in detail; during every visit all additional relevant information was noted.

On the first day, every householder was trained so that she could write down her daily food purchases in the booklet; on the third day she would be visited again in order to have her work supervised; if, for whatever reason, she had filled in the booklet incorrectly or she had not done her work, she would be helped by doing it in a joint manner with the visiting person.

The questionnaire was applied to the same families every six months during a three year period. The first two years 1985 and 1986 were irregular due to the problems inherent to a new project. The first set of families was interviewed in June and November 1985; in August 1986; and February and August 1987 and February 1988.

In August 1986, new concepts such as housing, transportation, clothing, health and others were added to the questionnaire; the purpose was to strengthen the instrument and generate relevant information to the projects that were being financed by the General Coordination of Supply in Mexico City (COABASTO).

The financial support from COABASTO allowed us to increase the size of the sample to about 100 households on average per socioeconomic strata.

Increasing the number of families in each strata allowed us to correct loss by desertion in the first sample. The situation was solved by selecting double the amount of the minimum number of families needed in the sample.

The results that were generated were diverse and interesting; here we will only mention some that correspond to the first sample which began in June 1985 and ended in February 1988.

In the midst of the crisis, the families reacted in a very dynamic way, so the effects were diverse depending on the level

of income, the sector of the economy and the type of activities that were carried out by the members of the family.

Even though all the families of the sample belonged to the low income sectors, the families most affected by the recession were those that earned between 2.5 and 3.5 times the minimum wage. Within these households, the most affected were those where the main wage earner worked in the formal sector of the economy.

In this way, the medium formal wage earner registered a fall in his real income of 25 percent from June 1985 to February 1988, while in the medium informal sector, the drop was only 3 percent; on the contrary, the truly low strata had an increase in their earnings: 12 percent for the low formal level and 19 percent for the low informal.

When we went into more detail in terms of the real wages earned by the main wage earner it was found that in four out of the five levels which were studied, the income dropped. The largest drops were in the medium levels; in the formal sphere it was 33 percent; and in the medium informal, 20 percent.

Families reacted to this drop by incorporating more members of the family into the work market. By 1988 four out of the five groups that were studied had more members working in the market; only the medium formal remained in the same condition as in 1985. One hypothesis in relation to this situation establishes that in this group, the medium formal, the families did not have the flexibility to incorporate more members into the workplace, given that they already had two or more active members.

The new members that entered the market did so in unstable activities, producing goods at home for sale, offering services, entering the informal commercial chain in the sale of clothing and cosmetics, or carrying out temporary work. In this regard, women became more important as income earners. In the five groups that were studied, the percentage of women working increased in 1988.

On the other hand, the food expenditure decreased substantially. This reduction was more accentuated in the formal sector which had drops between 23 and 28 percent. This drop also occurred in the percentage of income that was dedicated to food expenditure. While in June 1985 the lower formal group spent 68 percent of its wages on the purchase of food products, by 1988 it only spent 47 percent; the low informal group cut this expenditure from 60 to 44 percent in the same period. The hypothesis which seems to explain this situation is that, in an urban context, there are certain unchangeable needs like transportation and housing. On the contrary, food products have a large flexibility and can adjust to income decreases, together with clothing and shoes.

In terms of the re-structuring in food expenditure it was observed that during this period there was a definite tendency to substitute animal products for vegetable products; the

information reveals that four out of the five groups under study spent a smaller percentage of expenditure on animal products in February 1988 than in June 1985.

The substitution process was accompanied by the purchase of a smaller number of goods. In parallel, the quantity that was purchased of certain basic goods increased significantly.

- The average purchase of tortillas per family rose from 7 to 10 kilograms on average in June 1985 to 10 to 13 kilograms per family by February 1988.
- The quantity of beans purchased increased considerably reaching up to a 41 percent increase, within the medium formal group.
- White bread became the substitute of sweet rolls, increasing from 12 to 36 percent.
- Pasteurised milk also registered an important increase in three out of the five groups under study. This was an interesting fact which deserved special attention given that in analyses made in 1983 and 1984, milk appeared as one of those products that people declared they bought the least. In the following year people changed the place where they acquired this product. While in June 1985 the percentage of homes that had access to subsidised milk distributed by LICONSA fluctuated between 25 and 55 percent, by 1988 it rose to between 62 and 86 percent. In this case, the LICONSA-CONASUPO milk distribution programme, became an important factor in supporting low income families.

Once the changes in food expenditure had been quantified, the investigation focused its attention on the amount of protein and calories that were consumed in order to evaluate the effects of the economic crisis on the purchase on nutrients.

Coefficients used by the National Institute of Nutrition were used for each one of the food groups.

The results were surprising. It was discovered that the families were optimising their economic resources, and the drop in food expenditure did not reflect the same drop in the consumption of protein and calories.

While food expenditure dropped between 14 and 28 percent, the decrease in purchased protein only fell between 2 and 7 percent; and in the case of calories between 4 and 8 percent in four of the five groups that were studied; interestingly enough, in the medium informal group there was an increase of 2 percent. This is to say that when the investigation began the families acquired a gram of protein and their calories at a higher price. When they changed products they lowered the price paid for nutrients, reducing in this way, the effect of a wage decrease on the nutritional intake.

On the other hand, upon analysing the structure of the basic foods in terms of protein and calories, it was found that seven

products composed the basic diet. In 1985, tortilla, white bread, milk, beans, and eggs, represented between 43 and 65 percent of protein, and these five products, plus oil and sugar, contributed between 58 and 75 percent of all calories.

By February 1988 these products represented between 50 and 69 percent of all purchased protein, and between 66 and 80 percent of all calories, depending on the socioeconomic group under study.

Guide for the nutrition of the Mexican family.

The purpose of this second investigation was to determine, in a detailed manner the characteristics of a normal diet of a family which earned between one and two minimum wages; within this, the idea was to define which food products were part of the diet, how they were combined, what was their nutritional value, the cost, the ways they were prepared and the modifications generated by the drop in income.

Case studies were used as a method in this protocol, selecting 42 families in two poor urban areas in Mexico City situated in the boroughs of Gustavo A. Madero and Coyoacán Delegations. In order to identify this group, 320 families were interviewed as part of the selection process.

A questionnaire which contained qualitative and quantitative indicators was applied. This required seven daily visits to each one of the homes.

The results of food behaviour in Mexican families that earned between one and two minimum wages in Mexico City, were as follow:

- a) The diet was monotonous, the variety limited; the ingredients used did not extend the nutritional value.
- b) The families under study spent between 75 and 90 percent of their salaries on food products.
- c) The diet was basically composed of cereals, beans, eggs and vegetables. The cereals were consumed in the form of tortilla, rice, white bread and pasta in soup; the legumes used were beans, and starch was represented by potatoes. Chicken predominated in terms of meat consumption. The vegetables that were most frequently used were carrots, tomato, onion, these last two as condiments used in the preparation of dishes. In terms of fruit, the consumption of banana, lime, orange, and apple was predominant. A reasonable level of consumption of milk products was detected; also a low consumption level of industrialised goods.
- d) Changes were detected in the consumption of meat, milk products and fruit. The consumption of beef was substituted by chicken, and vegetables by beans. In some families the consumption of cheese, butter and cream was eliminated.

On the basis of the results in this study, the decision was

taken to develop a nutritional guide for low income urban families. This guide had to comply with the following characteristics: that it would provide people with a tool to guide them in the daily preparation of their food; that it contained the nutritional requirements of the whole family; that it was based on their habits and preferences and on their real purchasing power.

A basic food requirement established a daily average consumption level per person of 2,300 calories and 67.4 grams of protein, with 33% coming from animals. Food products of wide consumption were included in the diet, but some rearrangements in terms of cereals and legumes were made, along with the combinations which extend their nutritional value all the while respecting the traditions and habits discovered in the investigation.

The result of this effort was the Guide for the Nutrition of the Mexican Family, published by INCO and CONASUPO, which was sold at a low cost in all the distribution points of CONASUPO. The Guide was comprised by seven booklets, one of information and general nutritional recommendations, and six filled with daily menus for breakfast, lunch and dinner. Each booklet covered a full week. The menus were designed for a family of 6, given there are 5.5 in the average family.

The first booklet had information on savings and food product purchases, on good quality identification, on how to prepare food hygienically maintaining its nutritional value, on how to avoid waste and on food distribution within the family in order to guarantee a nutritional balance.

When constructing the menus, reference was always made to the available income.

The Guide was well accepted and it sold rapidly. However it was confronted by two main problems. The first had to do with the fact that the families that bought the guide were not necessarily from the low income strata to which it was directed. This had the result that the proposed menus were not to the liking of these families, for example the high consumption of beans. On the other hand, geographically speaking, the proposals limited themselves to the Mexico City area, and were not applicable in other regions of the country. Therefore, regional guides, such as for the case of Oaxaca, were developed.

Other questionnaires.

Other questionnaires that were developed by INCO focused on the concept of "Opportune Questionnaires on Consumption Problems". The purpose was to gather relevant information in emergency situations for example: lack of products, high price increases, official institutional interest to support certain products, or campaigns run by the Institute. In these situations, we need fast opportune information for effective decision making and action.

Examples of some of these studies were : "Beef scarcity in

Mexico City", "Food culture", "The purchase of tortillas" and "Milk consumption in Mexico City".

These opportune questionnaires are highly effective tools for generating pertinent measures for occasional problems that arise in the food market.

Questionnaires in establishments.

Questionnaires on wholesale prices of selected food products.

These types of questionnaires had three main purposes: to inform the consumer about the stores and commercial chains that offered products at a lower price. We also provided information about the establishments which sold at higher prices.

Another objective consisted of providing the consumer with the information on each product so they would know which price was the lowest and which the highest in the chains of supermarkets which are supposedly the most modern part of wholesale commercial chain. With this information the consumer could find out whether he was paying high or low prices.

The third objective was that the producers or commercial owners would become aware of the position their products held in the market, motivating them to search for more competitive positions.

The indicators that were under observation were the following:

- a) Fruit and vegetable prices. On a weekly basis we obtained the prices of 32 products. In Mexico City the information was obtained in 8 representative stores of the main supermarket chains, in 3 public stores and the Wholesale Food Market. We always tried to change locations in Mexico City in terms of gathering information prices.
- b) Grocery and cleaning goods prices. Once a week 60 articles were monitored in 11 establishments which were basically branches of supermarket chains.
- c) Prices of seasonal goods. During the forty days of Lent, each year, 30 different types of fish were monitored. Slowly other fish substitution products were incorporated with the hope of offering alternatives to the consumer when confronted with an increase in price of the traditional sea products during this season. A similar mechanism was activated during December for the products that were in high demand during the Christmas season such as shrimp, turkey, fresh rosemary, salted cod and dried fish.

The price information that was gathered was distributed to consumers through the "price telephone", the publication of "Who is Who in the price business", the newspapers of wider circulation, posters, fliers, and through radio and T.V. spots.

The information allowed us to formulate statistics on food availability, availability of food products, etc. This information

was very important for the price stabilisation programmes. Authorities knew what food products were available, which were non-existent, how long scarcity had lasted, and in which cases there were violations to prices and agreements.

Distribution of price information also included data about competition between establishments. This allowed us to make a more effective use of the public systems of stores as regulators of retail markets.

Laboratory studies.

These studies analysed the physical and chemical aspects of food products and focused on comparative analyses of quality, content and price. We also reviewed the honesty of labels in terms of the information that was included and what the food actually contained.

The purpose was to provide the urban consumer with information about the quality of the products so he could make a better selection from the available options.

One of these studies focused on the needs of low income consumers, and compared the quality and the characteristics of 10 different brands of edible "oils" that were sold loose in the local markets ("tianguis") of Mexico City.

The results revealed that 90 percent of the creams which were analysed were mixed with starch. The level of microorganisms was another of the problems that were detected. Even though the present norm allowed up to 50,000 colonies of bacteria in each gram, in one of the samples that were tested we found up to 200 million colonies. On top of that, organisms of faecal origin and coliform were found; fungi and yeasts were also found in this sample.

All this proved with clarity the undesirable handling process that took place during the production, distribution, and preservation of these products, which lacked adequate packing techniques and were thus sold in plastic bags; during the sale period they were not kept under refrigeration.

It was also discovered that on average 19 per cent of the samples contained less than the weight that was claimed on the label.

Another laboratory study analysed cold meats. The study focused on analysing nutritional value, sanitary quality, meat contents and immunological levels.

We looked into four different brands of each of the following products: ham, frankfurter sausages, bratwurst and brawn.

The physical-chemical study was made in order to find out the product's contribution in terms of protein, fats, carbohydrates and vitamins. We also determined whether other animal products, not mentioned on the labels, were included. For this purpose, the Gel Immunodiffusion technique, which allows the identification of all animal products present, was used. We also

investigated adulteration, or substances that are deliberately added to the food products in order to hide production defects, increase weight, volume, and colour with an immediate decrease in quality.

In these studies, it was found that the most frequent adulteration was by soya derivatives (texturised and isolated) and by wheat and potato starch. These elements are not harmful to health, but producers used them to increase weight in cold meats because of their great capacity to retain water.

The results of quality in the food products were transmitted and published through the Consumer Magazine and newspaper, and also through radio and T.V. programmes. Other studies made by the Institute which acquired recognition and a high reputation were those on children's foods, canned chile, alcoholic drinks, milk and tortillas

The presence of food technologists within INCO allowed us to develop a new line of work for the dissemination of domestic technologies for the preparation, preservation, and production of food products. In this direction we developed research in home-produced bean sprouts and vegetables; the production of cold meats, sauces and preserves; and the production of simple, economic recipes. Once these technologies were developed, a massive campaign was launched in order to help the consumer to reduce costs and waste.

NUTRITIONAL CAMPAIGN THROUGH THE MASS MEDIA

With the purpose of providing useful information to the general population about the basic concepts of nutrition, the Institute, with the support of specialists from the National Institute of Nutrition and the DIF, designed and developed a nutritional campaign using the mass media.

The campaign was on two levels: one focused on direction and the other on information.

a) The direction level hoped to counteract the information produced by the publicity campaigns of the food production industry, and tried, by using the technique of diversified reiteration, to teach the population three basic concepts:

- In the first place, that there are three food groups: fruit and vegetables; legumes meat and milk; and cereals and starchy roots. The population was informed as to what food products belonged to which groups.
- The second concept that was transmitted was that it was important to combine food from these three groups in every meal.
- And thirdly that each meal should be balanced, hygienically prepared while conserving its nutritional value.

These three points were transmitted through messages and information spots on radio and television, posters, fliers, magazine articles, the Consumer newspaper, that is to say, using all the possible means at the disposal of the Institute. The concept of the "wise" dish was created as a counterproposal to the junk food concept.

b) This information was taken from the results of the research mentioned in the above section; it was information that was geared towards educating the consumer to buy better products. The price listings, the results of quality studies, different recipes, and technological proposals for home production and conservation were always available. The overall campaign also contained temporary subdivisions geared to confronting specific problems, for example when there was a meat and bean scarcity, or when the price of fish went up because of the season, etc.

The main publicity campaign launched by INCO between 1984 and 1988 was focused on food and nutrition.

DIRECTIONAL SERVICES

Another way of sharing information which was produced by the Institute was by telephone.

By telephone people could obtain price information and nutritional direction. A nutritionist answered questions about the nutritional value of food products, the appropriate products for different ages, different ways of preparing specific foods, selection and purchase, etc.; another group specialised in answering questions on prices and places where food products could be purchased. This telephone service reached a point where it received thirty thousand phone calls a month in the Mexico City area.

In terms of other action, talks were given, purchase groups were organised, children's circles were also created. In each of these strategies, food and nutritional recommendations were included as one of the fundamental topics.

In the children's circles, plays with nutritional topics were staged. Puppets were also used to give nutritional education to children.

All the promotion instruments which were accessible to the Institute were put to work in nutritional education during those four years, conscious that the economic recession was preventing the adequate consumption of nutritional food products. The purpose of INCO was to lighten the load of the crisis upon the householders responsible for feeding Mexican families.

CONCLUSIONS

In a society where the vast majority of the population gets hold of its food from transactions in the market, institutions that are geared towards consumer's direction and information, like the National Institute for the Consumer, are of great value.

As long as food products increase in quantity, quality, price and presentation, the exercise of the consumer's autonomy can only be made effective if he has sufficient information to compare and choose, within the range of his real purchasing power.

This information can only be produced by organised groups of consumers and institutions like INCO. For some reason consumer organisations have not developed in Mexico with the strength that they have developed in other countries. This is why it is doubly important to preserve and strengthen public institutions like INCO.

The difference in the consumption patterns of the diverse socio-economic groups in the Mexican population forces us to realise that specific information and direction is pertinent to them. The specific means through which these diversified populations are to be reached is also relevant. The constant and

abundant flow of biased information, principally in the field of processed foods, forces Mexican society to incorporate programmes and direction and nutritional education action in a more systematic way. Television, businesses and restaurants are not the best places for education in the field of nutrition.

The population has shown great interest in food information and direction with scientific bases.

Correct eating is a matter that concerns many people in their daily lives, and the existence of distorted information increases the need of obtaining trustworthy information and of strengthening public institutions like INCO.

The difference in consumption patterns of the diverse socio-economic strata of the population forces us to identify the relevant information and direction in food products and nutrition. The means through which they were reached also need to reflect this difference.

DEMOGRAPHIC SITUATION IN MEXICO AND THE NATIONAL POPULATION PROGRAMME

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SUMMARY Population policies in Mexico have as their main objective the improvement of the wellbeing of the Mexican people. In the National Programme of Population 1989-94, the coordination between institutions is understood to be the basic instrument to reach this goal.

Even though population growth in Mexico has been reduced in a significant way, there remain important challenges to be overcome in terms of diminishing fertility levels and reducing infant mortality rates. In terms of distribution, three strategies are emphasised: moderating rural migration into the cities; stimulating the policy of "staying home"; and strengthening medium size cities.

In terms of priorities, health and nutrition are understood as relevant because of their high social and human impact; they are the bridge between demographic policy-making and achievement of social wellbeing.

In Mexico the infant mortality rate is 38 in 1000 for children under one year. This rate, associated with acute undernourishment, demonstrates the immense challenge faced by public institutions.

The uncontrolled growth of the cities produces an increase in social needs. Changes in life styles contribute to deficient nutrition, a phenomenon which is not helped by the existence of inequalities between social groups present in these metropolises.

Demographic policies in Mexico, geared towards the social wellbeing of the people must be carried out through coordinated institutional actions. This may be the most important task to be achieved in the near future.

DEMOGRAPHIC STATUS OF MEXICO

Population growth and structure

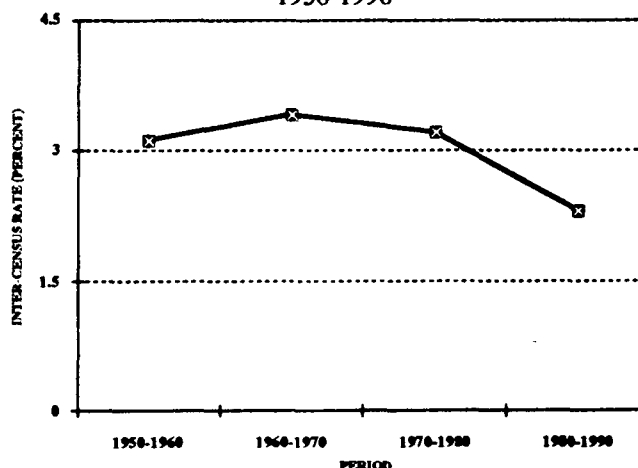
Mexican population growth rate has significantly decreased in the last 30 years. From 3.2% in the period of 1960-70 it dropped to 2.3% in 1980-90 (Figure 1); the figure for 1990 is

2.1%. Simultaneously, the population density has doubled in the last 30 years, the percentage of population living in urban settlements (>2500 inhabitants) increased from 50% in 1969 to 72% in 1990; however, urban population growth rate decreased from 5% to 2.9% in the same period.

Growth rate in the decade of 80-90 shows important inter-state variations; 25 states reduced their growth rate with respect to the period of 1979-80, while the remaining seven showed increasing rates.

Although the population growth rate has decreased, the population structure -mainly young-, given the annual rate calculated to be 2.3% for the last decade, and particularly the level of 2.1% reached in 1990, makes us predict a doubling of

FIGURE 1
MEXICO: POPULATION GROWTH
1950-1990



Source: CONAPO. *Report of the demographic situation in Mexico 1990*. Mexico, 1990

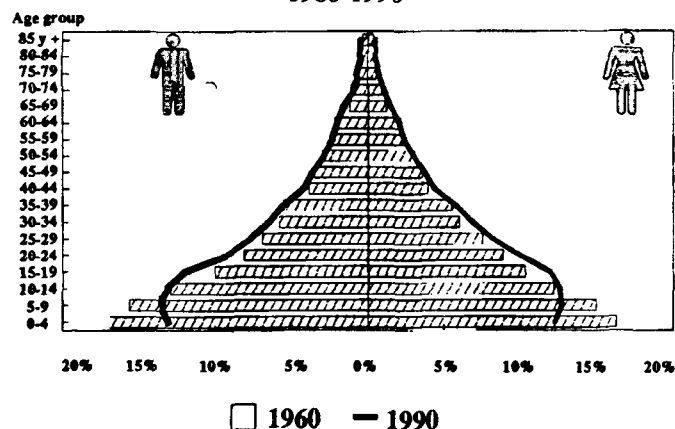
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the population in the next 33 years. Although the growth rate is decreasing, Mexico will have more than 100 million people persons by the year 2000.

The population age distribution shows a decrease in the age group of 0 to 14 years, which means a moderate and relative tendency to ageing. However, it should not be assumed that the transition has the pattern of the more developed countries. Although the relative composition of the age distribution shows a contraction in the younger groups, the population median age is 20 years, that is, about half of the Mexican population are 21 years old or less (Figure 2).

This young population structure requires pertinent actions in terms of family planning. These measures include not just the enrollment of new contraceptive users but also the delay in the age of marriage, and the development of more and better work opportunities for women. The high correlation found between education level and number of children suggests taking education as a demographic strategy.

FIGURE 2
MEXICO: STRUCTURE BY AGE AND SEX
1960-1990



Source: CONAPO. *Report of the demographic situation in Mexico 1990.*
Mexico, 1990

FERTILITY

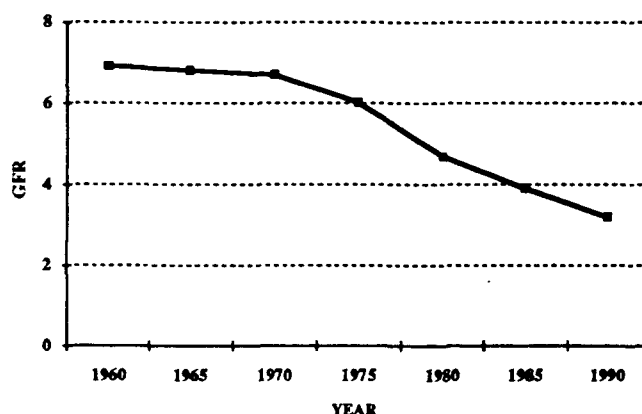
Industrialisation, migration to the cities, and the lifestyle changes of those arriving in the metropolis have modified the country profile since 1950.

The country's profile is reflected in the transformations that occurred to the demographic variables. The accelerated demographic growth rate of Mexico since the 50's affected the global fecundity rate dramatically. Estimations made by CONAPO from the demographic surveys indicate an accelerated decrease in that rate: from 6.9 children per woman in 1960 it fell

to 3.2 children per woman in 1990 (Figure 3). This reduction by more than half of the average number of children per woman during the reproductive phase assumes some changes in the generation's fecundity rate; and, in the near future, it is expected that those women born after 1960 will have had an average of less than three children at the end of their reproductive life.

We have mentioned that educational level plays a fundamental role in the reduction of the global fertility (GFR). Data from ENFES show that women without school education and those with incomplete primary school education have an average of 6.1 and 5.7 children, while women with secondary school or more have only 2.5 children. The question still remains of

FIGURE 3
MEXICO: GLOBAL RATE OF FERTILITY
1960-1990



Source: CONAPO. *Report of the demographic situation in Mexico 1990.*
Mexico, 1990

whether this difference may be due to age differences of women included in the demographic surveys; we need to take into account those generational factors.

On the other hand, fertility in Mexico is conditioned by the socio-cultural diversity in the different geographic and administrative units; the GFR is definitely higher in small, rural outlying areas than in urban areas. This difference is almost two-fold in the small communities as compared to metropolitan areas. It is important to point out, in this regard, that some researchers have shown that during the crisis period the urban families decided to increase the number of children to adequately face the recession.

More evidence about the modifications in the fecundity pattern in our country is needed in order to implement the most appropriate policies to produce the cultural, social and economic, changes in line with global modernisation.

MORTALITY

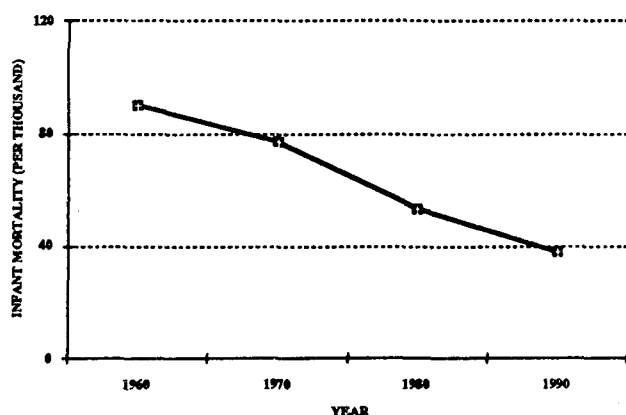
Life expectancy at birth has undergone important changes from 1960 to 1990. The effective gain of 12.1 years -from 57.5 to 69.6- indicates modifications in the economic and social structure of the country. The risk of dying is now less than that of the post-war period. Mexican regional differences depict a less optimistic picture. Life expectancy in some states such as Oaxaca, (61.2) as compared to Nuevo Leon, where life expectancy is 73.5, is evidence of the heterogeneity of the quality of life.

The decrease in the crude mortality rate per 1000 was 12.2 in 1960 and 5.4 in 1990. Again, some inter-state differences are found. For Oaxaca this rate in 1960 indicated 16.3 deaths per 1000 population, while for Nuevo Leon the rate was 8.4. By 1990 there was a reduction to 9 and 4 for Oaxaca and Nuevo Leon, respectively.

The last index depends on the mortality rate as well as on the age distribution of the population; hence, we need to consider other indices reflecting life conditions of the population under consideration, one of these indices being the infant mortality rate. This rate has significantly decreased from 90.3 deaths per 1000 live births for children under one year of age in 1960, to 38.1 in 1990 (Figure 4). It is important to mention that in developed countries this rate does not exceed 10 deaths (for children under one year of age per 1000 live births).

The infant mortality rate decrease is a result of the progress in health technology in the country -and all over the world- and of the socio-economic progress experienced during the 1960-90 period, which translates into better accessibility to school education, modern health services and more efficient sanitary services (clean water, sewage, etc.), among other aspects.

FIGURE 4
MEXICO: INFANT MORTALITY
1960-1990



Source: CONAPO. *Report of the demographic situation in Mexico 1990*. Mexico, 1990

MIGRATION AND GEOGRAPHICAL POPULATION DISTRIBUTION

Historically, the population distribution in the country has been unequal. Since ancient times the majority of the population has been concentrated in the central region of the country. In modern times, the population concentration in certain zones has been conditioned by economic development. For some decades, the population density in the central zone has put pressure on the natural resources and has affected the possibility of the continuation of growth. On the other hand, the disproportionate growth in the metropolitan zone of Mexico City reinforced the imbalance and poses a great challenge.

In Mexico, together with a high concentration in the metropolitan areas there is a noticeable population dispersion: in 81% of the nation there are densities of 49 people and even lower densities per square kilometre, while in the Federal District there are densities of 5500 persons per square kilometre.

These imbalances in the geographical population distribution in the country are caused by internal migratory movements. The country-to-city flow made a major contribution to the main metropolitan areas at present: Guadalajara, Monterrey, Puebla and Leon. The characteristics of the migration phenomenon have changed. Now, the main flows are between cities, or between rural areas and new developing cities.

Although international migration movements have not had a significant influence on the population volume, structure and growth, they have represented an important demographic variable. The increasing emigration to the United States since the 40's and the undefined illegal emigration in the last two decades have turned out to be one of the most controversial issues.

It is necessary to consider the characteristics of the migrants; according to results of the ETIDEU (CONAPO, 1984), migrants are young men and women with a low educational level (but above the national average), coming from poor areas of Mexico. Therefore, volume estimation is important in order to implement adequate policies; however, it is of vital importance to know the factors determining population movements.

PROGRESS OF THE NATIONAL POPULATION PROGRAMME

Programme Objectives and Strategies

The main purpose of the population policy in Mexico is to contribute to the achievement of better living conditions for all Mexicans. The orientation of the National Population Programme for 1989-1994 is set out in the National Development Plan for 1989-1994, particularly in the National Resolution for the Productive Improvement of the Standard of living.

The primary objectives of the Programme are: 1) to decrease the population growth rate by means of two strategies: to promote the decrease in fecundity, and to intensify the fight

against infant mortality; 2) to achieve a more balanced population distribution by means of three strategies: the promotion of "micro-regions" to make them more attractive to the population, the promotion of specific areas to regulate the migratory flows to the big urban centre, and the restructuring of the national system of cities for demographic balance.

Operational priorities of the Programme.

Action has been taken with four priorities in mind: 1) inter-institutional coordination and agreement, 2) decentralisation, 3) communication and education, and 4) evaluation.

These priorities involve a high level of responsibility from the institutions and sectors that are involved in the Council. They are in permanent communication and agreement with social initiatives. The programme has been able to decentralise efforts of the eight Ministries, two national institutions of social security and the Department of the Federal District which have included a series of action on population issues in their work programmes and budgets, and a number of inter-institutional agreements for the analysis and evaluation of the demographic phenomena in the country have been achieved.

The communication and education action deserves a special mention because it is of strategic value in the short and long term; the inclusion of sexual education topics in primary and secondary school books as well as in family planning orientation, the close relationship with private groups and non-governmental organizations to support family planning and sexuality programmes facilitate the flexibility in the strategies' implementation.

The inclusion of messages on family planning in the media, the press and in audio-visual systems has been a priority of the programme given that this is an efficacious method to show the audience how they can participate in the country's population policy.

One of the Programme's policies regards the decentralisation of population activities; one of the advances is the existence of 32 state councils, as well as the fact that, since 1991, those councils have their own population programmes which make this programme more specific. However, it is necessary to provide these councils with an appropriate structure. The activities need to bring together the particular state needs and global policies to yield supportive and collaborative products.

The first objective of the Programme -to promote the decrease of demographic growth-, implies giving the highest priority to activities in the field of family planning. That is the reason why the objectives of the National Programme on Family Planning are in close relationship with those of the National Population Programme. In this regard, it may be pointed out that the activities are directed toward the maternal health protection by means of education and communication.

Regarding the second objective -the promotion of an efficient

utilisation of the territorial resources-, it is important to say that the Council has a global strategy for population distribution. This strategy is at planning stage in the public institutions responsible, especially the Ministry of Urban Development and Ecology.

HEALTH AND NUTRITION IN MEXICO

The effects of the crisis on the population health and nutrition.

The economic crisis, which affected whole regions of the world, had its most dramatic place on the restructuring of the social pact which had been in place since the post-war period. The economic adjustment policies, initiated by an increasing number of countries, were implemented in Mexico from 1982. Its most important feature was the limitation of funds in different sectors of public administration.

The adjustment policies were made in a problematic economic development frame. On the one hand, production fell lower in comparison to the historical tendency; on the other hand, the traditional lags in whole population sectors were reinforced by the recessive situation and the inflation.

The crisis is noticeable in the indices of the national economy (Table 1). While production suffered historical decreases, the adjustment policy re-defined the destination of public funds. This was translated into a large decrease in the investment destined for social benefits (Figure 5). The decreases in the net internal production per capita and the total and health expenses per capita have an important impact on the population (Figures 6, 7, 8, and 9).

Meanwhile, inflation caused the most unprotected population sectors to use their low income to satisfy elementary needs, that is, they shifted their family expenses to the acquisition of food and other basic products. It is enough to point out that, in the consumption of beans and eggs, the increments (as a percentage of the daily minimum salary) from 1981 to 1986 were from 10.0% to 20.8% and from 17.8% to 23.9%, respectively.

The effects of the crisis on Mexican health and nutrition are not well documented; however, available data show a progressive deterioration in the calorie and protein intake per capita in the poorest sectors, and a decrease in the consumption of some basic foods due to increasing prices. In terms of health, the difference between the increasing demand and the size of the theoretical and actual cost of the major health institutions is well known.

The decrease in public expenditure on health leads to a more intensive use of the existing resources, a deterioration of the service infrastructure and, therefore, a decrease in quality. In passing: the percentage of programmed expenses in the three health institutions of the country in relation to the net internal production tended to decrease with very little variation from

DEMOGRAPHIC SITUATION IN MEXICO AND THE NATIONAL POPULATION PROGRAMME

1981 to 1990. The highest value was that of 1982, with 3.5% and the lowest value was that of 1987 with 2%.

In relation to morbidity and mortality, it is not possible to give advanced data on the immediate effects of the crisis on these indices. However, the tendency is to see stable crude mortality rates; and although still significantly high, the infant mortality rate has been decreasing.

Recent evidence: surveys in rural and urban areas of the country.

The nutrition and food surveys carried out in rural Mexico 10 years ago(1) showed a high correlation between food availability and accessibility and the nutritional status of the subjects interviewed. In general, studies show a high prevalence of malnutrition, especially in young children and pre-schoolers.

TABLE 1
MEXICO: ECONOMIC INDICATORS, 1980-1990

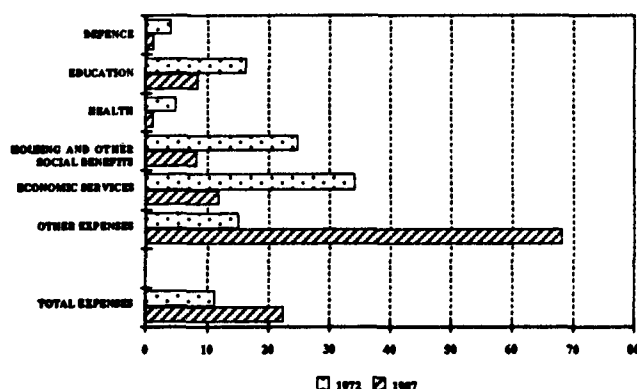
YEAR	NATIONAL GROSS INCOME ^{1/}	NATIONAL GROSS INCOME PER CAPITA ^{2/}	TOTAL PROGRAMMABLE EXPENDITURE ^{1/}	GROSS FORMATION OF CAPITAL ^{1/}	ACTIVELY OCCUPIED PERSONS ^{3/}
1980	4,470.1	64,381.0	1,159.8	1,214.0	20,281.6
1981	4,862.2	68,278.6	1,431.3	1,393.0	21,549.1
1982	4,831.7	66,185.8	1,303.5	1,054.9	21,482.8
1983	4,628.9	61,882.2	1,099.7	770.0	20,994.8
1984	4,796.1	62,606.0	1,162.3	816.9	21,482.8
1985	4,920.4	62,745.9	1,098.0	901.4	21,956.1
1986	4,735.7	59,026.5	1,023.5	710.7	21,640.1
1987	4,817.7	58,721.2	975.7	742.9	21,867.4
1988	4,884.2	58,243.4	923.4	833.7	21,991.2
1989	5,037.8	58,803.0	869.3	877.7	22,298.6
1990	5,236.3	59,855.6	917.2	978.2	N.D.

1/ Thousands of millions in prices of 1980.

2/ Pesos in prices of 1980.

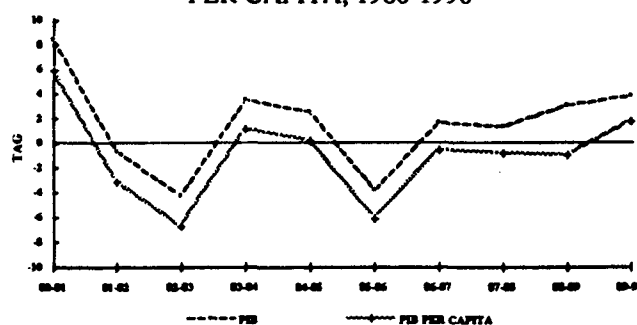
3/ Millions of remunerated occupations, Annual average.

FIGURE 5
MEXICO: EXPENDITURE IN DIFFERENT SECTORS, 1972 AND 1987 (As percentage of Total Expenditure)



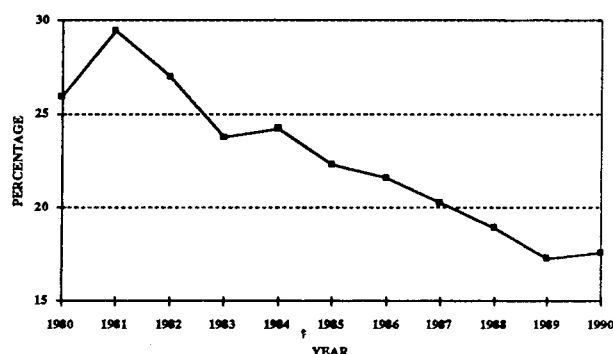
Based on: World Bank
Report on world development 1989.
EEUU, 1989.

FIGURE 6
MEXICO: ANNUAL GROWTH RATE OF PIB AND PIB PER CAPITA, 1960-1990



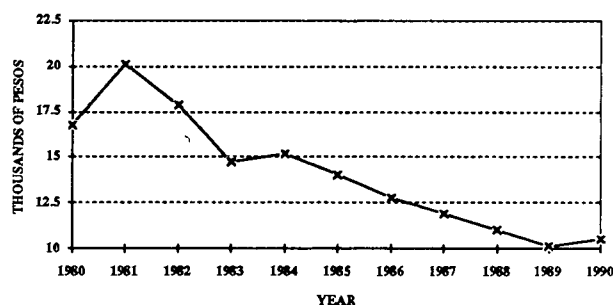
Based on: Carlos Salinas de Gortari
Third Government Report 1991.
Mexico, 1991.

FIGURE 7
MEXICO: TOTAL PROGRAMMABLE EXPENDITURE
AS PERCENTAGE OF PIB 1960-1990



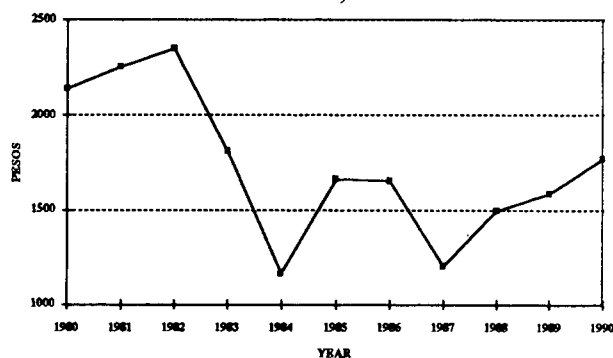
Based on: Carlos Salinas de Gortari
Third Government Report 1991.
Mexico, 1991.

FIGURE 8
MEXICO: TOTAL PROGRAMMABLE EXPENDITURE
PER CAPITA, 1980-1990 (AT COSTS OF 1980)



Based on: Carlos Salinas de Gortari
Third Government Report 1991.
Mexico, 1991.

FIGURE 9
MEXICO: TOTAL PROGRAMMABLE EXPENDITURE
IN HEALTH PER CAPITA, 1980-1990 (AT COST OF
1980)



Based on : Carlos Salinas de Gortari
Third Government Report 1991.
Mexico, 1991.

Regarding the nutritional status of people living in urban areas, studies have shown that food habit modifications produce diseases similar to those affecting the population of developed countries (2), although still with the characteristics of a deficient transitional diet. Studies also have shown differential nutritional statuses in the rural and urban environment (3).

In the rural area, studies have shown:

- A high prevalence of malnutrition in young children, pregnant and lactating women.
- An unbalanced diet in terms of calorie and protein contents.
- Those traditionally underdeveloped geographical zones are still in the same situation.

In urban areas, the features are:

- Diet and habit modification in large population groups and the importance of marketing procedures leading to that modification.
- Differential distribution of resources destined to food acquisition in the social sectors of the cities.
- Poverty of certain population sectors in the cities and, as a consequence, differentiation in the food consumption.
- The common features of malnutrition in poor rural areas and the cities are:
- A high correlation between common infections and malnutrition (4).
- An important correlation between malnutrition and school performance.
- Lack of sufficient income to acquire the minimal dietary needs.

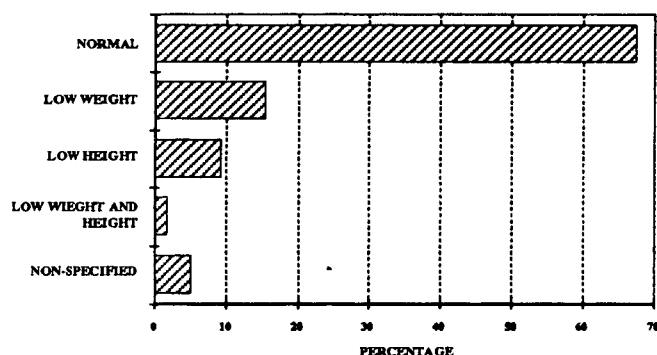
A very important aspect in the relationship between nutrition and social conditions (social development) is physical growth. The data gathered in Mexico are not continuous, they are incomplete and limited in their perspective(5).

However, it is possible to mention some results from the National Nutrition Survey carried out in November 1988 by the General Directory of Epidemiology of the Health Ministry. First of all, the high proportion of under-fives with low weight (15.6%) or with short stature (9.5%) is striking (Figure 10)(6). On the other hand, the importance of malnutrition in women at the reproductive age is reflected by the fact that only 22.8% of the 17,000 women of the sample were in the desirable range; 27.2% had low weight and 15.3% were obese; and a high percentage were classified as "suspicious" (Figure 11).

INTRA-URBAN INEQUALITIES, POVERTY AND MALNUTRITION

According to data from the National Institute of the Consumer (INCO), in 1989 the poorest sectors of different cities of the

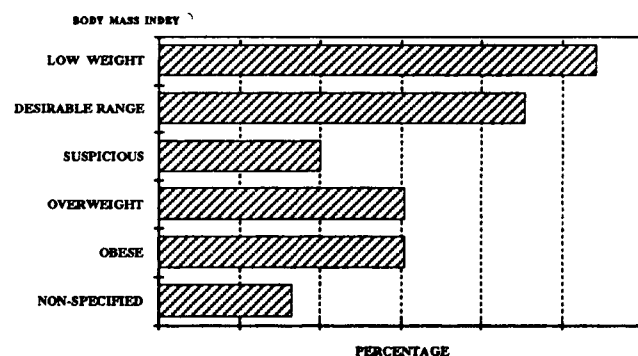
FIGURE 10
MEXICO: ASSESSMENT OF POPULATION UNDER 5 YEARS USING THE ANTHROPOMETRIC CLASSIFICATION OF WATERLOW



Note: n= 7426

Source: SSA/DGE. *National Inquest of Nutrition 1988*. Mexico, 1988.

FIGURE 11
MEXICO: NON-PREGNANT FEMALE POPULATION FROM 12-49 YEARS



Note: n= 17,308

Source: SSA/DGE. *National Inquest of Nutrition 1988*. Mexico, 1988.

country spent up to 60% of their monthly salary on the acquisition of food. Wealthy sectors used only 25 to 30% in the same period of time.

On the other hand, the increase in the price of the "basic food basket" in the last four years has been up to 22% from one year to the next, while the subsidies for some foods such as milk have been decreased.

Although the number of people receiving the benefits of programmes of nutritional improvement has increased from 1987 to the present, the annual food rations per person have decreased substantially. As an example, in 1984 about 232

rations per capita were distributed to 865,500 school children, while in 1990 only 25 rations per capita were distributed to 624,400 people(7).

This modification in the policy of nutritional improvement and food support has emergency status, because the priorities are directed to those groups that became vulnerable due to the crisis, and these groups include not only children but adults as well.

The follow-up of the food expenditure survey performed by INCO in the poorest population of Mexico City has shown a fall in the per capita consumption of basic foods from 1981 to 1988; in 1981 the annual consumption of rice, beans, maize, wheat, meat, milk, fish, fruits and vegetables was 560 kg, but in 1988 it was 392.6 kg, a decrease of 30%.

This decrease was due to lack of sufficient income in numerous families in the city and it is related to dietary modification; the lack of economic resources causes a decrease in the acquisition of basic products such as meat, beans or fish, while the acquisition of those products made of refined flours, sugars and alcoholic beverages is increasing(8).

Available information on health and nutrition of the urban areas are limited in geographical terms, and they have limited possibilities of generalisation. Nevertheless, from experiences of other world regions and from our own experience we know that malnutrition is a multifactorial problem, and reinforces the chronic incapacities of those historically impoverished sectors(9).

Poor people from the rural areas, in their search for better opportunities, became the poor people of the cities. Their number increases as rural development is delayed. It has been estimated that there are at least 10 million under the cut-off point of "poverty" in Mexico; 40% of them are living in urban areas.

Social inequalities are a fact within the cities. This is true not only in developing countries, although in these cities it is more dramatic. There is also poverty in the cities of the developed countries.

A big proportion of the population is attaining the productive age each year, specially in the cities; the need of employment, availability of sufficient income for a better life are but some of the demands involved in the political action of the city population. Official unemployment increased significantly in Mexico during the recession. In order to create new employment for our population and to catch-up with the present lag, we need to wait far beyond the year 2000.

PERSPECTIVES: NUTRITION FOR THE NEAR FUTURE

The world situation regarding agricultural and cattle production shows a decrease in the present supplies and a definite contraction in supply, which produces an increase in

food prices and food insecurity in whole regions of the world.

Chronic malnutrition of whole population sectors in the world has been reinforced by the lack of food and supply systems. Humanitarian help is not sufficient to supply even the most important needs of those groups; therefore, we need to implement urgent food action.

This perspective also shows the inequalities among regions. Some regions have a wide availability of resources and others are not able to produce even their own food.

Since adequate population nutrition is one of the basic elements of the essential needs that are to be satisfied, it has a strategic role in the country; so, it has been recognised in the National Food Programme for 1990-1994. Three priority groups are recognised in the Programme: the vulnerable groups, formed by pre-school age children, pregnant and lactating women and elders; the "at risk" group, formed by those sectors of the population with a low income, that is, those families with an income of up to two minimum salaries; and, finally, the group whose nutritional status is critical from the population sectors which are in such a poor state that they cannot cover their basic nutritional needs.

The main goal of the National Population Programme is the achievement of welfare for the Mexican population. The integration of this goal into global policy occurs naturally; that is, there is a wide agreement between population policies and health and nutrition policies. When nutrition improvement measures are implemented in at-risk, vulnerable and priority groups, they also help by increasing the population quality of life, and therefore, they are complementary to the efforts against infant mortality which, in turn, allow the improvement of the conditions leading to the reduction of fecundity.

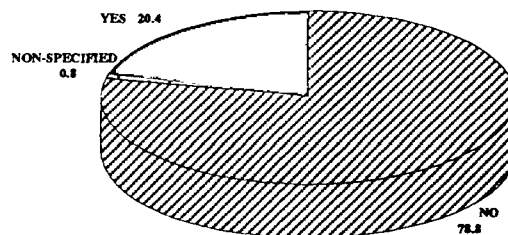
On the other hand, food and health education activities are synergistic with population education activities; giving education and not just direction is the way to make action more sustainable.

The great challenge to development policies in Mexico is to find the common ground in the different sectors and programmes to allow for collaboration in activities. This will make a better future possible for everyone.

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5. See the work of Rosa María Ramos y Alfonso Sandoval. (Physical growth). In: *La Antropología en México, Panorama histórico*. 3. Las cuestiones medulares (Antropología física, lingüística, arqueología y etnohistoria). INAH, México, 1988, pag 61-71.
6. These data coincide with those provided by Daniel Lopez Acuña in a recent paper: "The average prevalence in the region (referring to Latin America) is 15.9%, defined as low weight for age, which means that about 10 million under-fives suffer mild or severe malnutrition". "Alimentary problems and malnutrition in Latin America and the Caribbean". *El Nacional*, Jan 22, 1992.
7. In the National Nutritional Survey, almost 80% of 13,443 households visited had not received any kind of help. See Figure 12.
8. Other research stresses the importance of stratified consumption in the cities. See, for example, the works: Ysunza, A et al. "Dietary stratification in the migratory population of Mexico City", *Rev Invest Clin Cit.* pp 103-113. Hernandez M et al. *La alimentación del obrero y su familia de una zona del Distrito Federal*, *Ibid*, pp 27-32.
9. The UN have recognized the relationship between urbanisation and nutrition. See: *Urbanization and its effects on infant health. Possible activities*. Geneva, 1989.

FIGURE 12
MEXICO: HOUSEHOLD RECEIVING FOOD HELP 1988



Note: n= 13,443
Source: SSA/DGE. *National Inquest of Nutrition 1988*. Mexico, 1988.

FOOD SUPPLY IN MEXICO CITY

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Assembly of Representatives of the Federal District Mexico

(Summary prepared by the Editorial Committee based on the ad verbatim recording)

SUMMARY This paper is a summary prepared by the Editorial Committee from the recorded oral presentation. It describes the extreme complexity of the food supply system of the City. The system is very heterogeneous depending on the product and its origin and depending on the producers. For some products (orange, banana) a handful of individuals control over 50% of the city supply as they are large producers, transporters and wholesalers. The retail system has two components: a) An extremely efficient subsystem serving the high and middle classes; and b) An inefficient subsystem serving the lower classes in which prices are higher and sanitary conditions are very bad. Modernization is strongly needed, but it requires the intervention of the municipal authorities and the inclusion of the over 500,000 merchants involved in the present system.

Food commerce in Mexico City is extremely complex since it includes a great number of products and since it covers different levels, from the great central warehouses (The Food Supply Centre, the Fish Market in la Viga, the Abattoir for meat) to street sellers, passing through the whole gamut of the public markets, "tianguis" (Indian origin markets usually established in plazas or streets), the "on wheels" markets (tianguis which are located in different places depending on the day of the week), small outlets (small stores selling meat, chicken, vegetables, tortillas etc.) and the large supermarket chains. Each of these levels has very specific characteristics but, on the whole, food commerce employs many people; for example, in the 300 public markets of the city there are about 80,000 stores employing some 250,000 individuals.

The difficulty of analysing such a system is evident. There are a few studies for certain products (bananas, apples, oranges, chiles and potatoes) including data on the origin, transportation and volumes sold, but in general there is an extreme lack of information.

WHOLESALE FOOD COMMERCE

Wholesale food commerce is extremely heterogeneous, its characteristics depending on the product, the region of origin and the type of producer.

For some products there is great middle-men activity which, in general terms, is inversely proportional to the degree of capitalisation of the producer. There are products such as bananas and oranges in which middle-men activity is almost non-existent, since they are produced in modern agricultural units and the producer gathers, transports and sells the product at the wholesale level and even finances the whole operation. There are people called "medieros" who finance small producers, generally at a high cost but in a rapid way, thus making possible the marketing of products such as potatoes and peas.

Those wholesalers who at the same time are large producers usually have large extensions of specialised land and, in the Food Supply Centre, they control several warehouses. Thus, few people (one in the case of oranges and three in the case of bananas) control more than half of the wholesale market of those products in Mexico City. These major wholesalers usually sell to secondary and tertiary wholesalers who in turn distribute the product to retailers.

In other countries wholesalers concentrate only on commerce, simultaneously covering a great variety of products and deal both with the small retailer and with the producer whose interests they finally represent. In Mexico, however, the wholesaler does not play that role because there is a lack of regional agricultural markets. Regional agricultural markets are highly developed in Spain, France and Argentina and they represent an efficient, free independent form of private commerce promoted by the government. Both the wholesalers and the small producers go to those markets and establish direct contact between themselves avoiding middle-men and excessive control of a few individuals over a specific product. For the small producer this system allows him to negotiate the sale of his product

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without having to move it over long distances.

To develop this model in Mexico would be a step ahead and, as a matter of fact, it is in its first stages for oranges in Martinez de la Torre, Veracruz, for onions and tomatoes in the state of Morelos, and it could soon be started for pineapples in Oaxaca.

MEXICO CITY'S CENTRAL DE ABASTO (FOOD SUPPLY CENTRE)

This Centre was built to decentralise the Merced market (this market was located on dozens of streets in the historical centre of the city, and for several centuries was the biggest market in the country). Unfortunately the new Centre virtually replicated the old structure with all its defects; for example, it included restaurants, bars, hotels and shoe and clothing shops as they used to exist surrounding the old market.

This Centre was ill-planned from the beginning and did nothing to modify the food supply system of the city. It is cleaner, more spacious, and has more parking space, but it is open to the general public who benefit by buying at lower prices, but who interfere with the function of the Centre. This is unheard of in other countries.

This system is gradually disappearing. In fact, the large supermarket chains do not buy in the Centre, but have their own supply channels.

A system in which the wholesaler and the small retailers have close links for training, systematisation, advertising and the establishment of voluntary chains and purchasing unions, as occurs in other countries, is badly needed.

As supply centres are spectacular, they are very popular among politicians, but they are useless in modernising the commercial system. It is essential to look at the city food supply as the last stage of the productive process and not as the first stage of commerce.

The Abattoir, which is the Centre for meat, is now disap-

pearing, but this process has been too abrupt and has happened without the creation of an alternative infrastructure. Animals should be butchered where they are raised in establishments fulfilling functional and sanitary conditions. Since there is not such an infrastructure, the danger exists that slaughter houses in nearby cities, lacking adequate conditions, could take over Mexico City supply.

RETAIL FOOD COMMERCE

This is the sector where more contradictions and backwardness exist. There are two parallel systems:

- a) That serving the middle and upper classes which is as efficient as any other system in the World, and operates at very low cost; and
- b) That serving the more numerous lower class that worsens each day in terms of hygiene (no water, WC or facilities for rubbish disposal) and which operates at prices higher than the modern system.

Ten years ago the CONASUPO system of stores offered an option for the poor population with prices normally 10 percent below those of the private system. These stores have disappeared, and no adequate substitution has been provided; today, there are neither institutions nor programmes to improve the food supply of the lower classes.

In Mexico City, the retail food commerce system requires a considerable change that only the government is able to induce. In no country in the World has a city food supply system been structured simply leaving it to market regulation. At first sight it would seem easy to establish a good retailing system, but in Mexico City there are over 200,000 ambulatory merchants, 250,000 persons working in public markets and 120,000 people selling in "tianguis", a mass of 600,000 individuals who are not going to allow modernisation of food commerce if they are not participants in the process.

PART III

**FINANCING RESEARCH AND INTERVENTION
MODELS IN NUTRITION AND HEALTH IN
LATIN AMERICA**

THE ROLE OF FOUNDATIONS AND DEVELOPMENT AGENCIES

José Romero Keith¹

Fundación Mexicana para la Salud

SUMMARY The role of foundations and development agencies. In Latin America there is no grant seeking culture among young researchers. In the 80's and 90's there has been an important increase of researchers in all fields of study. There is a new generation of young trained thinkers, who are doing important work in understanding complex problems, but they do not have the experience and the know-how to obtain funding. Much of their work depends on their capacity to plug into on-going projects and as one of the worst consequences is the loss of young talent and creativity.

For the above mentioned reasons ten funding agencies(10) were invited to the 2nd Latin American Workshop on Nutrition and Health in Urban Areas, where presentations were made on their policies, objectives, strategies, requirements, main interests, and examples of projects they are funding at present.

Of the 10 agencies one was multinational; three European; two Latin American, three Mexican and one from the U.S.A. Although the institutions support research and intervention projects in the field of health and nutrition, diversity was shown in terms of their particular interests and the different ways through which they channel their support. Basically we could divide them into four categories: technical assistance; strategic planning; support in the field of education; and financial support to open projects.

Some of the relevant conclusions were the interest that the Polar and Cavendes Foundations from Venezuela showed in terms of designing and operating joint programs with other Latin American agencies; Herdez from Mexico showed a special openness towards supporting projects from the Mexican provinces in order to help young researchers that have difficulty getting funding; and the IFPRI showed intellectual generosity in terms of sharing its macro-vision of world tendencies in the food arena with other participants.

In general terms we could conclude by saying that the workshop established the basis for the implementation of joint projects; a network for technical exchange; and the possibility of organising future donor meetings for the support of research in nutrition and health in Latin America.

GUIDING PRINCIPALS

In Latin America there is no grant seeking culture among young researchers.

Traditionally a few well-known figures have established contact with international funding and done effective work, but young researchers have not been given the opportunity to become acquainted with funding agencies.

In Latin America in the 80's and 90's there has been an important growth of researchers in all fields of study. There is a new generation of young trained thinkers, who are doing important work in understanding complex problems, but they do not have the experience and the know-how to procure their own funding. Much of their work depends on their capacity to plug into on-going projects.

One of the worst consequences is the loss of young talent and creativity. Many of the old lines of work are being developed, but new lines are not being allowed to grow and expand in their own right.

Because of these reasons, ten foundations were invited to the 2nd Latin American Workshop on Nutrition and Health in Urban Areas held in Mexico City March 2-6, 1992. The hope was for young Latin American researchers to become acquainted with national and international foundations' interests, procedures and requirements in order to strengthen their capabilities in the design of research protocols to increase their possibilities of getting grants for their own projects in the near future.

RESPONSE.

On November 30, 1991, fifty foundations from around the world were invited to participate in the event (1); 39 of them, that is 78% replied to the invitation:(2)

- 10 confirmed their attendance (20%).
- 8 expressed their interest in working with the Salvador

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Zubiran Institute of Nutrition (INNSZ) in the near future (16%).

- 21 said they had other priorities different to the issues of health and nutrition (42%).
- 11 did not answer (22%).

The ten agencies that confirmed their attendance were:

Multinational agencies.

- FAO
- International Food Policy and Research Institute (IFPRI).

European agencies.

- The European Economic Community.
- The British Council.
- GTZ.

Latin American foundations.

- Polar Foundation.
- Cavendes Foundation.

Mexican foundations.

- Mexican Foundation for Health.
- Foundation Herdez.
- Mexican Centre for Philanthropic Development.

In the following pages we will summarise their presentations focusing on their policies, objectives, strategies, requirements, main interests, and examples of projects which they are presently funding. The hope is that this information will be useful to young researchers procuring funds for their research projects and intervention models in health and nutrition in Latin America.

PRESENTATIONS

CENTRO MEXICANO PARA LA FILANTROPIA (CMF). (MEXICAN CENTRE FOR PHILANTHROPIC DEVELOPMENT).

The CMF has three general objectives:

- To develop and rationalise philanthropic activities in Mexico.
- To professionalise social projects.
- To develop trust and commitment from the business community in Mexico in terms of investing in social projects.

Dr. Ricardo Govea, Director General of the centre spoke about the Directory of Philanthropic Institutions in Mexico which includes a listing of approximately 1000 institutions dedicated to philanthropic activities.(3)

He proceeded to explain the four main programmes run by

the centre:

- The permanent information service.
- The legal advice service.
- Formal education in philanthropy.
- The community fund for philanthropic development.

The informational service includes relevant information about the philanthropic institutions which operate in Mexico in terms of interests, areas they support, priorities, etc. One can have access through the directory, a computer data base, or direct telephone contact.

The legal advice service provides Mexican organisations with the legal technical advice required to comply with the USA legal requirements necessary to become tax-exempt according to Internal Revenue Service (IRS) procedures.

In order to promote formal studies in philanthropy and social change, the CMF has signed a contract with the Iberoamericana University in order to hold formal postgraduate courses and open education courses (4). There is also a strong interest in setting up a formal training programme for the education of 300 educators specialised in the problem of street children.

The Community Fund has as its objectives the collection of funds for social development projects; integration of a portfolio of sound strategic ones; and to offer Mexican industrialists the opportunity to invest in the well being of Mexico.

Dr. Govea finished his presentation inviting philanthropic institutions to professionalise their activities, and for the industry to open up to the new challenge of contributing towards the social development of the nation.

FUNDACION MEXICANA PARA LA SALUD (FUNSALUD). (MEXICAN FOUNDATION FOR HEALTH).

Funsalud was created in 1985 by Mexican businessmen interested in solving strategic problems in health. It aims to strengthen scientific and technological development; support research and the formation of high level human resources in health; identify strategic problems in health and generate projects that provide concrete solutions.

Mr. Cuautémoc Valdés, Planning Coordinator of the institution and author of a book on financing and health in Mexico (5) made the presentation. He explained the main principals of the institution: to better the health levels of the Mexican majorities; to function as an instrument for the negotiation of fresh financial resources; and to support programs of excellence in health areas.

The strategy towards this mission is focused on identifying relevant problems and generating operative solutions. The nine lines of work are:

- Philanthropic development.

- Support for research topics in strategic areas.
- Human resources development.
- Technological innovation.
- Special missions in health.
- Special programmes.
- Awards.
- Publications.
- Institutional development.

In reference to research activities, he explained the four main interests of the foundation:

- Multicentric groups in gastro-intestinal infectious diseases; moderate malnutrition; and child health.
- Health systems.
- Support to research institutes in health areas.

Research in relevant topics such as diabetes, malaria, reproductive health, and atmospheric contamination.

Mr. Valdés finished his presentation explaining the programme for "Fund Management" of research resources in health. He mentioned that Funsalud administers the funds without charge (no overheads) plus adding the generated interest from good investment to the original research budget. This is to protect the researcher's purchasing power and to unload him from administrative constraints. He said that in the 1990-1991 year, 102 funds were handled in this way with a total amount of 40,249 million pesos and 5.5 million dollars.

FAO

FAO, the United Nations Organization for Food and Agriculture was created in 1945. It mainly focuses on providing technical assistance to the governments with which it works. It also functions as a financial liaison between strategic demands and multinational funding agencies such as the World Bank or the United Nations Development Program. It handles a non-refundable fund of seed money to activate and initiate processes. At the moment its technical unit in nutrition is composed of 40 high level specialists, based in Rome.

Dr. Florence Egal, Nutrition Officer of the Nutrition and Food Policy Division explained the present vision and some of the priorities the FAO holds with regard to the nutritional situation of urban social groups in Latin America.(6)

She commented that the undernourishment phenomenon is understood as a multifactorial process connected to health, access to food, food production, and on the whole, the integral attention required by vulnerable social groups.

In terms of diagnosis, she spoke about the syncretism which exists between nutritional deficiencies, non-contagious sicknesses, hypernutrition, lack of access to food, bad eating habits, poor quality in the products, pollution, inadequate handling, and weaknesses in the overall productive system. She spoke about the progressive abandonment of traditional foods,

fruits, vegetables and the continual high prices of basic goods. She also mentioned the solid conquests industrialised products are having among the poor population, basically because of the prestige they hold, low cost, long periods of preservation, good taste, and strong advertising support.

She concluded with the need to look for and find integral solutions in terms of finding effective educational measures, strong quality controls in the productive process, and a better relation between real nutritional needs, demand, salary and purchasing power. Above all, she established the need to discuss more openly the health and nutritional issues from an integral perspective that would allow the design and effective negotiation of concrete operative measures.

THE EUROPEAN ECONOMIC COMMUNITY

The Commission of the European Economic Community in Mexico supports both research projects and intervention and applicative models. Ms. Donata von Sigsfeld, Doctor in Education, presented the Delegation's activities in support of research. (7)

She commented that the last agreement signed between the European Community and Mexico was in October 1991, opening important and varied lines of international technical cooperation. Because of the specific nature of the workshop she decided to focus on three: the Cooperation for Development Programme; the International Scientific Cooperation Programme; the Scientific and Technological Development Programme.

In regards to the Cooperation for Development Programme, she explained that the programme operates through the support of micro-projects designed and implemented by local Non-Government Organizations (NGO's) in conjunction with European NGOs. The topics that are receiving preferential attention are: migration from the countryside to the cities, pollution, drug abuse, AIDS, and rural development.

In reference to the International Scientific Cooperation Program, the objectives are directed toward promoting contact and mobility between researchers from Europe and Third World countries and establishing long range relationships by associating the best research centres from both parts of the world. She explained the priorities defined for Mexico were water supply, pollution, biotechnology applied to medicine and agriculture, protection of natural resources, and development of new materials. The hope is to work in the direction of applying these results in the struggle against extreme poverty.

The Scientific and Technological Development Programme has as its objective to strengthen scientific cooperation between Europe and Third World countries by providing financial support for projects in the fields of food deficit, prevention of sickness, and development of hygiene and general assistance systems.

THE BRITISH COUNCIL

Dr. Javín Mateos represented Dr. Andrew Martin, Scientific Advisor and Programme officer. He explained (8) that The British Council's mission is to promote culture, science and technology from the United Kingdom to the rest of the world, providing a network of contacts between government institutions, professional organisations, and businessmen.

The strategy is to facilitate either study or contacts for foreigners within Britain, or travel of English specialists, professors, or consultants, so that joint programmes can be run in different countries of the world.

The British Council has 162 offices, 116 libraries, and 52 centres specialised in the teaching of the English language. It is spread in about 90 countries. Its operative budget for 1990-91 reached 362.4 million pounds. Almost two thirds of this budget was assigned to people travelling to the United Kingdom or for British specialists travelling abroad. Examples of the topics of relevance are water supply and irrigation systems, pollution, car mechanics, electrical engineering, chemistry, refrigeration, food technology, milk derivatives, tropical medicine, agroeducation, rural development and industrial training.

In the 1990-91 period a total of 22,665 visits to the United Kingdom took place; 3,645 came from Mexico. The British Council sustains a scholarship programme for postgraduate studies for which 140 scholarships are offered to Mexico each year.

GTZ

Mr. Rainner Gross said that the GTZ is an instrument of the German Government for technical cooperation. It functions in approximately 90 countries and has an annual operative budget of 800 million dollars.

He mentioned that the GTZ does not support research projects for it is specialised in intervention models for socio-economic development. One of its main priorities is the validation of "sustainability models" which guarantee long term operation of projects.

In terms of its operative structure, he commented that funds are channelled from government to government. GTZ has representative offices in many countries, but also functions through its embassies.

In order to construct protocols for intervention, the projects have to follow the ZOPP methodology (9) which basically requires defining the main problem, constructing a hypothesis, building a causal model, a variable/indicator matrix, choosing a project design, defining a target population and the statistical model to be used. He finished his presentation by mentioning that in the case of nutrition, the GTZ has two main interests: implementing projects which strengthen the relationship between nutrition, public health and economic development; and

launching food production programmes for food security in critical areas.

POLAR FOUNDATION

Dr. Vincente Perez Dávila, M.D., a cardiologist, university professor and general director of the Polar Foundation from Venezuela, explained that the institution's main objective is to contribute to the social development of Venezuela in the areas of education, culture, health and recreation; to strengthen scientific and technological development in agriculture and industry, and the protection and rational use of natural resources; and to support altruistic institutions that seek to protect the well being of the Venezuelan population.(10)

He said that the foundation functions both as an operative and a second level financial institution, supporting its own programmes, but also receiving direct petitions from the public and private sectors of the economy.

They are structured in three main areas: Socio-educational activities; Support for scientific and technological research, and Publicity and diffusion.

In the socio-educative area, they function through a scholarship program for primary and secondary level students, including technical training.

In the research areas, the Fund for Applied Agricultural Research works to characterise agricultural problems, develop agronomical solutions, and supports specialised institutes in the field (11). At present, its emphasis is focused on soya and corn research. The Fund for Research in pollution is geared towards attending to recyclable residues; defining norms; optimising non- permanent natural resources; and promoting ecological education. (12) Examples of projects they are presently funding are the recuperation of Valencia Lake and the national campaign to keep the Caracas subway clean. In Health they have programmes for the elderly, the blind and abandoned mothers. In Nutrition they support diagnosis, research and integral intervention models.

In the area of Publicity and diffusion, they administrate an Editorial Fund which has as its main purpose the propagation of history and creativity of talented Venezuelans and the publishment and distribution of relevant research findings, both of its own projects, and of other qualified research institutions. One important example of these activities is the Dictionary of Venezuelan History which was published recently.

CAVENDES FOUNDATION

Dr. Jorge Risquez M.D., and researcher of the Cavendes Foundation of Venezuela, said that his institution was created in 1983. It has as its main objective to better the nutritional levels of the most vulnerable social groups in the Venezuelan society. It supports scientific research and applicative intervention

models.

The Foundation sustains three basic programmes: The Clinic for Nutritional Research, an Integral Rural Development Programme, and a Publications and diffusion programme.(13)

The Clinic has as its main purpose the study of the relevant topics related to undernourishment; teaching nutrition in medical and nursing schools; and fighting malnutrition practices within hospitals.

The Rural Development Program hopes to integrate education, agricultural production, and nutritional measures in an effort to provide integral attention to the vulnerable population. It integrates nutritional education, agricultural production, arts and crafts, with the distribution of nutritional supplements and complements.

The Publications and diffusion programs has published the memoirs of four symposiums on nutrition; four books on related topics, and the Nutritional Guide for Latin America which establishes desired nutritional norms, taking into consideration the cultural and socio-economic conditions of the Latin American poor. They also have a plan to strengthen their Unit for Nutritional Education which is focused on the production and distribution of didactic material: audiovisuals, educational videos, printed games, etc.

HERDEZ FOUNDATION

Don Jaime Muñoz de Baena, General Director of the Herdez Foundation from Mexico, explained that the main objective of his institution is:

“to support scientific and technological research for the production of new food products, better the existing ones, increment production systems and develop distributive mechanisms which will allow the majority of the population to have access to the food they need”.(14)

The principal areas of attention are: agriculture, fishing, nutrition, biotechnology, bromatology, food engineering, education and marketing.

The foundation offers its support through donations, financial support to projects, awards, scholarships at graduate and undergraduate level, and the publication of specialised editions.

In terms of future projects, Don Jaime spoke about the restoration of the colonial building located at the corner of Moneda streets and Seminario streets in Mexico City which will host the Foundation. He also spoke about the project to begin at an Institute for Food Culture which will have as its objective to conserve the culinary traditions of Mexico, by recuperating, classifying and researching the abundant cooking recipes from the different regions of the country.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE (IFPRI)

Dr. Marteen Inmick, researcher of the IFPRI, stated that the objectives of the institute are to do research in food policy in the Third World; incorporate the latest technical developments in the social sciences into the methodologies in use; combine the macro world vision with the micro perspective of the countries they work with, by including culture, history and socio-economic peculiarities; strengthen local research; make known their results; and influence relevant decision-making processes.

The IFPRI was created in 1975 due to a trilateral agreement between the Ford, the Rockefeller and the IDRC Foundations (15) In 1989 they initiated activities in Latin America, in Brazil, Argentina, Mexico and Central America.

Their research priorities for the 90's are:

- financial markets.
- agricultural technology.
- preservation of natural resources.
- intervention models for food security.

In terms of strategies, the IFPRI designs and operates joint projects with universities, research institutes, planning units of local governments, and non-government organisations. It presently works with 90 research and operative institutions around the world.

The elements that guarantee the IFPRI's work are an international staff of high level researchers; strong ties with the countries where they work; a tradition of high level and high quality research; a combination of a macro with a micro perspective; access to the most relevant information in terms of technological changes in agriculture; and experience and trustworthiness in terms of defining relevant topics and working them out in a joint manner.

CONCLUSIONS

Ten agencies attended the workshop: two were multinational; three, European, two Latin American and three Mexican. Even though the ten institutions support research and intervention projects in the field of health and nutrition, diversity was seen in terms of their particular interests and the different ways through which they channel their support. Basically we could divide them in to four categories: technical assistance; strategic planning; support in the field of education; financial support for projects.

In terms of technical assistance, FAO explained the way it provides assistance in the form of joint diagnosis, research activities or direct consulting.

With regards to strategic planning, IFPRI mentioned the methodological steps it used to obtain a macro-vision of world tendencies and combine it with a micro-vision which includes

historical, cultural and socio-economic variables, particular to the countries they work with. They also explained the strategies used to influence important decision makers in the benefit of the most poor and hungry social groups in the Third World.

In terms of education, The British Council spoke about its technical exchange and academic programmes; the CMF, about its joint activities with the Iberoamericana University to hold formal courses and seminars in the field of philanthropy; and the Polar Foundation of Venezuela commented on its wide strategy to strengthen the base of the educational pyramid by offering scholarships at primary, medium, and technical levels.

In regards to financial support, the European Community spoke about supporting both scientific research projects and intervention models; the GTZ mentioned supporting only applicative models; and Funsalud explained its policy of supporting projects according to its set of priorities.

Some of the relevant conclusions were the interest that the Polar and Cavendes Foundations from Venezuela showed in terms of designing and operating joint programmes with other Latin American agencies; Herdez showed a special openness towards supporting projects from the Mexican provinces in order to help young researchers that have difficult gaining access to funding; and the IFPRI showed intellectual generosity in terms of sharing its macro-vision of world tendencies in the food arena with other participants. In general terms we could say that the workshop established the basis for the implementation of joint projects; a network for technical exchange; and the possibility of organizing future donors' meetings in the support of Latinamerican research in health.

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INSIDE THE CITY. AN OVERVIEW OF THE POSTER SESSION

Rainer Gross¹

SEAMEO-TROPMED-GTZ, University of Indonesia.

SUMMARY The aim of the poster session was to review the information currently available on urban nutrition and health in Latin American and to evaluate the expertise of associated working groups. A total of 71 posters from ten countries were presented covering a wide range of innovative topics. Details of the topics covered according to the different target groups within the framework of research and intervention are described.

The contributions were separated into two groups: 1) Description and analysis of nutritional and health situations (n=54) and 2) Description and analysis of nutritional interventions (n=13).

The posters session reflected the fact that both traditional descriptive studies of pre-school children and consumer-oriented surveys dominated nutritional research in urban areas. A great deal of valuable information is now to hand which allows a greater appreciation of the complex nutritional situation currently existing in the urban areas. However, in order to further identify appropriate strategies for nutritional interventions, additional information in the following areas would prove invaluable: new risk groups; longitudinal dynamics of magnitude and causes of malnutrition; effectiveness and efficiency of interventions.

The aim of the Poster session was to review the information currently available on urban nutrition and health in Latin America and to evaluate the expertise of associated working groups. A total of 71 posters from ten countries were presented covering a wide range of innovative topics. Table 1 below details the topics covered according to the different target groups within the framework of research and intervention. Finally, only 67 posters were evaluated: unfortunately, four were considered irrelevant and subsequently eliminated.

The contributions were separated into two groups:

- Description and analysis of nutritional and health situations (n=54).

- Description and analysis of nutritional interventions (n=13).

The majority of presentations focused on a description of the nutritional situation based on cross-sectional surveys.

The largest group studied were pre-school children where the emphasis was on the measurement of anthropometric data and body composition. These studies are particularly influenced by the views of the public health system which are widely accepted as a result of countries studies conducted in rural areas. It is generally accepted that nutritional problems in rural communities appear first in the most vulnerable groups; fast growing pre-school children as well as pregnant and breast-feeding women. However, preschool children may not necessarily be included in the most vulnerable groups within urban households. New risk groups are increasingly acknowledged which is reflected by studies on schoolchildren, labourers, and the elderly (Gross and Monteiro, 1989).

Far less attention was given to women and surprisingly only three posters dealt with breast-feeding. It is widely acknowledged that mothers in the urban environment breast-feed their children for less time than those in rural areas (SchGrch and Favre, 1985).

The second largest group was influenced by food security, describing food consumption at the household level, and often linking food intake to socio-economic data.

Urban nutritional studies increasingly focus attention on non-communicable diseases. The prevalence of obesity in low income households in urban communities reflects the fact that food behaviour may be as important a contributing factor as low income. This leads to the conclusion that, unlike rural areas, unequal distribution rather than lack of resources seems to be more relevant in urban areas. This fact is confirmed by one poster which reported that in Mexico City each household wasted, on average, more than 800 g of food per day. The fact

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TABLE 1
TOPICS COVERED BY POSTERS ACCORDING TO DIFERENT TARGET GROUPS

Situacion analysis	< 5	School	Women	Labor.	Adults	Elder.	All	Total
Food intake	2	2	1	1	-	2	8	16
Micronutrients	2	1	1	-	-	-	1	5
Breastfeeding/bottle	2	-	1	-	-	-	-	3
	8	3	-	-	1	2	-	14
Biochemmical	-	1	-	-	1	-	-	2
Non commun. disease	-	1	-	-	5	2	1	9
Socio-economical	1	1	-	-	-	-	3	5
Subtotal	15	9	3	1	7	6	13	54
Intervention								
Feeding programmes	1	-	-	-	-	-	1	2
Subsidized food	-	-	-	-	-	-	1	1
Nutr./health education	1	-	-	-	-	-	1	2
Feeding programes	1	2	-	-	-	-	-	3
Iron	1	-	-	-	-	-	-	1
Psychological backing	-	-	1	-	-	-	-	1
Family support	1	-	-	-	-	-	-	1
Combination	-	-	-	-	-	1	-	1
Nutrit. surveillance	1	-	-	-	-	-	-	1
Subtotal	6	2	1	-	-	1	3	13
Total	21	11	4	1	7	6	16	67
Target groups:	<5-Pre-school children; school-Schoolchildren; Women-Women in age of motherhood; labor.-Labourers; Adults-Individuals from 18 years on; Elder-Elderly; All-All age groups/all household members							

that the amount of wasted food has increased during the last decade indicates that inequality is increasing rather than decreasing.

About one fifth of the posters dealt with interventions, half of which described intervention programmes and the remaining half reported the impact of such programmes. Pre-school children feature prominently in the intervention part of the Poster session.

It is worth noting that extensive experience has been gained in Chile, where governmental and non-governmental agendas focus on feeding programmes. In the past it was often difficult to reflect the relationship between supplementary feeding and nutritional status. Today, however, it is suggested that supplementary feeding programmes are effective in preventing growth failure, protecting against negative affects of diarrheal diseases on child growth and improving educational performance, in later years (ACC/SCN 1992). Knowledge is also acquired by putting households with malnourished children in touch with those enjoying a healthy nutritional status thereby utilizing positive experiences in the same low income communities. Generally, however, many programmes prefer to channel efforts towards a more holistic intervention strategy.

The posters session reflected the fact that both traditional

descriptive studies of pre-school children and consumer-oriented surveys dominate nutritional research in urban areas. A great deal of valuable information is now to hand which allows a greater appreciation of the complex nutritional situation currently existing in the urban areas. However, in order to further identify appropriate strategies for nutritional interventions, additional information in the following areas would prove invaluable:

- new groups;
- longitudinal dynamics of magnitude and causes of malnutrition;
- effectiveness and efficiency of interventions.

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- 3.-STUDY OF IRON DEFICIENCY IN CHILDREN ATTENDING A HEALTH CENTRE. Lemos Oliveira F.M., Tone L.G. y
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- 7.- FOOD CONSUMPTION OF THE ELDERLY LIVING IN OLD PERSON'S HOME IN MACEIO, ALAGOAS, BRAZIL.
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- 12.- FACTORS INFLUENCING THE IMPACT OF A COMPLEMENTARY FOOD PROGRAM IN URBAN AND RURAL
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- 25.-SOCIO-ECONOMIC AND HEALTH STATUS IN THE ELDERLY LIVING IN PERIURBAN AREAS OF GUATEMALA. Valdez C.J., Rivera A.de, Zepeda E.de, López C.V., Hokell M., Cardona R., Maya J.C., Solomons N. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM), Guatemala, Guatemala.
- 26.-VITAMIN A STATUS IN PREGNANT WOMEN FROM THE METROPOLITAN AREA OF GUATEMALA: INFLUENCE OF CLIMATE, DIET AND HYPERTENSIVE DISEASE. López C.Y., Quán de Serrano J., Portocarrero L., Zepeda E., Vázquez A., Bulux J., Haskell M., Solomons N., Russell R.M., Morrow F.D. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM), Guatemala, Guatemala.
- 27.-FOOD PATTERN OF STUDENTS IN GUATEMALA. Quán de Serrano J., y Portocarrero L. de. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM), Guatemala, Guatemala.

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- 29.-DIETARY INTAKE DURING THE THIRD TRIMESTER OF PREGNANCY IN WOMEN FROM A PERIURBAN COMMUNITY IN GUATEMALA. Portocarrero L. de, Quán de Serrano J., Vázquez A., López Y., Solomons N. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM), Guatemala, Guatemala.
- 30.-CHANGES IN FOOD BEHAVIOUR IN THE PROCESS OF "MICRO-URBANIZATION" BETWEEN PLANTATIONS, VILLAGES AND THE CHIEF TOWN IN A COFFEE GROWING AREA WITHIN GUATEMALA. Saenz de Tejada E. y Mendoza I. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM) Guatemala, Guatemala.
- 31.-BODY COMPOSITION OF ELDERLY GUATEMALANS OF RURAL AND PERIURBAN AREAS. Mendoza I., Vázquez A., Valdéz C., Breuer K., Haskell M., Mazariegos M. Centro de Estudios en Sensoriopatías, Senectud, Impedimentos y Alteraciones Metabólicas (CESSIAM), Guatemala, Guatemala.
- 32.- ETNO-BOTANICAL STUDY OF THE MOST COMMON EDIBLE WILD PLANTS IN THE WESTERN REGION OF HONDURAS. Mejía Ordoñez T.M. Universidad Nacional Autónoma de Honduras. Tegucigalpa, Honduras.
- 33.-INTERACTION BETWEEN LACTATION, MORBIDITY FROM DIARRHOEA AND GROWTH IN A COHORT OF CHILDREN LESS THAN SIX MONTHS. Villalpando H.S., López A.M., Fajardo G.A. Unidad de Investigación Clínica en Nutrición de Servicios de Investigación Médica "Luis Castelazo Ayala", IMSS, México.
- 34.- A LONGITUDINAL STUDY OF NUTRITION AND GROWTH IN A GROUP OF INFANTS IN HERMOSILLO, SONORA, MEXICO. Jiménez G.F., Román P.R. y Grijalva H.I. Centro de investigación y Desarrollo, A.C., Hermosillo, Sonora, México.
- 35.-FOOD CONSUMPTION IN MEXICO CITY ASSESSED BY FOOD WASTE IN THE EIGHTIES. Franco S., Gutierrez A. Centro de Ecodesarrollo, D.F., México.
- 36.-FAMILY STRUCTURE AND NUTRITION IN A VILLAGE IN THE NEIGHBOURHOOD OF XOCHIMIL- CO, MEXICO. Appendini K., Martínez C., Rubalcava R.M., Salles V. y Tarrés M.L. El Colegio de México. México.
- 37.-SUPPORT PROGRAMME FOR THE PROTECTION AND IMPROVEMENT OF HEALTH IN PRESCHOOL CHILDREN. Senties E. Y. Secretaría de Salud (SSA), Dirección General de Atención Materno Infantil. México.
- 38.-RELATIONSHIP BETWEEN URBAN DIET AND HYPERLIPIDAEMIA IN A LOW SOCIO-ECONOMIC LEVEL. Lisci R.E., Aranda G.P., Villalpando C.E.. México.
- 39.-ANTHROPOMETRIC STUDY IN WORKING MINORS. Tapia C.A., Rodríguez C.A.A., Barrera S.F. Facultad de Medicina, Universidad de Guadalajara. México.
- 40.-SOCIO-ECONOMIC CHARACTERISTICS, FOOD HABITS AND HEALTH IN A GROUP OF WORKERS IN MEXICO CITY. Aguirre, A.J. y Escobar P.M. Instituto Nacional de la Nutrición Salvador Zubirán. México.

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- 43.-GASTRIC CANCER AND THE CONSUMPTION OF CHILLI. López Carrillo L. y Hernández Avila M. Instituto Nacional de Salud Pública. México.
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- 50.-NUTRITION AND QUALITY OF LIFE: AN APPROXIMATION TO THE SOCIO-SPATIAL HETEROGENEITY OF A POOR URBAN SECTOR IN THE METROPOLITAN ZONE OF MEXICO CITY. Puente S. El Colegio de México. México.
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- 54.-TELEVISION AND ITS INFLUENCE ON THE FOOD CULTURE IN CHILDREN FROM 6 TO 11 YEARS FROM THE SCHOOL "PRIMERO DE MAYO" IN PERU. Alcántara P.C. y Alfaro P.G. Instituto Peruano de Seguridad Social. Perú.

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- 58.-REPERCUSSIONS OF UNDERNUTRITION IN THE MENTAL HEALTH OF THE PUBLIC. Sánchez B.H.C. Universidad de Guadalajara.
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- 61.-PREVALENCE OF OBESITY AND ITS RELATIONSHIP WITH DIABETES MELLITUS, ARTERIAL HYPERTENSION AND (DISLIPOPROTEINEMIA) IN HEALTH INSTITUTIONS IN URBAN AREAS OF THE PROVINCE OF PANAMA. De Mas M., Sinisterra O., Sugasti M. de, Chen de Santiago L., Atencio de Espinoza A. y Valdéz V. Ministerio de Salud. Panamá.
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TABLE 1
VARIABLE-INDICATOR-MATRIZ(VIM)

No.	Variable	Reference	Indicator	Method	Reference
0	Central variable				
1					
2					
3					
4					
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25					

Effective objectives can only be decided upon if underlying causes of problems to be addressed have been analysed with problem analysis procedure. Problems do not constitute abstract hypotheses but are always stated in the problems experienced by people, social groups or institutions. Before analysing the problem therefore, all affected groups and their interests must be discussed using participation analysis procedures

Next, analysis of objectives indicates potential solutions. The project's are derived from this analysis and, using a planning matrix, are arranged into a coherent, convincing and realistic system of objectives for the project. The project planning matrix produced in this way indicates at 4 different levels (expressed in rows) the purpose of the project, to which overall goal the project is to contribute and what activities and results/outputs are to make this project purpose materialise (1st column of matrix). The different levels on the matrix interlink as a hypothesis, which is to be translated into an actual situation by the project at the activities and results/output levels and which forecasts the anticipated impacts at the objectives levels (project purpose, overall goal).

External influences that increase the risk of problems during implementation are described "important assumptions" (4th column). These demonstrate how dependent a project is on its environment and enable planners to evaluate and reduce the risks which may threaten the success of a project.

Indicators are formed for the objectives and the results/outputs (column 2). These indicators serve to verify, by recourse to the given sources of means/verification (column 3), how far the objectives have been achieved.

The project can be quantitatively analysed and monitored through the indicators and the specification of inputs and costs. The quantitative analysis indicates the extent to which objectives which are to be achieved with the scheduled funding and other inputs. The indicators define the project phases and the sub-objectives to be achieved within given deadlines, and thus allow on going evaluation and monitoring.

ZOPP teamwork produces a recommendation ready for decision-making. The authorities involved can determine the objectives of technical cooperation, estimate the costs and risks entailed and plan in more detail the contributions required by each party. The jointly designed and agreed ZOPP plan must be periodically adjusted and updated in line with experiences made. When applied in this fashion ZOPP is an aid towards a systematic dialogue between the project partners concerning the aim and objective of their cooperation and is the basis for a learning process which develops from analysing joint experiences made.

ZOPP planning analysis are carried out at all stages of

project preparation and project implementation; the duration, intensity and participants in the ZOPP can vary.

At the beginning of a project, which is the stage of formal preliminary commentary and project ZOPP analysis carried out in GTZ by interdisciplinary planning teams. However using the results of the project appraisal stage either operations planning, replanning, or updating the project, ZOPP must be carried out on location together with the project team and other involved, local authorities. It is essential that the planning team be interdisciplinary and also incorporate the main interest groups and the management decision makers. Their participation is not only significant for the planning process but also an indication of commitment to the joint project and thus a precondition for project success.

The number of persons in the planning team and the duration of the ZOPP planning analysis depend on the specific terms of reference for the project and can range from 5 to 30 participants. A ZOPP-workshop can last from 1 day to 2 weeks. Workshops with more participants must be supported by additional moderators. Senior management, i.e. decision makers who motivate staff and are expected to use the results of the potential projects, play a decisive role. Though their appointment schedule may not allow them to participate in the whole ZOPP analysis, they should participate and exercise their management functions at least when interim results are formulated or important strategies or directives are set. The ZOPP results do not limit the decision making competence of authorities in any way, but rather embed their decision in a richer knowledge base so that they can better steer the course of the project, and more precisely assess success or failure.

2. Logical Framework Research Planning.

Logical Framework Research Planning based on the experience of ZOPP. The method is particularly valid for interdisciplinary research since it helps to collect the expertise of a heterogenic group and assemble it into a joint project.

In the first step a causal model is developed with the central variable which describes the core situation mentioned in the hypothesis. The **objective of a causal model**, or frame of thinking model helps to:

- Identify all important variables which contribute to the hypothesis;
- Define the cause-effect relationship of the variables;
- The cause effect relationship can be proven as an
- **If... then...**

The development of the causal model starts with the definition of the core situation which results from the central hypothesis.

The model is then constructed as follows:

- Each team member writes down direct and indirect causes which are related to the central variable and writes it down on a card.
- Each direct cause (Variable) which could lead the core situation is identified and written down in a card by each team member. Each card is pinned below the card containing the core situation if the team agrees. Redundant cards will be eliminated.
- Each card should be consecutively numbered for later identification. The variable is always number 0.
- In the next step the cards should be reordered on the board according to their cause effect-relationship. Relationship should be manifested by connecting the cards with lines

At the end of the exercise a hierarchical model has been developed which contains all coreproblem-related variables. An example of a causal model is included on the next page.

In a second step a Variable-Indicator-Matrix is established with the team. The objective of the development of a Variable-Indicator-Matrix (VIM) is to:

- Identify whether a cause-effect relationship is hypothetical or has been proven;
- relate every variable of the causal model to at least one indicator;
- describe the methodology by which the indicator will be surveyed.

In the first column the number of each variable is noted the number reflects the effect relationship of the variable mentioned on the card with the cause on the card above it.

In the second column to the VIM each variable of the causal model is listed and identified by box number. (Due to the hierarchical nature of the box numbering, the numbers will not be consecutive.)

In the third columns the literature source which confirms that variable is a cause of the core situation is cited. If no literature source can be found an H for a hypothetical cause-effect relationship is entered. In the case of the central variable the first row of the third column cannot be filled in. A causal model with many hypothetical cause effect relationship indicates a very uncertain frame of thinking which makes the outcome of the research work very unpredictable and planning more complex.

In the fourth column, indicators of variables are specified. Each variable should be related to at least one indicator which defines precisely the variable (e.g. variable nutri-

tional status indicator. Z-score of weight/height index according to the NCHS reference population) the indicators should be selected according to the following criteria:

- relevance
- reliability
- appropriateness.

In the fifth column the method of measuring each indicator is listed. The methods should be selected according to the following criteria:

- reliability
- sensitivity
- specificity
- feasibility

In the sixth column a literature reference for the validation of each method should be cited, if the method has not been validated, this must be done before a major portion of the research project can be undertaken..

The number of the card and the variable can be filled in according to the causal model. Each additional suggestion should be written on the cards, discussed by the group and the consensus reached and integrated into the matrix.

Once the variables have been identified and the indicators have been defined, the third step is the definition of the study design. The most common types of designs of the studies are:

- Experimental studies
 - Clinical Assays
 - Community Assays
- Observational studies
 - Retrospective studies (case studies)
 - Prospective studies (cohort prospective studies)
 - Transverse studies

The criteria for selecting the most appropriate design should be noted, including its advantages or disadvantages. Special attention should be paid to the possible confounding factors related to the selected study design.

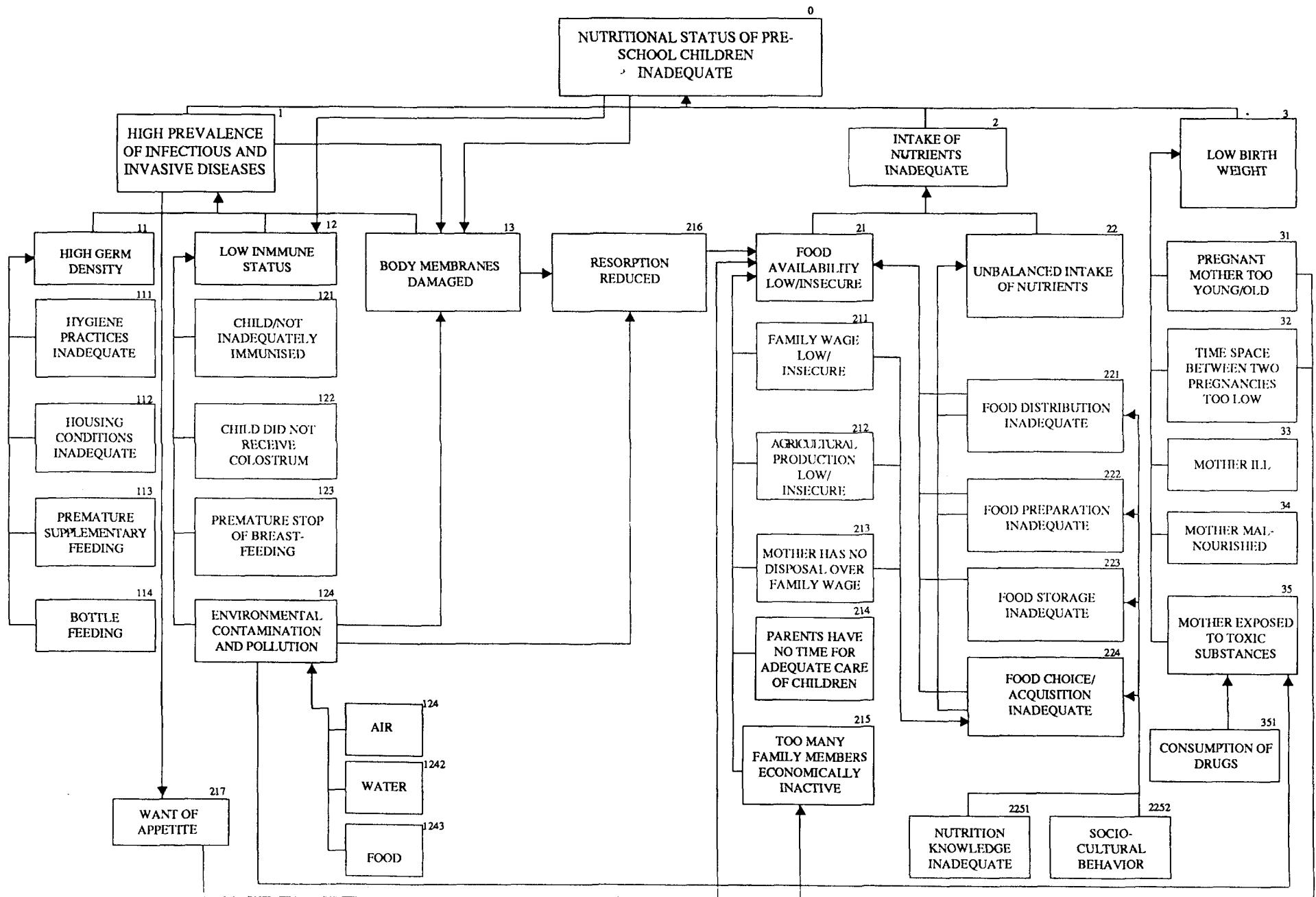
Once the design has reached the fourth stage, the population or the individuals involved in the study should be described.

In the fifth stage the procedure for defining the size of the sample and the method of sampling should be established.

And finally, for the sixth stage the statistical analysis should be selected.

In the next section the results of the work carried out during the workshop using the Zopp methods both in intervention and research projects will be shown.

CAUSAL TREE



WORKING GROUPS REPORTS

WORKSHOP

GROUP 1: EDUCATION AND COMMUNICATION IN NUTRITION IN URBAN AREAS

(Intervention project)

Coordinator:	Eleazar Lara	Venezuela
Secretary:	Nelda Marcilla de Parada	Argentina
	Rubén Puentes	Chile
Relator:	Bruno Benavides	Peru
Participants:	Carmen Alcántara	Peru
	Guido Arnal	Venezuela
	María Isabel Olimpia Carrión	Mexico
	Durán	Mexico
	Lilliana C. Guevara Cárdenas	Costa Rica
	Sandra Murillo	Costa Rica
	Consuelo Isabel Novello Brindis	Mexico
	Yvette Nuñez	Mexico
	Ernesto Padilla	Mexico
	Genoveva Pérez Bravo	Mexico
	Norma Ramos Ibañez	Mexico
	Lorena del Carmen Ruiz Jiménez	Mexico
	Yolanda Sandoval	Mexico
	Ma. Guadalupe Vega López	Mexico

INTRODUCTION

The subject "Education and communication in nutrition for families in urban areas", was the cause of great interest among participants at the Second Latin American Workshop on Nutrition and Health in Urban Areas, held from the second to the sixth of March 1992 in Mexico City. This was reflected in the number of participants in this working group as well as in the active discussion of the subject.

Undoubtedly, this reflects to a large degree, the interest of those attending the Workshop in increasing the quality and/or quantity of interventions in this area and motivates their professional activity. In general terms, the group worked following a similar methodology to that of the other groups, first defining the basic problem and then its causes, drawing up a causal tree.

However, it should be mentioned that the etiological factors have been studied and interact so the methodology was used, mainly, to emphasise or put the causes into an order of priority and, therefore, to later develop a general project studying this multicausality as completely as possible.

Once the causes and their determinants were defined, the interactions between the points were analysed. To do this, a general aim and other specific aims were identified, proposing indicators to evaluate compliance with the aims identified.

RESULTS OF THE DISCUSSION

As shown by the causal tree, the problem was examined from the viewpoint of "unsuitable food practices among urban families" and, in particular, those of low socioeconomic strata.

With family, social and institutional stratification, the direct causes of the problem are:

1. Unsuitable food habits and customs and taboos that, in turn, are negatively affected by transculturation, a lack of appreciation of need for adequate traditional knowledge and unsuitable food changes caused by imitation and social pressure and also by a lack of professional guidance in nutrition.
 2. A lack of knowledge in nutrition thanks to a lack of information in the media, poor interpretation of messages received, errors in formal, and non-formal educational preparation of families and inadequate participation of professionals and the community itself.
 3. The shortage of food in the urban family group.
 4. The unsuitable handling of available family resources which is also influenced by educational and information factors.
- The direct causes on an institutional level are:

WORKSHOP

- a). Qualitative and quantitative unsuitabilities in nutritional intervention which need suitable rules and supervision.
- b). A lack or insufficiency of hygiene and health services in urban areas that often prevents the use of suitable food practices.

Also, industrial growth removed from nutritional reality, often with no competent professional participation, acts on different social and family levels.

The insufficient emphasis on food-nutritional training of health professionals and the lack of community leaders setting

up self-management food and nutrition systems is noted.

AIMS OF THE PROGRAM

The general and specific aims were established as well as the indicators that would allow their compliance to be evaluated. The latter only for 4 of the specific objectives and only generally.

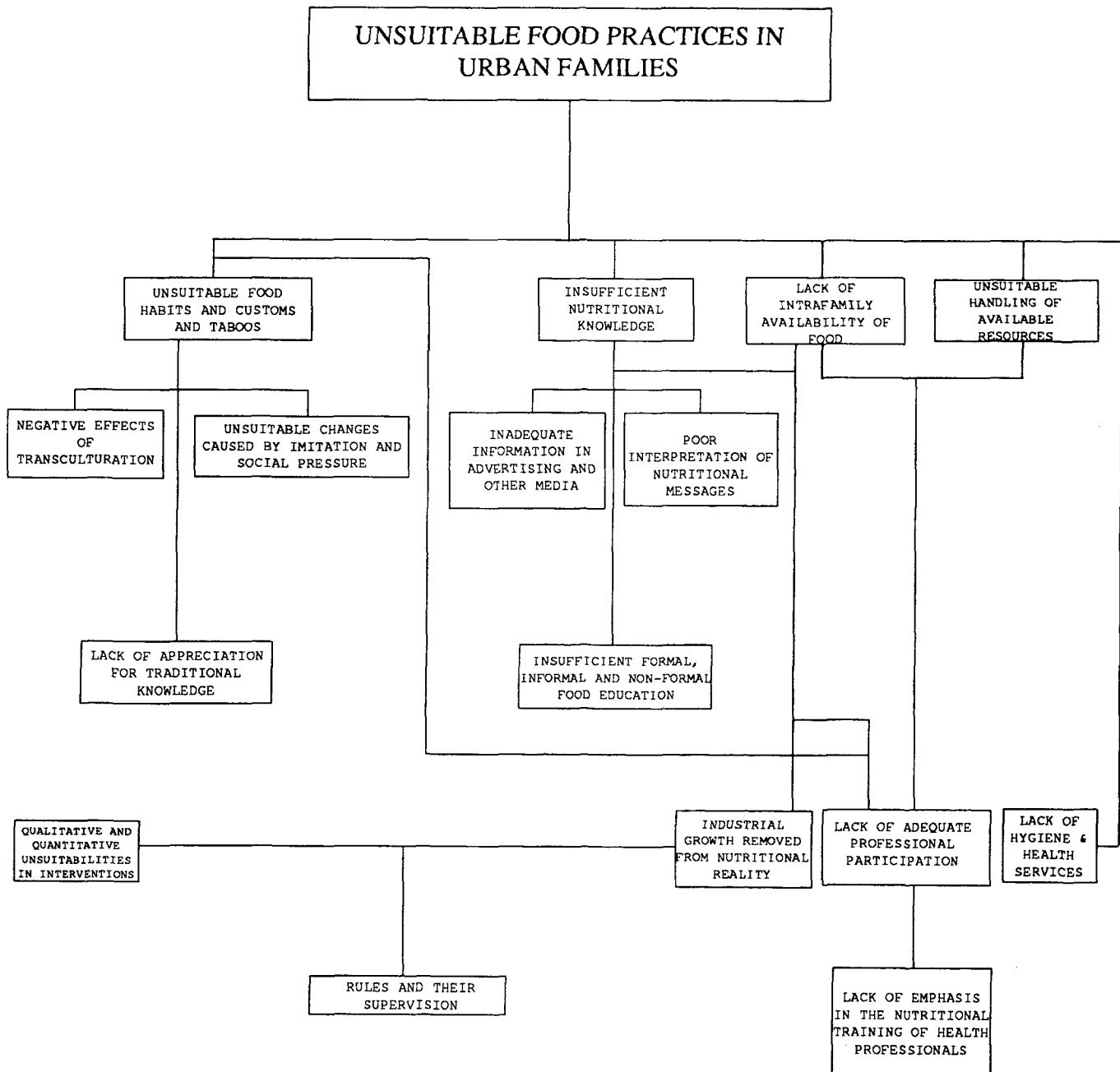
This is made fully clear in the Project Planning Matrix.

Project Planning Matrix

General aim	To improve food practices considering the biological, sociocultural, economic and ecological conditions of urban families					
Specific aims	To improve food habits and customs	To improve knowledge of nutrition in the urban family	To improve the intrafamily availability of food	To improve the handling of available resources	To improve hygiene and health infrastructure	To improve food and hygiene interventions
Proposed general indicators	Nutritional value = $\frac{\text{consumption of high value foods}}{\text{consumption of low value foods}}$ of diet index Increase in availability of nutrients in diet Reduction in gastrointestinal infection	Percentage distribution of families aware of nutritional value of foods Percentage of families properly interpreting advertising Proportion of food advertising with true content Proportion of educational content on food and nutrition in school	Proportion of families with access to basic food basket Degree of satisfaction of basic basket for families Proportion of family economic income spent on food	Efficient use of available resources		

WORKSHOP

CAUSAL TREE



WORKSHOP

GROUP 2: HEART DISEASE RISK FACTOR RATES IN URBAN AREAS

(Research Project)

Coordinator:	Eduardo Atalah	Chile
Secretary:	Wanda Vidal	Chile
Relator:	Consuelo Velázquez	Mexico
Participants:	Laura Clavijo	Peru
	América de Fernández	Guatemala
	Susana Franco	Mexico
	Guillermo González	Mexico
	Enrique Jacoby	Peru
	Francisco Jiménez	Mexico
	Jorge Risquéz	Venezuela
	Adaluz Rivas	Mexico
	Mary Santos	Colombia
	Enrique Villalpando	Mexico

Project Planning Matrix

Factors	Indicators	Methodology
Heart disease	Heart attack mortality	Analysis of death certificates
Obesity	Anthropometry BMI-WT/HT	Standardised anthropometry studies
Hypertension	Systolic-diastolic pressure>149/90 mmHg	Direct measurement according to WHO
Hyperlipidemia	Plasma-cholesterol and triglyceride fraction measurement	Biochemical analysis
Smoking	Average cigarette consumption	Survey
Hereditary factors	Family history	Survey
Stress	1-2-3 degrees stress levels	Freedom Scale Survey
Sedentary lifestyle	Light-moderate-heavy -very heavy activity	Record of daily activity
Consumption of unsuitable foods	% calories -% fats saturated-unsaturated fats	Semiquantified survey of previous 24 hrs and consumption frequency
Food knowledge	Bad, average, good	Structured questionnaire, knowledge, skills and practices
Socioeconomic factors	High, low social group	Socioeconomic survey

WORKSHOP

GROUP 2

Design of the study:

Descriptive transversal study

Sample: >14 years of age belonging to high and low social strata in urban areas.

Statistical Analysis:

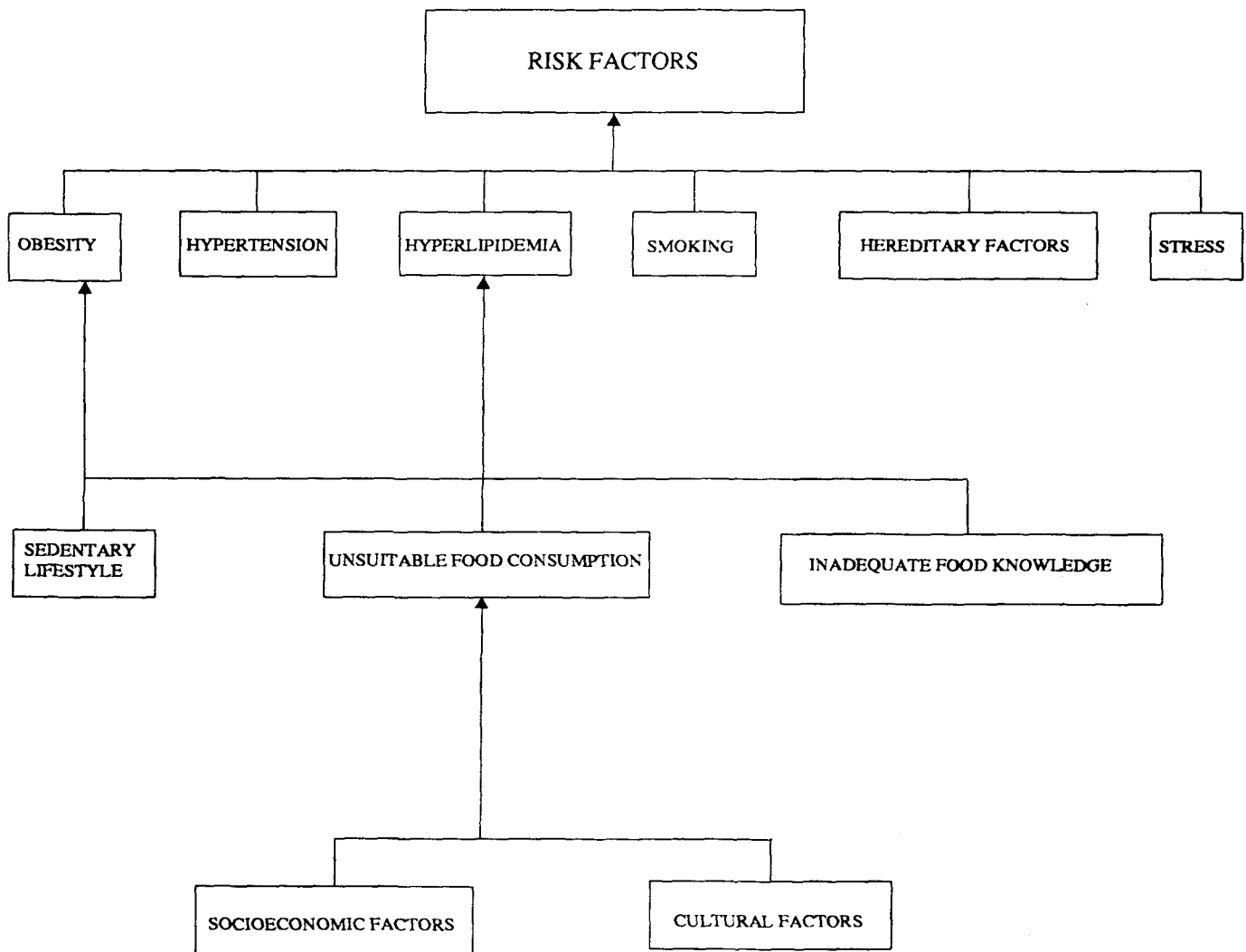
Descriptive, central dispersion trend measurement, rates.
Stratifying sex-age and socioeconomic state of each variable.

Analytic: chi association test

Variables: Discrete and continuous

Suggestions: Carry out a multicentre study applied in different countries with the same methodology.

CAUSAL TREE



WORKSHOP

GROUP 3: URBAN AGRICULTURE PROJECT

(Intervention Project)

Coordinator:	Florence Egal	France
Relator:	Sandra Murillo	Costa Rica
Participants:	Victoria Alvarado	Honduras
	María Elena Arita	Guatemala
	Marta Avilés	Mexico
	Graciela González	Chile
	Paul Lunven	France
	Thelma Mejía	Honduras
	Bety Roldan	Chile
	José Luis Zavala	Mexico

INTRODUCTION

One of the greatest problems faced by major cities is migration from rural areas, leading to settlements in marginal urban areas where improving accessibility to food is a priority due to the poverty in which people live. In addition, there is low availability and accessibility of suitable food making it necessary to find ways of improving this diet but also of increasing income, without neglecting duties nor leaving the home thus aiding in integrating women into an actively productive home economy. This leads us to believe that encouraging urban agriculture could be an alternative.

Integrating or strengthening the community is important to be able to obtain high production and commercialisation rates.

We are interested in the increase in the poverty of marginal urban areas. We are a group with no knowledge of the subject and its application but are interested in setting up a project.

Our aim is "to improve access to an appropriate diet" and we identified three main areas:

- To improve family income
- To encourage home-grown consumption
- Nutritional education

To do this the community where the feasibility study will be carried out must be identified. Here, basic infrastructure, available resources, land, water and legal land use aspects will all be considered. Once accepted, the project would proceed to train people in production, marketing and transformation. This will allow family income, home-grown consumption and nutritional knowledge levels to be improved. The matrix is drawn up explaining the results obtained, measurable or verifiable indicators, the source of information and the important assumptions.

Results:

There was much discussion as to which measurement to use and agreement was reached on establishing how income im-

proves by buying two basic food baskets, the basis for commercial activity, improving home-grown consumption through quantity.

Another result is the acquisition of diet and nutrition knowledge. Establishing indicators led to discussion in view of the number of variables, but it was defined as increasing the acquisition of food modifying diet.

Why urban agriculture?

We did not begin with a problem tree because a previous study was carried out.

The diet of poor people can be improved by increasing their income, homegrown consumption and nutritional education. We worked thinking of urban agriculture as a way of improving access to food and improving living standards.

Why is it necessary to define the indicators?

One of the reasons for formulating the indicators is to facilitate quantification, thereby allowing correct evaluation.

What does the diversification of food consumption patterns mean?

This is very vague and cannot be quantified.

Segal: What is evaluated depends on the food problem (by previously chosen production).

Lunven: Better access to urban diet can be measured by adding variety, consuming the food produced even if the product was not previously eaten but is now part of the diet.

Anachaga: Must the project be aimed at women?

Sandra: Yes, it is aimed basically at women.

There must be a knowledge of agriculture.

Does it need much space?

No. Hydroponics, organic agriculture can be used.

- Backyard agriculture survives in Mexico but it is small -and scorned by big business- but this is because there has been no technical assistance and the benefits have not been shown.

WORKSHOP

- A project is being carried out in Mexico called the magic carpet in collaboration with the UNAM in semi-urban areas in spaces of 1m².
- Low purchasing power prevents proper access.

Conclusions

Urban agriculture in Latin America can have an attractive economic focus allowing for success and making home-grown consumption of secondary importance which is why the aim was to improve access to food and not the quantity, inasmuch as improving a group or family's income allows for the purchase of different goods and complements the diet. Thus the diversi-

fication of food consumption is achieved that would improve the quality of the diet while the program is aimed at mothers, bearing in mind that they are home more of the time, are not productive and this would integrate them into an active family economy without leaving the home allowing for another income in addition to the husband's. All this together would permit:

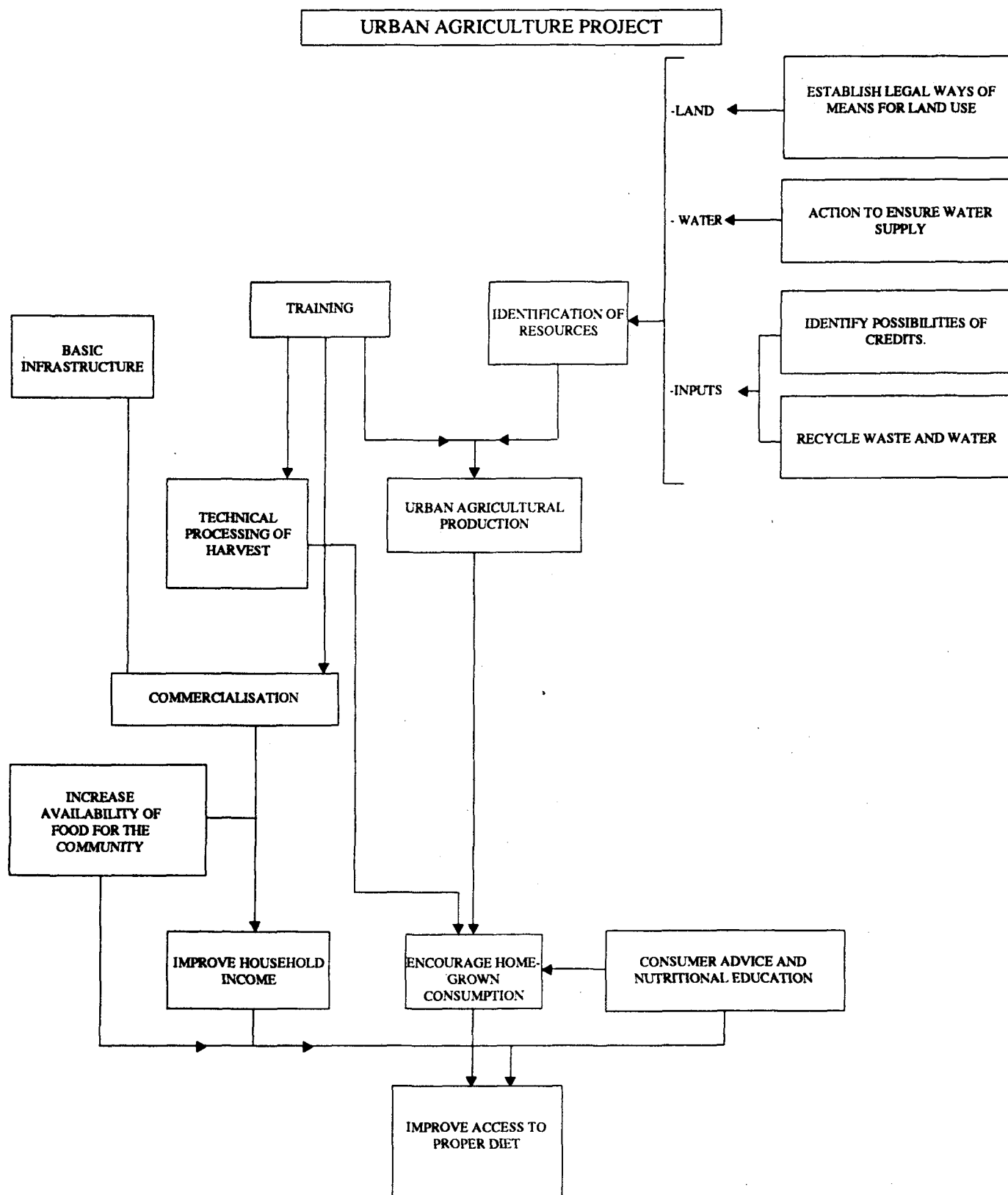
- 1) An improvement in a proper diet.
- 2) Increased family income.
- 3) An improved quality of life.

Urban Agruculture Project

Project aim	Verifiable indicator	Information source	Urban Agriculture Project Important assumption
Improve access to a proper diet in the project's urban marginal community	Frequency of consumption of food, evaluating the diversification of the community's food consumption patterns	Periodic survey of frequency of initial, intermediate and final consumption	Community accepting cost included in the project
Ability of the product to improve the income of the project community	-Increase of the incomes of the households of the project to enable the acquisition of two basic baskets	Periodic income survey Record of commercial activities	Use of methodology existing in the country to evaluate income
To encourage home-grown consumption	-Change in the frequency of consumption -Amount available for home-grown consumption	Periodic income survey Record of production	Use of methodology existing in the country
Food nutritional knowledge acquisition	Acquired knowledge incorporated into diet	Initial and final knowledge survey Frequency survey	
Production training	Quantity produced No. of workshops participating	Record of production Report of activities	Normal weather condition, land use, credit accessibility, instructor
Commercialisation training	Quantity sold	Sales record	Sales market
Training in post-harvest techniques	Quantity processed	Production record	
Strengthening of common activity	Existence of active groups Existence of coordination group activities	Report on project activities	

WORKSHOP

CAUSAL TREE



WORKSHOP

Project Planning Matrix GROUP 4: DEVELOPMENT AND VALIDATION OF EDUCATIONAL METHODS TO IMPROVE THE NUTRITIONAL CONDITION OF URBAN POPULATIONS

(Research Project)

Coordinators:	José Romero K	Mexico
	Claudia P. Sánchez-Castillo	Mexico
Secretary:	Eugenia Saens de Tejada	Guatemala
Relator:	Francisco Javier Valadez Toscano	Mexico
Participants:	Judith Aguirre Arenas	Mexico
	Margarita Escobar Pérez	Mexico
	Laura Buen Abad de Zamora	Mexico
	Silvia Sandoval Rodríguez	Mexico
	E. Violeta Rivera Gallardo	Mexico
	Ma. Elsa López Reyes	Mexico
	William Atehortúa Puerta	Colombia

Mexico Boris Graizbord

PROBLEM

OBESITY IN WOMEN OF FERTILE AGE (15-40) IN MARGINAL URBAN AREAS

GENERAL AIM:

To design an educational strategy to reduce the problem of obesity in women from 15 to 40 years of age in marginal urban areas.

SPECIFIC AIMS:

- To research the socioeconomic and cultural factors that

determine the food habits of the target population.

- To research their biological situation.
- To prepare a package of psychological and nutritional recommendations to be implemented.
- To design a social marketing strategy to launch experimental nutritional education campaigns through the mass media.
- To design parallel educational projects to be implemented in schools and kindergartens, as a pilot scheme.

TARGET POPULATION:

Obese women of fertile age (15 to 40) in marginal urban areas.

DESIGN:

- Size and selection of the sample.
- Statistical model.

WORKSHOP

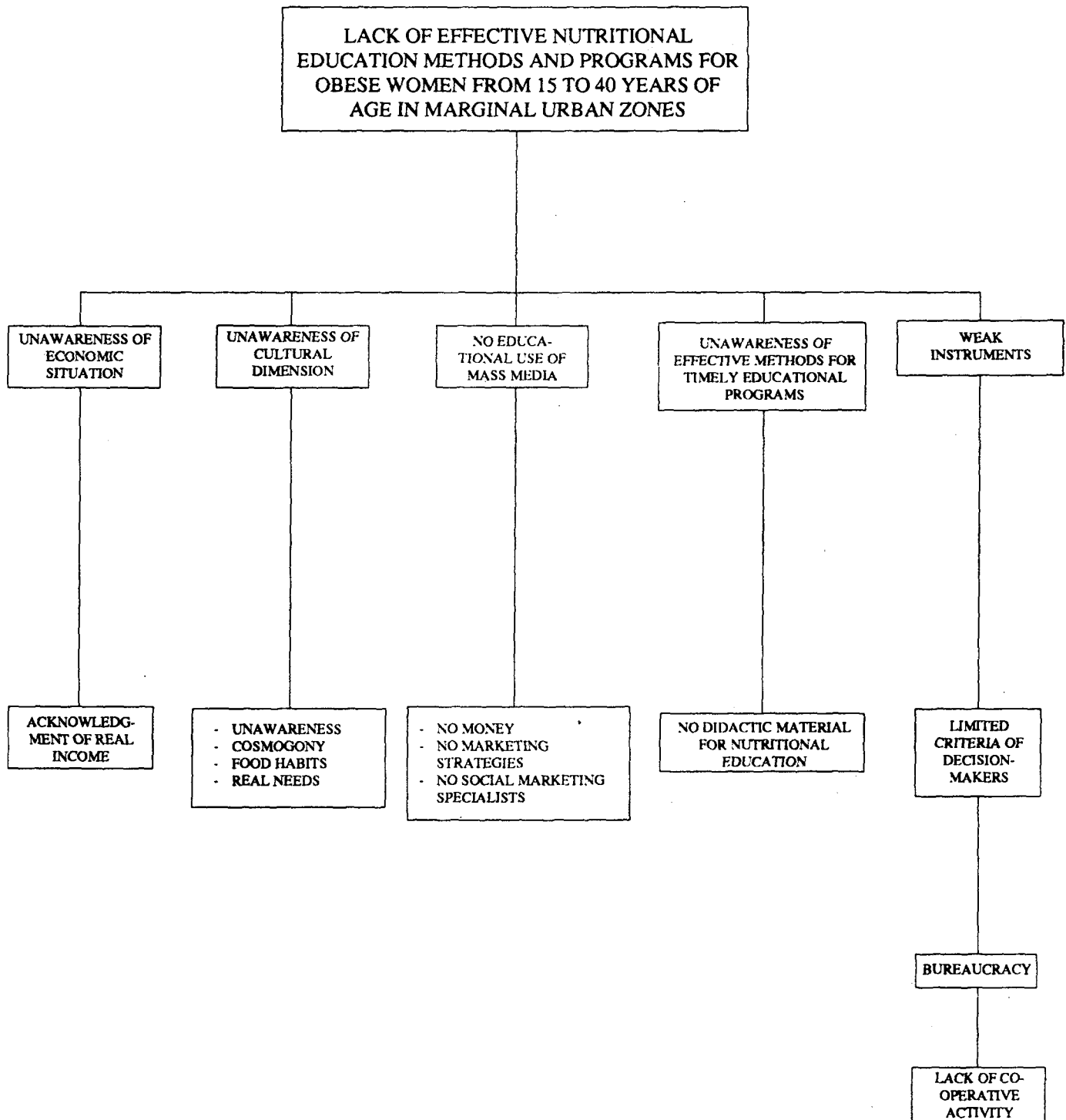
PROBLEMS	CAUSES
1. Methods have been used that are unsuited to the sociocultural, linguistic and economic reality of the target population 2. The educational needs of the target population have not been used as a base (together with) 3. The real causes of the obesity problem are unknown 4. Didactic methods to sensitise women of fertile age are unknown 5. Efficient ways of reaching the aim have not been found 6. Poor implementation of educational methodologies 7. Lack of awareness of the real impact of the mass media 8. Rejection of educational methodologies by w.f.a. 9. Limited criteria of decision-makers	- Importance is not given to socio-educational and cultural research - The educational level of w.f.a. is not considered - Dialogue has not been achieved between nutritional and social scientists - Lack of co-participative attitude (they believe people) - Lack of research into the matter (other priorities are established) - Bibliographic material is limited - Lack of methodological research - Lack of knowledge of the methodologies due to a lack of communication - Use of non-participative method - Lack of evaluation of previous problems - Lack of evaluation - Lack of research - The importance of these media for nutritional guidance and education has not been established - Access to T.V. media is denied due to disparate interests - Use of technical language - Lack of continuity in educational projects because these are not attempted as part of the daily activities of the target population - The educational level of the w.f.a. is not considered - Lack of evaluation of previous problems - Narrow criteria due to lack of knowledge of new methodologies - Lack of knowledge - Institutional, personal, ideological and "feudal" interests

WORKSHOP

VARIABLES	INDICATORS	METHODS
1. Socioeconomic.	Income Education Access to food.	Socioeconomic survey
2. Cultural	Food habits (consumption-attitude) Cosmogony Time living in the marginal urban environment	Observation of the participant Dietetic survey
3. Anthropometry	Skin fold Body mass index	Anthropometry: -evaluation every 6 months -skinfold measurement -weight/height
4. Linguistic	Regional idioms Mother tongue	Directed interview Pilot test
5. "Real" educational needs	Own expectations Rejection	Bibliographical review Review of existing didactic material
6. Didactic methods	- Good didactic material - Good audiovisual material - Cost effectiveness (validation) - Easily evaluated	Review of existing educational projects
7. Design of implementation	- Continuity - Permanent contact with leaders - Satisfaction of expectations - No. and characteristics of agents involved. - Community participation	Design and application of a survey
8. Impact of mass media	- Time of exposure to mass media - No. of w.f.a. listening - Total no. of w.f.a - Messages maintained type of mass media used by target population - Type of messages used in advertising inciting excessive consumption and "consumer modernness"	
9. Characteristics of decision-makers	- Feudal interests - Bureaucratic attitude - Designated budget	Organizational analysis Interview of researchers and bureaucrats

WORKSHOP

CAUSAL TREE



WORKSHOP

Project Planning Matrix GROUP 5: CONDITIONING FACTORS OF THE NUTRITIONAL CONDITION OF PERSONS OF 60 YEARS OF AGE AND MORE

(Research project)

Coordinator:	Helio Vannucchi	Brasil
Secretary and Relator:	Xinia Elena Fernández	Costa Rica
Participants:	Elvia D. Arias Merino	Mexico
	Lucia Carriaga	Chile
	Ma. Elena Elias Martínez	Mexico
	Ali Halhali	Mexico
	Adriana Laclé	Costa Rica
	Iván Mendoza	Guatemala
	Zazil Olivares	Mexico
	Emma Wittig de Penna	Chile
	Esperanza Silva del Valle	Mexico
	Carlos Javier Valdéz	Guatemala

CONDITIONING FACTORS OF POOR NUTRITION IN PERSONS OF 60 YEARS OF AGE AND MORE IN URBAN AREAS

GENERAL AIM:

To identify the conditioning factors of poor nutrition in persons of 60 years of age and more in urban areas.

SPECIFIC AIMS:

1. To determine the economic, social and biological conditioning factors of poor diet in this population group.
2. To determine the conditioning factors for incorrect nutritional use in this group of the population.
3. To identify the interactions between the conditioning factors of poor diet.

METHODOLOGY:

DESIGN:

A multicentric transversal study will be carried out which will identify the association between biological, economic and social variables with poor diet and poor biological use of nutrients in subjects ≥60 years of age.

POPULATION:

Persons of 60 years of age and more

Not institutionalized

Living in urban areas of the following countries.

Brasil
Costa Rica
Chile
Guatemala
Mexico

SIZE AND SELECTION OF THE SAMPLE:

The calculation of the sample size will be made to estimate population parameters, considering as a whole the population of 60 years of age or more in each country. The poor diet rate shall be taken to be the highest value either resulting from undereating or overeating, based on previous information in each country determined by way of pilot studies. A 5% error in the estimate will be accepted.

The sample will be chosen by means of a probability sampling by conglomerates, adjusted for sex and age. Foreigners, chronic bedridden and terminal patients will be excluded from the sample.

STATISTICAL ANALYSIS

Descriptive statistics will be used for the dependent and independent variables. The associations between dependent and independent variables will be measured by regression analysis and correlation in the case of continuous quantitative variables. In the variables that are discrete or that do not comply with the requirements for parametric tests, non parametric statistics will be used. Categorical variables will use chi-squared and relative and attributable risk estimation.

WORKSHOP

Project Planning Matrix DEFINITION AND OPERATIONALIZATION OF VARIABLES:

Variables	Indicators	Methods
A) DEPENDENT VARIABLES:		
Poor food ingestion	- % of recommended allowance	Usual diet
	- No. of main meals/day	
	- Percentage contribution of macronutrients to energy intake	24 hr survey
	- Percentage contribution of food groups to energy intake	Frequency of consumption (7 days)
	- Amount of food consumed/day	Direct weight of food
	Biochemical indices	
	- Lipid profile	
	- Glycaemia	
	- Proteins (g/day)	
	- Haematological	
	- Vitamins and minerals	
Poor biological use of nutrients.	Parasitological analysis	Specific laboratory methods for each analysis
	BMI (Quetelet)	Idem
	AMA-AFA	
	Waist-Hip ratio	Anthropometry
	Signs and symptoms of deficiency or excess of nutrients	
	Balance studies (sub-samples)	Clinical evaluation
		Metabolic studies

WORKSHOP

Project Planning Matrix (continued)

Variables	Indicators	Method
B) INDEPENDENT VARIABLES: POOR FOOD INGESTION		
Production and storage	Pending definition	Questionnaire
Availability	No. and type of markets	Questionnaire
Purchasing power	- Per capita income - % of income spent on food - Food price - Basic basket	
Socioeconomic condition	- Housing and basic services	Questionnaire
Stomach alterations	- Cpo index; use and kind of prosthesis - Chewing and swallowing problems	Oral examination and questionnaire
Digestive alterations	Signs, symptoms and specific tests	Clinical examination and questionnaire
Chronic diseases	Presence of disease	Idem
Use of medication	Use, type and frequency	Questionnaire
Osteomuscular alterations	Daily life activities	Questionnaire and direct observation
Physical activity	Physical activity patterns	Questionnaire
Sensoriopathy	Evaluation of sensory accuracy	Specific tests
Mental health	Cognitive ability and degree of depression	Specific tests
Addictions	Amount, type/day	Questionnaire
Alcohol	Frequency	
Tobacco	Duration	
Drugs		
Education	Number of years of study	Questionnaire
Social participation	Participation in organized groups.	Questionnaire
	Frequency	
	Contacts with: Relatives Friends Neighbours	
Family structure	Number of and relation to family members Relation to head of household	Questionnaire
Habits and beliefs	Dietary knowledge, attitudes and practices	Anthropological interview
Work	Working condition Self employed Salaried employment Pensioned or rent Housework	Questionnaire
Retirement or pension	Yes/no Type of pension	Questionnaire

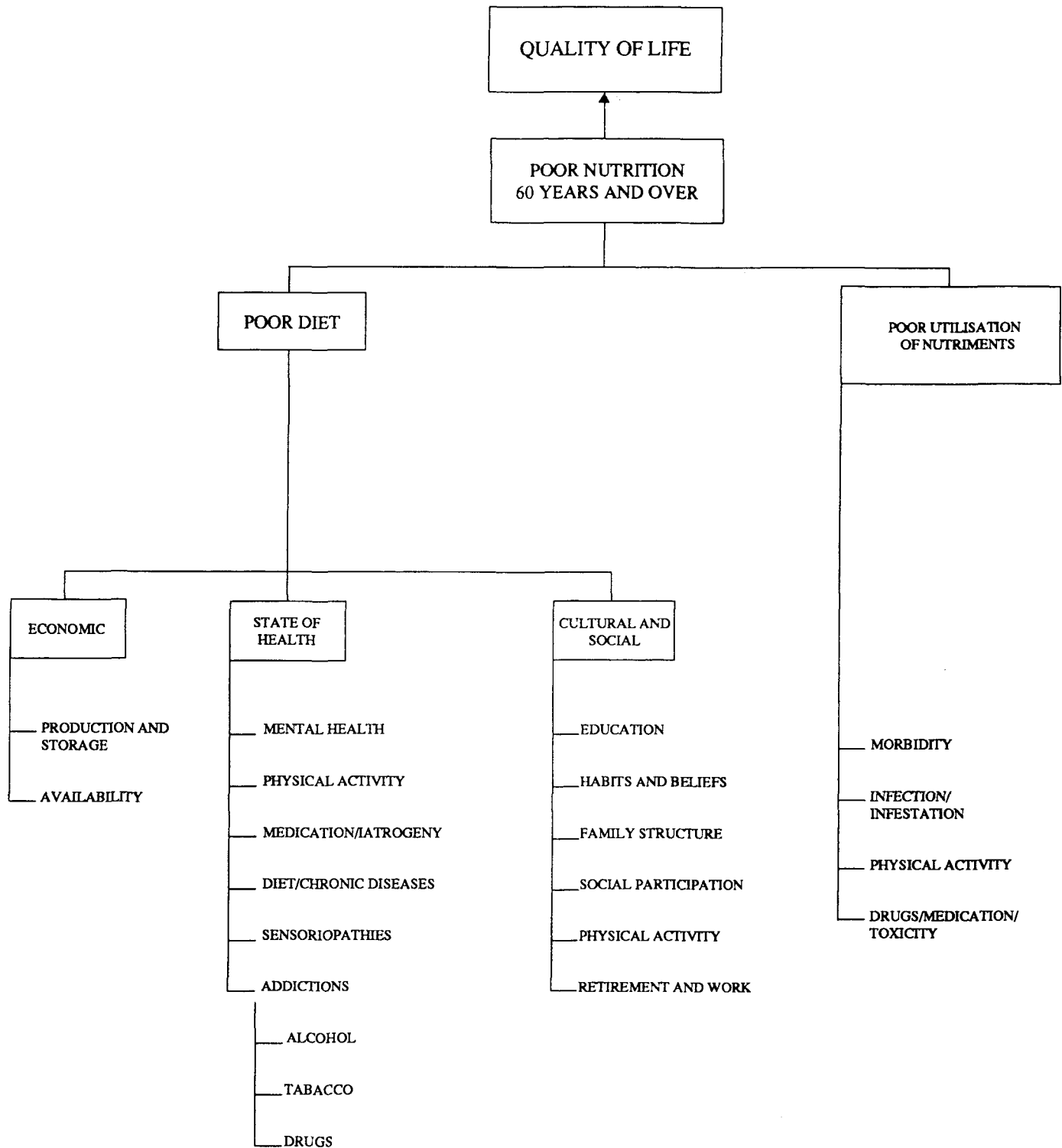
WORKSHOP

Project Planning Matrix (continued)

INDEPENDENT VARIABLES: POOR BIOLOGICAL USE OF NUTRIENTS

Variables	Indicators	Methods
Digestive alterations	Signs, symptoms and specific tests	Clinical evaluation
Chronic diseases	Presence of disease	Idem
Use of medication	Use, type and frequency	Questionnaire
Physical activity	Physical activity patterns	Questionnaire
Infection and infestation	Presence, type and duration	Clinical history

CAUSAL TREE



WORKSHOP

GROUP 6: RURAL EXODUS: CHANGES IN FOOD PATTERNS

(Research project)

Coordinator:	Noel W. Solomons	Guatemala/USA
Secretary:	Gabriel Saucedo	Mexico
Relator:	Lilian Puertocarrero	Guatemala
Participants:	Marcela Aguayo	Chile
	Kidist Asrat	USA
	Gaby Egusquiza	Peru
	Carmen Yolanda López	Guatemala
	Patricia Palacios	Mexico
	Juan Rivera	Guatemala
	Jenny Roldán	Peru
	Argelia Salinas Ontiveros	Mexico
	Julieta Aréchiga	Mexico

OBJECTIVES

- 3.1 To identify the factors determining food patterns in a group of migrants from the countryside to the city.
- 3.2 To establish the relationship between food patterns and factors relating to origin, duration of stay and age at migration.
- 3.3 To identify in patterns, known "Risk Factors" for nutrition and pathologies caused by excess-shortage.

HYPOTHESIS

The migration of people from rural to urban areas changes their food patterns and has an effect on their health conditions. These changes vary in accordance with factors relating to origin, duration of stay and age at migration.

GENERAL SUMMARY

In the phenomenon of countryside-city migration and its relationship with food patterns, the following main factors were detected:

ON MIGRATION

1. Patterns of migration
2. Years of urban residence
3. Age at migration

ON FOOD

1. Ingestion of nutrients and their suitability
2. Main source of nutrients
3. Diversity of foods
4. Most consumed food

5. Source of food
6. Ratio of industrialised to non-industrialised foods.

THE STUDY OF THESE FACTORS WILL ALLOW

- a) The identification of factors that determine food patterns in a migrant group.
- b) The establishment of the relationship between food patterns and origin, duration of stay and age at migration factors.
- c) The identification of known risk patterns factors for nutrition and pathologies caused by excess-shortage.

THE STRATEGIC METHOD TO OBTAIN THE NECESSARY INFORMATION IS

1. Direct observation
2. Food census
3. Structured questionnaire

THE DESIGN OF THE STUDY WILL BE

1. Epidemiological, comparative transversal, observational

THE STATISTICAL ANALYSIS

- a) Study unit **THE FAMILY**
- b) Descriptive analysis
- c) Chi-squared test for variables with a non-normal distribution.
- d) ANOVA test for variables showing a normal distribution.
- e) Logistic regression to adjust and control confounding variables.

WORKSHOP

1. Transversal, type:

A. Comparative

B. Observational

2. The population to be studied:

A. Migrants (urban-city) from rural areas, from country X to peri-urban city communities.

3. Sampling:

A. Directed

B. Stratified

- We will look for migrant families from three regions:

1. Desert: Caucasian or mixed-race

2. Sierra: Indian

3. Coast: negro or Caribbean

Stratified by:

1. Time in urban area

2. Origin

Stay: ≤ 1 year ≥ 10 years

SAMPLE SIZE

	Desert	Sierra	Coast
$\leq 1a$	100	100	100
$\leq 1a$	100	100	100

N = 600

STATISTICAL METHODS

1. The unit of analysis is the family

2. Descriptive statistics

a. Years of residence in the urban area

b. By place of origin

3. X^2 (chi-squared) multiple ("3" x "2") for variables with a normal distribution.

4. ANOVA for variables showing normal distribution.

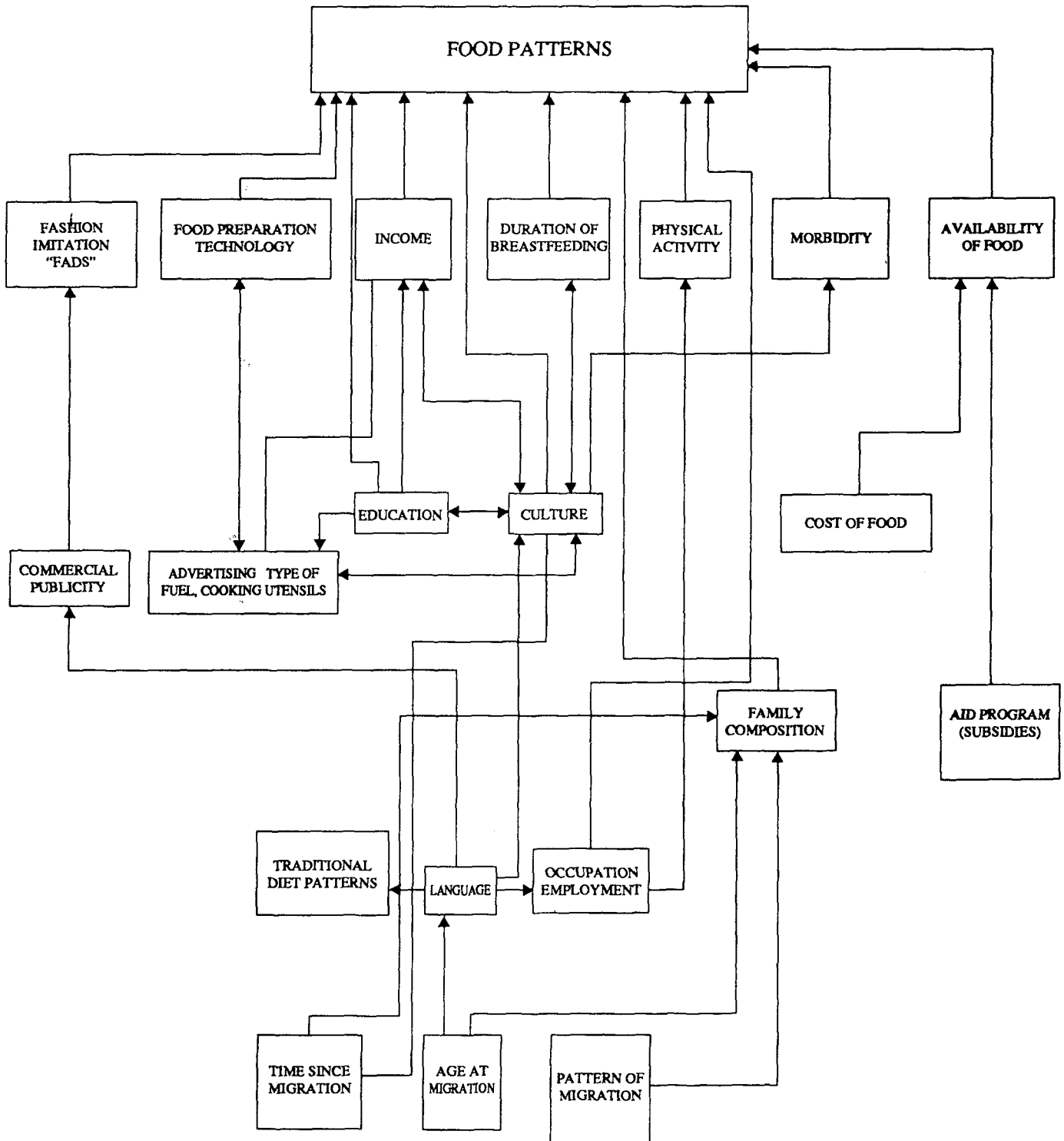
5. Logistic regression for adjustment and controls.

WORKSHOP

Variable	Method	Index/Indicator
Food patterns	Quantitative 24 hrs record Frequency of consumption	- Intake of nutrients and their suitability - Ratio of industrialised food - Origin of food (bought, present, grown, barter) - No. of meals a day - Main sources of nutrients - Most consumed foods
Migration patterns	Structured questionnaire	- Family structure on migration - Ethnic group - Place of origin
Duration of stay	Structured questionnaire	- Time (months) for each member of current family
Age at migration	Structured questionnaire	- Chronological age of person on leaving place of origin - Percentage of life in urban residence (time) - No. of persons migrated and no. born in urban area
Food availability	Questionnaire of food available in the community Direct observation	- Amount and variety of food in the community (seasonal) - Variety of food in city (seasonal) - Seasonal prices
Cost of food	Observation in the community Home questionnaire	- Amount and type of food - Participation in: school breakfasts, common kitchens - Subsidised food - Family shopping - Food for work
Aid programs (subsidies) for poor families	Census of programs in the community	- Salary and other family income - How often paid - Home visit. Expenditure on food (per day, week, month)
Income	Questionnaire	- Formal: No. of years - Informal: No. of years - Non-formal: No. of years
Education	Structured questionnaire Education	Employment classification - Use of ceremonial food - Hot-cold classification - Strengthening-weakening, helpful-harmful food
Occupation	Recall of last 24 hrs of activity Questionnaire direct observation	- Language (dialect) - Food taboos - Intrafamily distribution - Traditional medicine - Use of traditional clothing and footwear
Culture (internal)	Direct observation Questionnaire	- Type of cooking and energy source - Form of food conservation - Availability of utensils - Preparation of food
Food preparation techniques	Direct observation Questionnaire	- No. of months each child breastfed, per family - Use of substitute milks, months - First non-milk food (weaning months) - Age of weaning (months)
Duration of breastfeeding	Questionnaire	- Food changes associated with diseases - Frequency of acute respiratory infections and diarrhoea (infection) - Sick persons day of survey (disease)
Morbidity	Questionnaire	- Selection of foods to satisfy unexpected hunger or thirst - Level of activity of family members
Physical activity	Recall of last 24 Hrs of activity Questionnaire	

WORKSHOP

CAUSAL TREE



WORKSHOP

Project Planning Matrix

DESIGN OF EPIDEMIOLOGICAL STUDY

GROUP 7: SYSTEM OF FOOD SUPERVISION

(Research Project)

Coordinator:	Rainer Gross	Alemania/Indonesia
Secretary:	María Isabel Grijalva Haro	Mexico
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Participants:	María Eugenia Vera Herrera	Mexico
	Dea Salazar Torres	Mexico
	Adela Jiménez F.	Mexico
	Amparo Tapia Curiel	Mexico
	Manuel Grillo	Cuba
	Annabella Rebolledo	Chile
	Ma. Antonieta Galeazzi	Brazil
	Araceli Rodríguez	Mexico
	Vicente Pérez Dávila	Venezuela
	Beatriz Avilés Garibay	Mexico

INTRODUCTION

The workshop considered a cause-effect methodology and therefore the first step was to define it as a food supervision system (FSS) in urban areas.

"A system that allows us to monitor systematically and continuously, with simple and practical indicators, the availability, access, consumption and biological use of food for the chosen population groups living in cities, in order to undertake actions aimed at seeking suitable and feasible solutions".

Secondly, the shortcomings of a FSS were identified. The participants put forward the following negative factors:

- Lack of awareness of FSS.
- Lack of infrastructure for the achievement of aims.
- Verticality in programs and zero participation by beneficiaries.
- Lack of political will.
- Insufficiency and irregularity in the provision of economic resources.
- Shortcomings in methodology and design.
- Shortcomings in feedback and information use.
- Lack of integration of the components.

For each of the shortcomings detected the causes were sought and presented in causal tree 1.

Aware of the main problems in a FSS, a model was proposed modifying and correcting them.

The results of this debate are shown in causal tree 2.

In the workshop's third stage, a theoretical exercise and project on FSS was carried out with the aim: "After 4 years, a FSS will have been set up for a metropolitan city".

Causal tree 2 shows the planning matrix for this project.

Finally, the participants gave their opinion on the workshop.

- The workshop was extremely effective, thanks to the active participation by those attending. The technical coordination was highly motivating. I wish that more time had been allowed so greater advances could have been made.
- A good exercise for the formulation of methodological models, although a wider discussion between countries would be necessary for a better standardisation of methodologies.
- The workshop awoke concerns among the participants and generated ideas as to the problems of cities with nutritional problems and how to organise to try to fight them. The workshop needs more time to obtain its objectives. A very good experience.
- The experience has been very enriching despite the time limitations. The group was moderated and led exceedingly well and the group's attitude magnificent to reach the

WORKSHOP

objective was magnificent. It reinforced my idea to improve personal technical training of those involved in the area.

- Each country's experiences must be publicised in others so they may unite criteria and improve FSS. Courses and other ways of keeping communication constant are needed.
- It is an excellent and very useful mental exercise which could be applied to any discipline although it is not well mastered by experts.
- The experience is worthwhile but the results would be better with more time to understand the methodology and to allow more dialogue, especially in view of the different experiences of the participants.
- An interesting practice: it makes the mind faster and more ordered and takes advantage of everybody's experience. It would be more effective if it were based on an example of the effectiveness and problems related to the specific subject before developing an ideal common project. This would require more workshop time.
- The workshop achieved its aim of awakening concern on problems common to the countries participating. Courses are suggested for the analysis alternative proposed in this workshop, with a multiplier and multisectorial effect.
- The experience of this theoretical exercise restates the need to provide feedback for each country's FSS to properly focus them toward the aims of care and supervision for the general population.

FOOD AND NUTRITIONAL SUPERVISION SYSTEMS IN URBAN AREAS (FSS)

Definition: The FSS in urban areas is defined as a system that allows us to systematically and continuously monitor with simple and practical indicators the availability, access, consumption and biological use of food for the chosen population groups living in cities, in order to undertake actions aimed at seeking suitable and feasible solutions.

1. The problem of correlating variables to find practical conclusions.
2. To improve methods of evaluating the availability and consumption of food.
3. The need to evaluate the impact of programs applied.
4. The errors in surveys on urban nutrition do not allow high-risk groups to be properly identified.

"LACK OF AN ADEQUATE NUTRITIONAL SUPERVISION SYSTEM"

1. Lack of awareness of what a FSS is.
2. Lack of awareness of the size of the problem.

3. To guarantee correct functioning and to achieve the proposed aims there must be nationwide infrastructure.

4. Verticality of programs, zero participation of beneficiaries.

- 4.1 Lack of reference and counter-reference systems of models from pediatric care centres to organisations of maternal-infant nutritional recovery centres. Lack of follow-up of malnourished patient.

5. Lack of political will.

- 5.1 There is a lack of decision-making power and what there is is bureaucratic and slow.

- 5.2 Problem, it has not been established as a priority.

- 5.3 Supply is not in accordance with the needs of populations

- 5.4 Lack of multisectorial agreement.

- 5.5 Food policies are not continuous.

- 5.6 The constitutional right to food is non-existent.

6. Insufficiency and irregularity in the provision of human, technical and financial resources.

- 6.1 Lack of continuity in policies.

7. Insufficiencies in methodology and design.

- 7.1 Printing of indicators by age groups under consideration, independently of the institutional information system itself.

- 7.2 There is no practical methodology for: Evaluation of the nutritional consumption profile.

- 7.2.1. Lack of adequate indicators

- 7.2.2. Lack of selection of indicators (that really measure changes).

- 7.2.3. Definition of simple measurement variables to carry out research into members of the community.

- 7.2.4. Lack of information on indicators.

- 7.3 Deficiencies in technical training.

8. Lack of feedback and information use.

- 8.1 Problem: Most of what has been done has no evaluation.

- 8.2 Information is not opportune: In other words, it does not allow for action to be taken efficiently and rapidly.

- 8.3 Information users are poorly identified and then the necessary actions are not taken.

- 8.4 FSS generate a vast amount of information which complicates the problem diagnosis phase.

WORKSHOP

8.5 Supervision systems normally pay too much attention to collecting information and too little to using data in action.

9. Integration of unsuitable components.

9.1 Lack of integration of the system itself such that the system depends entirely on one researcher or group of researchers.

9.2 Lack of communication between the research and intervention sectors for the evaluation of the latter.

9.3 Lack of integration within the FSS, records of morbidity-mortality considering malnutrition or obesity as a causal factor.

CONCLUSIONS

After having carried out the ZOPP exercise for a day at the II Latin American Workshop, some lessons may be learned.

On the level of prerequisites, there must be facilitators with an in-depth handling of design methodologies and statistical models used in epidemiological analysis.

At least one day is needed for training for these facilitators.

This is so that they can understand the specific scope of the workshop and carry out exercises to make clear each of the points.

The following important contributions were made:

- The ZOPP demands that we use causal factors as a vision and strategy indispensable for the generation of reliable applicative solutions.

- Its level of realism is praiseworthy. By reviewing, correcting and eliminating unobtainable assumptions (lethal assumptions), planners and intervention workers are forced to continuously rethink the feasibility of their proposals.

- Two points may be mentioned with reference to contributions of training researchers:

- a) Interdisciplinary work is highly effective. It allows different points of view to be integrated, visions to be worked on in parallel and conventional and obsolete perspectives to be reassessed.

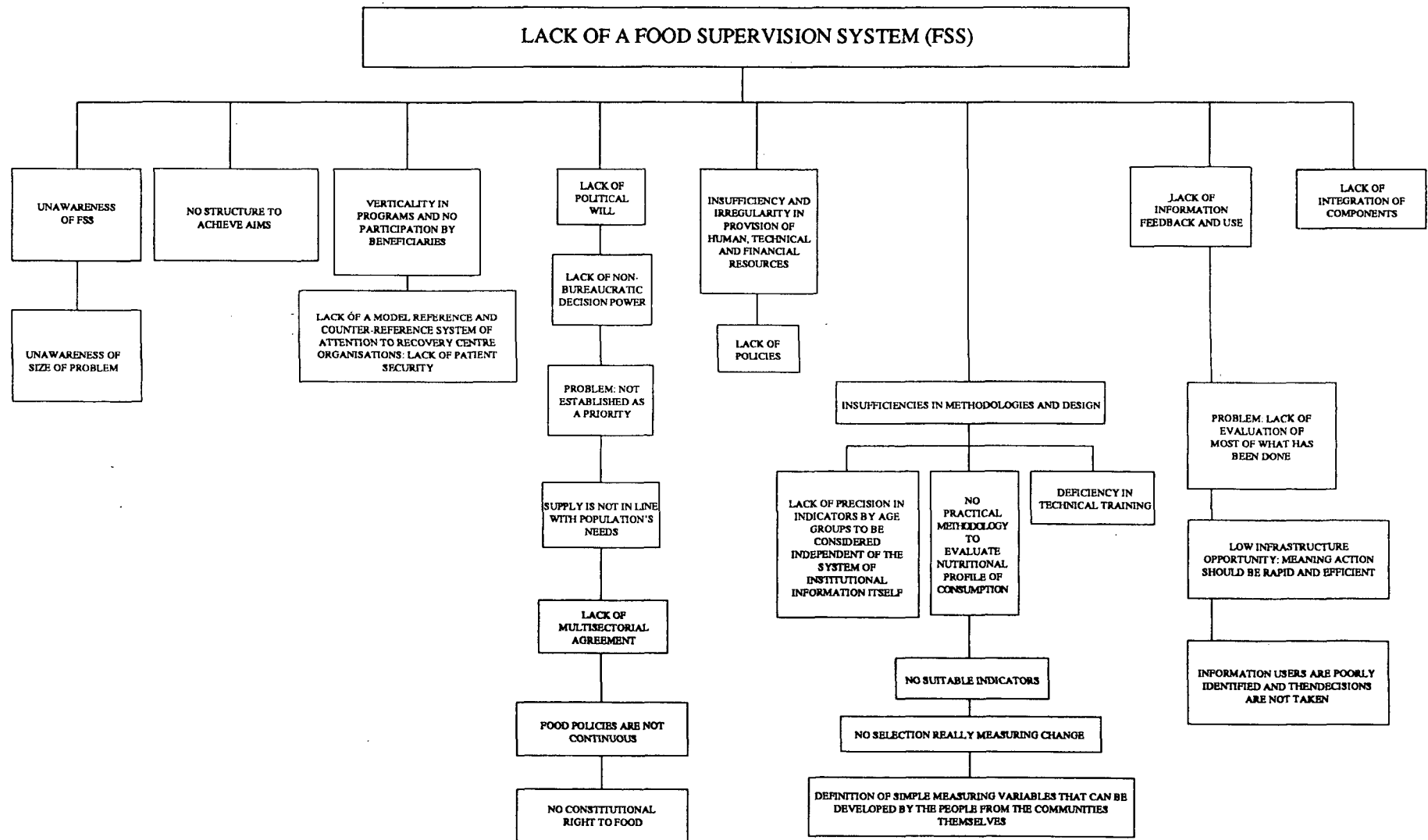
- b) The ZOPP is a model for the integration of strictly drawn up protocols. In this sense, it works as a useful example of a kind of idea researchers can use to strengthen their protocols.

Project Planning Matrix

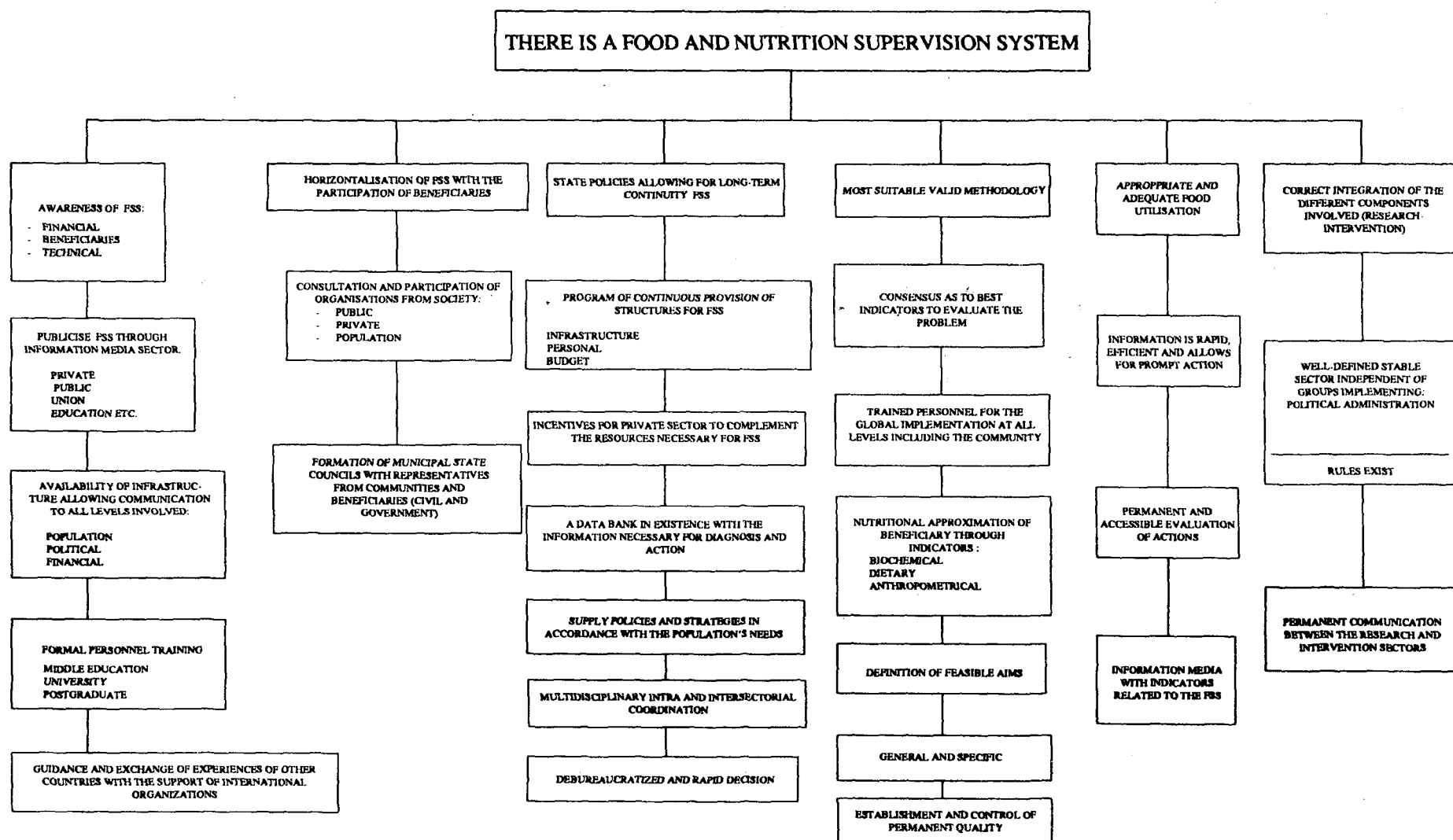
	Description	Indicator	Method of verification	Assumptions
Project Aim	After 4 years a FSS will have been set up for a metropolitan city	The intention is to attend to a risk population with an x% coverage evaluated through availability and consumption indicators with maximum error of 5%.	External evaluation survey	Constitutional right to food
Results	1). State policies allow the long-term continuity of the operation	No. of existing or new (published) policies in the period concerning food-nutrition, evaluated by international standards	Official Gazette	Political will
	2). Horizontalisation of the FSS with the participation of the beneficiaries	70% of the representatives of the beneficiaries participate in semestral planning meetings, execution program and existence of a representative for the sectors involved in the FSS and there is transmission of information. Existence of a representative for the sectors involved in the FSS and there is transmission of information.	Verifiable list of participants	Microeconomic situation of country allows financial resources to be obtained
	3). The developed FSS allows for rapid and non-bureaucratic intersectorial coordination		Trimestral bulletin reliability 95% coverage 95%	Valid methodology is available
	4). Awareness of what an FSS is; beneficiary, financiers and experts	Two years after entering the operation 80% of beneficiaries, experts and financiers know the FSS	80% of participants reply to 80% of FSS awareness questions	To estimate availability of food information will be collected on: production, imports and exports of the basic group of foods with respect to a reference pattern: the basic local basket
	5). Proper use and feedback of information	A data base contemplating 100% of the information concerning: coverage of population, availability of food, food consumption	Sending of classified and/or interpreted material to participating beneficiaries, experts, sponsors with documents, reports, leaflets, audiovisual materials	Consumption of food through food surveys, family income, expenditure on food, comparable pattern nutritional profile vs. FAO/WHO
	6). Adequate interaction of the different components involved (researchers, intervention)	100% of the researchers generated in the FSS are applied in its different stages		Project monitoring and internal control system Database, project control, periodic meetings by levels in stages Periodic evaluation with respect to the rate of coverage by levels, supervision by random sampling

CAUSAL TREE 1

FOOD SUPERVISION SYSTEM



CAUSAL TREE 2 OF AIMS



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