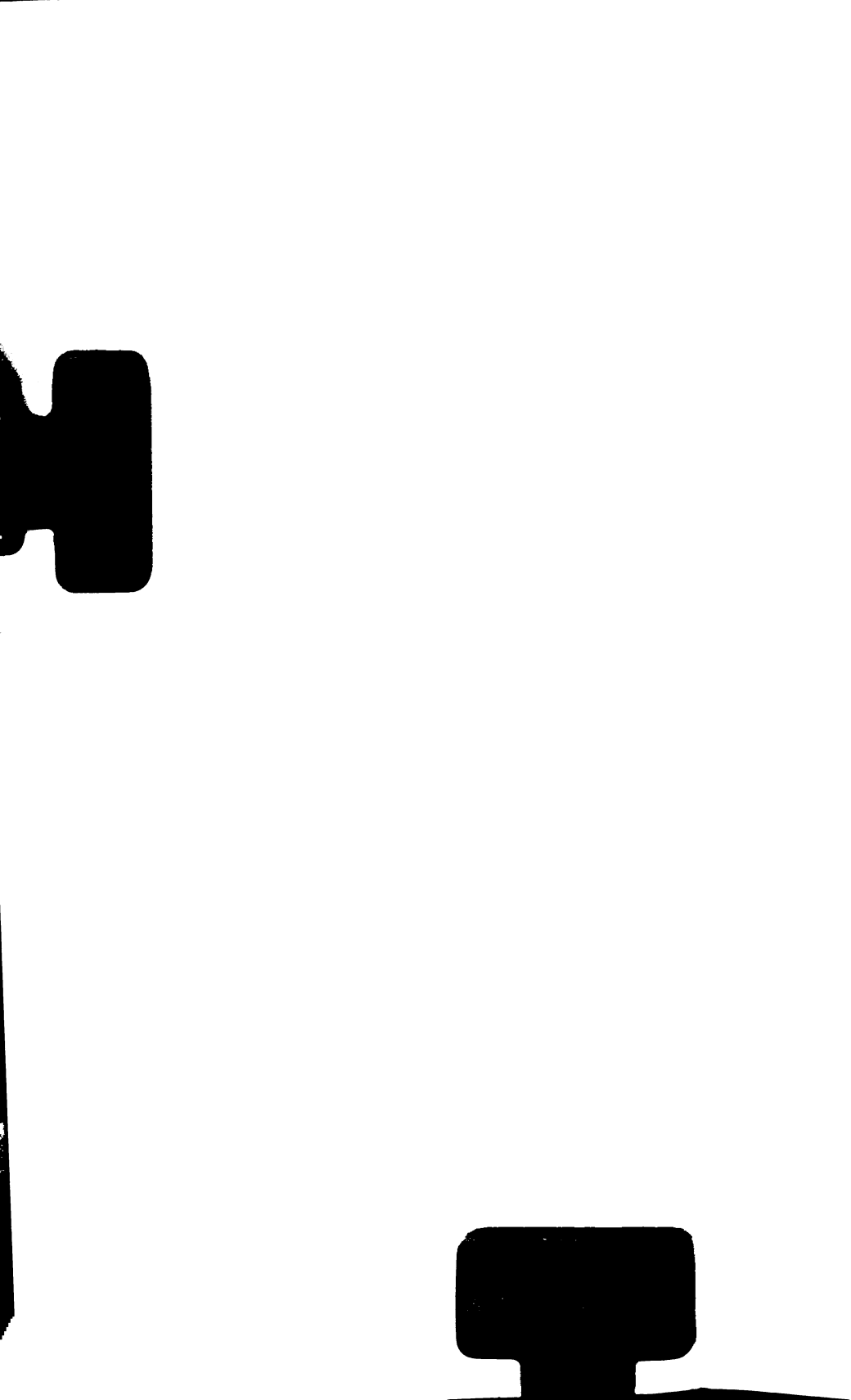
International Seminar: "Food Policies within the Context of Central America: The Case of Staple Grains"

INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE
OFFICE OF THE PRESIDENT OF THE REPUBLIC OF COSTA RICA
UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION (FAO)



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PRESENTATION

Today, per capita food supplies worldwide are approximately 18% higher than 30 years ago. Although most developing countries have seen their supplies grow and nutrition improve, a great number of countries and population groups have not reaped the benefits of this progress. In many countries, the per capita food supply continues to be low and progress has been minimal. At the same time, steady demographic growth has meant that the decline in the percentage of chronically malnourished people has not led to an equal drop in the number of persons actually affected, which has fallen only slightly and is holding at some 800 million people.

It is a recognized fact that the principal reason why malnutrition continues to be a problem is that little progress has been made in alleviating poverty. Most developing countries increase food production as a means of combating poverty, since most of the poor depend on agriculture for their livelihoods.

Several countries have improved their food situation by rapidly increasing food imports, which underscores the role played by world markets in the evolution of the nutritional status of developing countries. In the past, world markets were more than adequately supplied by the principal grain exporters, especially the developed countries of the West; whether or not this will continue to be true remains to be seen.

The performance of world food markets has been affected by the agricultural support policies adopted by major grain-exporting countries. The result has been surplus production, stockpiling, subsidized exports and the decline of prices on the world market. Also, when decisions were made to increase production, no attention was paid, as it is today, to environmental problems and resource degradation. As a result of policy reforms, whether under way or in the planning stage, these factors will not play as significant a role as in the past in increasing supplies on world markets.

This context and the fact that food security indicators in most of the Central American countries are at middle to low levels are what has led the political leaders of this region to propose an intersectoral and multidisci-

plinary approach for analyzing these problems and formulating strategies and actions for overcoming them.

In this connection, the Government of Costa Rica, FAO and IICA organized an International Seminar for Mexico and the countries of Central America with the aim of fostering dialogue among the various actors that participate actively in the search for solutions to the problems of food security and the production of staple grains.

The seminar, at which this paper was presented, afforded the countries of the region the opportunity to share experiences and to learn about those in other regions of the world, and was a first step in efforts to draw up policy proposals for making the Declaration of Rome and the Plan of Action of the World Food Summit a reality.

INAUGURAL SESSION

ADDRESS BY THE PRESIDENT OF COSTA RICA JOSE MARIA FIGUERES O.

The topic of food policy, and of staple grains in particular, is one of the most important strategic issues facing developing countries like ours.

This is the most important group of foods for our populations. In the case of Costa Rica, staple grains account for one third of the calories and 40% of the proteins consumed by the population. And the proportion is considerably higher for lower income families.

Four things point to the fact that this meeting is destined to have a major impact on the definition of food security policies in our countries: the first is the presence of high-level political representatives of the governments of Central America and Mexico.

The second is the support of the Inter-American Institute for Cooperation on Agriculture (IICA) and the United Nations Food and Agriculture Organization (FAO).

The third is the fact that the speakers have vast experience and are of the highest intellectual caliber, and the fourth, that the meeting will be followed shortly by the World Food Summit to take place in Rome in November.

I would like to divide the rest of my address into two parts: the first will deal with the context, and the second, with the specific topic that brings us together here today. I have two comments to make on the wider context.

The first is that I am delighted that in Central America we are working together under the Alliance for Sustainable Development (ALIDES) to address the issues that most affect the quality of life of our peoples, especially now that all our governments have been popularly elected and are engaged in a process of consolidating democracy.

Conditions are favorable for moving forward rapidly in solving the food problems of our poorest families. There are numerous examples in other

parts of the world that show us that authoritarian governments are unlikely to be sensitive to the hunger of their peoples and the poverty of small farmers.

It is no coincidence that countries like The Sudan or Ethiopia have not been able to prevent successive famines. History also suggests that only in societies with free elections, dynamic party systems and true freedom of the press are governments concerned about the political consequences of food shortages, reduced purchasing power and growing malnutrition and hunger.

It is for this reason that we should capitalize on this period of democratic growth in Central America to provide satisfactory, long overdue solutions to our basic needs.

My second comment concerns the importance of pursuing food security within a context of truly sustainable development policies.

Obviously, we are still a long way from having a set of specific policies in place to ensure that the population will have access to the foods that make up their basic diet. It is also clear that we shall achieve little if these efforts are not part of a comprehensive strategy aimed at establishing and maintaining the equilibria on which lasting well-being and progress depend.

I am referring to those policies that will make it possible to stabilize the macroeconomic balances that have a major impact on the income level of the population and, therefore, on their purchasing power.

The issue of food must be considered in policies aimed at ensuring a level of public investment that will make it possible to maintain those social services basic to the social development of the poorest groups.

I am also thinking of policies that will strengthen our political systems and make it possible to reach consensus on the social transformations that are needed, and policies that will restore the ecological balances on which the preservation of our resources and the very survival of our societies depend.

In short, we will achieve nothing by articulating a food and an agricultural production policy without, at the same time, giving due consideration to the macroeconomic balances we wish to maintain in order to have healthy economies.

Turning to the second part of my presentation, in recent years our region has made the transition from protectionism and price controls to economic liberalization and rapid changes in production.

In the process, we have discarded the agri-food policies of the past, but have not established new ones that will allow us to successfully combat hunger and the economic ruin of our farmers.

However, we are learning from our mistakes and, far from lamenting our weaknesses and shortcomings, we are doubling our efforts, strengthening our bonds of solidarity and cooperation, and preparing to make sweeping changes in the institutional and economic fields.

In light of all these changes, we must keep our eyes open to what is occurring in production and food security in the rest of the world.

On March 2 of this year, I met with the Director General of FAO, Jacques Diouf, in which he mentioned certain situations that have a direct impact on the effort undertaken in Central America to dismantle policies aimed at protecting production and to open up trade in staple grains.

Let's look at the changes. For the past several years, the economy of China, a country with 22% of the world's population, has achieved an annual rate of growth of ten to eleven per cent. As a result, China has become an importer instead of an exporter of grains, a fact that has major consequences for the production and availability of staple grains worldwide.

A second aspect that will push up world demand is the economic recovery of the former Soviet Union, another country that accounts for a sizable percentage of the world's population. Third, the world's population is growing by three per cent per year, a striking figure when we think of the number of new mouths that must be fed.

A fourth element mentioned by the Director General of FAO was the cost of fertilizers. In Costa Rica, prices have risen sharply since the privatization of the only company that produces fertilizers. This is not to say that privatization is bad, but rather that oligopolies should not be privatized because they have a major impact on production costs.

A fifth point was that countries that used to subsidize their agricultural sectors are no longer doing so, resulting in a decline in the high levels of production of the industrialized nations as support has been withdrawn.

This situation puts a new spin on/gives a new meaning to the world-wide problem of staple grains and other agricultural products: food problems no longer hinge on the price of foodstuffs, as in the past, but rather on availability. A cause for even greater concern is the fact that world grain stocks are four percent below what we have traditionally regarded as the minimum level required to ensure food security.

What are we to do in the face of these developments? The answer would appear to be increased production, not by providing subsidies as before, but rather by promoting levels of efficiency and productivity that will allow us to meet the new challenges.

Extremely important contributions have been made by IICA, FAO and the European Union, which has helped the region through the Regional Program to Upgrade Agricultural Research On Staple Grains in Central America and Panama (PRIAG).

On behalf of Central America and Mexico, I would like to express my deepest appreciation to these organizations. We should also acknowledge the work of the Regional Cooperation Agricultural Council (CORECA), which has coordinated actions in the field of staple grains.

These cooperative efforts strengthen our spirit and fill the agricultural sector with a feeling of change and optimism. This is the spirit that will guide this meeting and lead to the introduction, without delay, of the food security policies that our peoples require and deserve.

ADDRESS BY THE DIRECTOR GENERAL OF IICA CARLOS E. AQUINO G.

The processes of regional integration, trade opening and globalization currently under way will continue in coming years and well into the next millennium. They are a sign of the times and have been clearly defined by political leaders around the world. These processes are of the utmost importance, and the key issues of agriculture and food and, of course, the economy, revolve around them.

Therefore, we must work together to ensure that issues related to agriculture and food are given the attention they deserve, and that macroeconomic and sectoral policies give due consideration to the opportunities and the risks opening up for agriculture.

We believe agriculture is and will continue to be a very important element of the globalization and economic integration process. However, the agricultural sector of the future will be one in which its multiple interdependencies with the economy, society, natural resources, food, health, communications, education, well-being and governability, will be based on transparency, creative cooperation arrangements and the sustainable development of the urban and rural milieus.

The agricultural sector of the future, which is taking shape today, should focus on the need to again place human beings at the center of technological innovation, productivity, competitiveness and equity.

We cannot afford to allow agriculture and the issue of food security to fall behind the rest of society and the economy, which more and more are basing their development on human resources. This is so because we are entering the era of knowledge, in which human beings are the key factor and the source of value.

For good reason and with great wisdom, farmers, rural dwellers and others who work in rural areas are demanding greater participation in decisions related to the management of the economy, agriculture and other processes that affect them directly.

In addition to the traditional demands of better prices, subsidies, land rights, etc., new demands are being made today. The emphasis is now on the need to have a say in those areas of economic, trade and monetary policy that will enable them to compete on equal terms, modernize and diversify production and become more competitive.

Also, given the rapid growth of cities, where some ninety per cent of the inhabitants of the Americas will be living in coming decades, farmers and others who live and work in rural areas are justifiably concerned. They are seeing how living conditions in rural areas are deteriorating, how the process of modernizing and diversifying the sector is becoming more difficult, how support for agricultural research and technology transfer activities has declined, and how they are asked to compete on an "uneven playing field."

The opportunity cost of continuing to live in rural areas is high because, despite the problems inherent in city living, cities offer greater access to food, health services, education and work, the four basic elements essential to the development of human resources. Farmers and others who work and live in rural areas know full well that without them, they will not be able to survive in the complex process of globalization and trade opening.

Consequently, macroeconomic, agricultural and food policies must be fair and balanced, in order to create creations that will favor development in this new era of humanity, in which solidarity and cooperation must be the cornerstones.

We must be clear and precise as regards participation and responsibilities. There is no place any more for paternalism or irrational demands. It is a matter of democratizing participation and, above all, the new institutional structure required today.

Farmers and farmers associations and organizations, as well as official entities, are faced with the challenge of building the public and private institutional structure needed in these times of globalization, trade opening and integration.

The current worldwide technological revolution, which is taking place against the backdrop of globalization and trade-related, economic, financial, human and cultural opening, marks a permanent break with the past and calls for change, making it necessary to adopt a holistic, creative, flexible and humanistic approach, in other words, a systemic approach to agriculture.

This new institutional structure and renewed vision must reflect and consider the many ways in which agriculture and rural areas are interrelated with the rest of the economy and society. We must recognize that agriculture is still an essential part of our daily lives, that it is of great importance to all of us and that agriculture is an essential part of a globalized and integrated system.

Put briefly, this new institutional structure and renewed vision must recognize and make others aware that our lives depend, in one way or another, on agriculture, and that it is an essential part of the economic and social fabric of our countries.

We must promote agriculture as an array of activities carried out by many that provide ample opportunities for business, for the conservation of natural resources while at the same time ensuring their productive use, for improving the quality of life, and for fostering social peace, democratization, governability and sustainability. In recognizing these interdependencies, we are developing a new paradigm for agriculture and rural areas.

As we enter the twenty-first century, we face several challenges, to wit:

How to formulate and execute macroeconomic and sectoral policies that take account of the needs of farmers and others involved in agroindustrial chains, given globalization, trade opening and integration, and the urgent need to respect the environment and develop human beings.

How to formulate and implement food policies that will ensure that everyone will have economic and real access to food and balanced nutrition.

How to make agriculture more competitive and modernize and diversify the sector without producing macroeconomic distortions.

How to promote agriculture in a context that does not fully recognize its importance to the economic, social and political stability of our countries.

How to develop a new institutional structure based on a systemic vision that takes into account the many ways in which agriculture is interrelated with the rest of society, the need for interdisciplinary action, pub-

lic/private sector relations and the problem of creatively balancing short-term and long-term needs.

It is my hope that today's deliberations will shed some light on answers to these and other great challenges.

OPENING STATEMENT BY HARTWIG DE HAEN, ASSISTANT DIRECTOR GENERAL, ECONOMIC AND SOCIAL DEPARTMENT, FAO, ROME

It gives me great pleasure and is a great honor for me to transmit to you, and to all the audience, the personal greetings of Dr. Jacques Diouf, Director General of FAO.

My thanks go first of all to you, Mr. President, for the initiative to convene this high level gathering. If my information is correct, the idea to have this meeting of Ministers of Agriculture and of Economics of Central America and Mexico to examine the policy options for food security in the region was born under your initiative during the recent visit of our Director General to Costa Rica. I believe it is especially timely, considering the imminent celebration of the World Food Summit in Rome from the 13th to the 17th of November.

The topic of food security, despite its dramatic relevance throughout the developing world, has been unduly neglected by public opinion. Perhaps the preponderance of more general economic issues, the secular decline of the contribution of agriculture to GNP and the growing globalization of our societies has relegated the needed public worry for solving the problems of food security and poverty. We estimate the number of chronically undernourished at 840 million people today, indeed a scandalously large number when we consider that the world has tecnologies and resources to provide enough food for all.

The Summit in November should be an occassion for the world leaders to revitalize their commitment to the eradication of hunger, one of the worst violations of human rights. Also needed is a repositioning of agro-rural development as a basic pre-condition for a dynamic socio-economic development that is spatially balanced, socially equitable and environmentally sustainable.

This seminar, therefore, together with addressing pressing policy issues for Central America and Mexico, is another proper preparation of this region for the World Food Summit.

It seems specially relevant that, in this case, you are not only analysing your own regional realities, but will also learn from others' successess and failures. That is why our Organization has gladly complied with your desire to bring to this forum the experience and success stories from those Asian countries which have been able to improve their food security condition in the recent past. We are also lucky to secure the participation of Professor Peter Timmer from Harvard University. The FAO delegation, which includes our Representative in Costa Rica and the Director of the Policy Assistance Division in Rome, looks forward to the ensuing debate and hopes that the discussions will be useful for the policy-makers of the region in designing appropriate strategies for dealing with these pressing problems.

MAIN PRESENTATIONS

World Grain Market Perspectives and Policy Implications for Developing Countries with Special Reference to Central America and Mexico

Hartwig De Haen, Panos Konandreas and Jostein Lindland
Food and Agriculture Organization of the United Nations, Rome[1]

Introduction

Cereals are crucial to food security, making up as much as 60 percent of developing countries' food consumption in terms of energy, 25 percent of production, and one fifth of the total value of agricultural imports. Of course, these shares vary widely from country to country, yet for Mexico and Central America cereals definitely play an important role (e.g., cereals make up 50 percent of total food energy intake).

This article first presents the FAO's long term projections of world cereal production, consumption and trade for the year 2010. We address both the global context as well as the more detailed results of Central American countries and Mexico. Second we look into the issue of future cereal prices, considering both future price levels and future price stability. Finally, we suggest some national food security policy options compatible with the Uruguay Round Agreement on Agriculture (URA).

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1 A previous version of this paper was submitted at the International Seminar in Costa Rica, 20-21 September 1996. The views in this paper are the authors' and do not necessarily reflect those of FAO. De Haen is Assitant Director-General of the Economic and Social Department. Konandreas and Lindland are senior economist and agricultural trade policy analyst, respectively, of the Commodities and Trade Division.

Long Term Projections of Cereal Production, Consumption and Trade

Obviously the prospects facing future cereal markets and prices depend on, and in turn affect, both technical developments in world cereal production, and trends in consumption and trade. FAO has undertaken intensive multi-disciplinary analyses in order to anticipate likely developments in world food and agriculture. Results of this work have been published in the recent *World Agriculture: Towards 2010* (hereinafter, the FAO Study).[2] This study is the most comprehensive evaluation of developing countries' agricultural potential ever done, covering individually 93 developing and 34 developed countries (wherein live 99 % of the world's population). This section presents the FAO Study's projections regarding future cereal utilisation, production and trade for year 2010 will be presented. The analysis considers Mexico and the countries of Central America[3], and takes a global view by reviewing six world regions, five developing and one developed.

Utilisation

Table 1 gives base year and projected total utilisation[4] of cereals, based on the UN's population estimates and its assumptions regarding the growth of per capita income (GDP). These utilisation projections are also adjusted for historic and country-specific nutrition patterns. Base year per capita utilisation ranged from 133 kg in Sub-Saharan Africa to 637 kg in developed countries.[5] The relatively high per capita utilisation levels of Central America and Mexico as a group is due to Mexico's per capita utilisation of 349 kg. Almost all Central American countries have a per capita utilisation between 150 and 200 kg. Average per capita utilisation in Central America and Mexico is projected to reach 326 kg by year 2010.

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2 See Alexandratos (editor), 1995.

3 Unfortunately, Belize is not covered by the FAO Study.

4 *Total utilisation* equals Food + Feed + Industrial non-food use + Seed + Waste + Other uses, and it balances the *supply* which equals Production + Imports - Exports + Opening stock - Closing stock.

5 Per caput cereals used for food was respectively 114 kg and 146 kg, while per caput cereals used for animal feed was respectively 4 kg and 389 kg for these two regions.

While world population is expected to increase from 5.2 billion in the base year to 7.2 billion in 2010, world per capita cereal utilisation is projected to slightly decrease, from 332 to 327 kg. This decline in cereal use will be the result of reduced per capita utilisation in those transition economies of Eastern Europe and the former Soviet Union. Per capita cereal utilisation in these countries will fall from 790 to 693 kg.

Production

Although most developing countries face constraints in cereal production related to their natural resource base, production in developed countries is expected to be capable of adjusting to increased world demand. This implies continued increases in the absolute values of production in all regions, including in Central America and Mexico, though at the declining growth rates experienced over the past three decades. Despite a decelerating rate of growth, production per capita will still continue increasing, because as population will grow at a slower rate.

Table 2 shows reported production of the base year 1988/90 and projected production in 2010. Reported production of 1992/94 is indicated for reasons of comparison. Growth rates are also presented and consistent with the declining trend in growth since 1960 [6].

In assessing the production prospects of developing countries, the FAO Study divided actual and potential farmland into agro-ecological zones. The FAO Study concluded that the main increase in production during the period to 2010 will come from intensification and yield growth. More intensive farming and higher yields per hectare will account for two thirds of additional production. In addition, by 2010 farm land is expected to increase by 12 percent, and cropping intensity[7] is foreseen to increase from

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6 Annual growth rates of cereal production in developing countries have according to the FAO Study been 4 % in the decade 1960-70, 3.1 % in 70-80 and 2.8 % in 80-90. However, Sub-Saharan Africa has not experienced this downward trend.

7 Cropping intensity is defined as the proportion of total land in regular agricultural production that is cropped and harvested in any given year (the rest being fallow). The current cropping intensity is 55 % in Sub-Saharan Africa and 110 % in South Asia, according to the FAO Study.

79 to 85 % in developing countries. To achieve all this, enormous efforts will be needed, in particular in terms of investment. We therefore believe that a new green revolution is needed, greener than the first one.

In this context, the prospects for China have recently attracted much attention, and rightly so, considering that China has one fifth of the world's population. We do not share the pessimistic view that within the next twenty to thirty years China will have to satisfy a rapidly increasing demand through enormous imports owing to its production growth not keeping pace with that consumption growth. Nevertheless, we consider it possible that China's net imports of cereals could grow beyond today's 20 million tons. China doubled its cereal production during the last 20 years, and therefore our assumption of a 50 percent increase in cereal production by the year 2010 (compared to 1988/90) does not seem overly optimistic. Moreover, several studies [8] indicate that both agricultural land and area sown are considerably underreported in China [9] This implies that per-hectare yields have been in reality much lower than reported, and hence there is greater scope for increased yields in the future.

Contrary to the situation in developing countries, cereal production has decreased in recent years in developed countries. This decline is partly policy-related, due both to structural changes in the transition economies of central and eastern Europe, and to policy reforms in the European Union and the United States. Eastern Europe and the former USSR show early signs of recovery and are expected to reach pre-reform production levels well before 2010[10]

Cereal production in Central America and Mexico is projected to increase from 26 million mt in 1988/90 to 37 million mt in 2010. The

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8 See e.g. Crook, 1993; Sun Han, 1994 and Binsheng, 1996.

9 According to recent Chinese publications and sources, total cultivated area and total area sown in China were in 1989 in reality 125 and 192 million ha respectively, compared to the official figures of 96 and 147 million ha reported in the *Statistical Yearbook of China 1994,* Beijing, 1995 (see Alexandratos, 1996). The Statistical Yearbook even contains the warning that "figures for the cultivated land are underestimated and must be further verified".

10 This is also supported by the projections of Anderson, Dimaranan, Hertel and Martin (1996). They expect the former USSR to become a slight net exporter of grains by 2005, with liberalised grain markets and hence increased prices as the underlying key factor.

1992/94 production level attained 30 million mt. These figures imply an annual growth rate of 3.6 %, far higher than the 1.7 % annual growth rate required to reach projected production levels of 2010. These promising results, however, are averages for the group, and the disaggregated 1992/94 production figures show a great disparity among individual countries: while production fell in Guatemala and fell notably in Costa Rica compared to the base year, production increased considerably in Mexico, from 22.5 million mt in the base year to 26.5 million mt. in 1992/94.

Trade

Table 3 summarises the information in Tables 1 and 2 and gives projected net trade balances for each world region and the group containing Mexico and Central America. The 93 developing countries covered by the FAO Study will increase their net cereal imports considerably by the year 2010, from 80 to148 million mt.[11] From 1988/90 to 2010, the ratio of imports to total utilisation will increase for all developing regions, except of East Asia and China.

Mexico and Central American countries were net cereal importers in 1988/90. Mexican cereal imports accounted for more than 80 % of cereal imports to the region. Although net imports to this group of countries are projected to increase from 8 to 19 billion mt., production is expected to keep pace. Hence the rate of self sufficiency is foreseen to remain unchanged at 66 % in 2010. Only Costa Rica (45 %) and Honduras (75 %) will deviate from the average projected rate of self sufficiency.

The overall agricultural trade balance of developing countries is positive, amounting to US$ 3 billion in 1988/90. However, the trade balance twenty years earlier was more than five times higher (in 88/90 prices)[12], and the trade balance of developing countries is expected to be negative in

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11 The difference between exports and imports of the developed and developing countries covered by the Study will be imported by the developing countries not covered by the Study, some of which are sizeable importers though minor producers.

12 Developing countries' agricultural trade balance of 1994 of US $ 2 billion (1994 prices) confirms the downward trend.

2010.[13] For the most advanced developing economies financing their increased cereal import bills would likely come through increased exports of manufactures.

For the poorest of developing countries, on the other hand, increased cereal utilisation would likely occur through increased agricultural growth, in order both to boost cereal production and to finance increased imports. Whether and to what degree increased cereal demand is met by increased production or by imports would depend on each country's comparative advantage and policy objectives. In any case, agriculture is and will be the dominant sector in these poorest of developing economies, in terms of income, export earnings and employment. Increased food security will therefore rely on the future performance of their agricultural sectors.[14] These considerations might also apply to several countries of Central America.

Prospects - Price Levels and Price Stability

Price level

In spite of recent relatively high price levels, international prices of most cereals, measured in constant dollar values, have been falling over the last two decades. There are a number of reasons for this decline, including not only cost reductions through productivity increases, but also the protection by major producing countries of their grain sectors via price guarantees and subsidised exports of resulting surpluses. The final beneficiaries of the resulting price reductions were consumers, although it is also true that millions of people in need of more food have been too poor to express their needs as commercial demand in the market.

Given the complexity of factors determining prices of cereals, it would be irresponsible to claim that we know with certainty future trends. But we have a few considerations on the matter. Obviously the sharp increase from 1994/95 to 1995/96 was partly caused by exceptionally bad weather con-

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13 See the FAO Study, pp 121-123.

14 See also Pinstrup-Andersen and Pandya-Lorch (1995).

ditions in some major export regions. Nevertheless, parts of this price increase may be more lasting than momentary shifts due to notably bad weather. Gradually coming to an end is the era of structural surpluses, accumulated as a by-product of domestic protection and price guarantees in many of the high-income countries. Export subsidies have to be phased out. For cereals, our studies at FAO suggest a price increase as a result of the Uruguay Round of just 4-7 percent in real terms by the year 2000. The effect is relatively small, because much of the protection in agriculture will remain even after the completion of this trade round. Moreover, cost reductions through productivity growth will continue. While this latter factor will tend to limit price increases, other factors work in the opposite direction. In particular, working to keep prices firm are the possibilities of more rapid demand by some fast growing Asian economies, and of extended agricultural stagnation in Eastern Europe and the ex-USSR.

On balance, we believe that it is realistic to expect that real cereal prices will not fall back to their historically declining trend, and perhaps they will remain at the relatively higher levels they had reached in the early nineties.

Price volatility

At least two factors could contribute to increased *stability* of prices in the future:

1. The market opening resulting from tariffication of non-tariff trade barriers and reduction in tariffs should result in improved stability. This is because an increased number of producers and consumers would absorb the shocks to which the world market occasionally is exposed.

2. Increased information and transparency, and infrastructure changes are likely to improve market resilience and the speed of overall supply and demand response to localised production and demand shocks.

However, there are two other important factors that could lead to increased *instability* of prices, particularly for the temperate zone products like cereals:

1. Trade liberalisation will shift the location of production from countries with relatively high levels of protection to those where costs are rela-

tively low. As production is generally more unstable in the latter, e.g. in North America and Australia, the overall variability of production may increase. In our view, this would probably turn out to be a relatively small effect.

2. More important is the level and behaviour of stocks. Governments have for several years been reducing their stocks. Stocks are currently at historical lows, both in absolute volumes and in percent of total utilisation. With further liberalisation governments will continue to cut their price support programmes, under which considerable stocks had been built in the past. As governments reduce stocks, the private sector is building stocks, but it is unlikely that the latter will fully replace the former. Total stocks are therefore likely to fall. Still another aspect is important here: while in the past most public reserve stocks were held by the major exporting countries, it is likely that the greater share of the new private stocks would be held in importing countries. These stocks might be less easily available as a global source of supply in periods of scarcity elsewhere in the world. It is therefore probable that the large reduction in stocks would have a destabilising effect on world cereal prices.

In conclusion, it would be prudent at this stage in our knowledge to be prepared for an increase in price volatility. Therefore we must be vigilant. The surge in world food prices in the past year, when stocks were approaching their lowest levels in two decades, provides a cautionary reminder of just how quickly and to what extent commodity markets can change. This price instability bears a cost to all actors in the market, consumers, producers, traders and governments.

National Food Security Policy Options Compatible with the URA

Putting this outlook for the world markets (firm price levels, lower reserve stocks, and greater volatility) in the context of the prospects of an increasing trade deficit for the region comprising Central America and Mexico, we can envisage a challenging scenario for the design of appropriate policies. It is not the intention of this paper to suggest concrete policies for the Central American countries. But it would seem appropriate to raise some food security policy options which seem relevant for the Region

and which are compatible with the Uruguay Round Agreement on Agriculture (URA). In fact, as we will see, developing countries are left with a rather rich choice of possibilities to pursue national objectives.

Production policy

Apart from protection at the border through tariffs, support to agricultural producers in developing countries can be provided in the following five ways:

i *AMS-related support*

The *Agreement* does not ban any specific production policy, either for developed or developing countries, not even those policies having a production and trade distorting effect. However, the aggregate level of support associated with all such policies (the Current AMS) should not exceed that provided in the Base AMS and must be reduced by at least 13.3 percent in ten years, in the case of developing countries. However, except for Mexico and Costa Rica, the specific countries under analysis here have submitted zero Base AMS in their Schedules. This limits their options for the use of production and trade distorting policies in the future and could be a serious constraint if these countries are running close to their *de minimis* ceilings.

ii *De minimis-related support*

Under the relevant clause, provided that expenditure on price support policies is less than 10 percent of the value of production, *de minimis* expenditures are in conformity with the *Agreement*. In practice, price support is often granted only to the marketed share of production in most developing countries, which implies that the per unit price support allowed can be significant. For example, if the marketed output represents 25 percent of total production, then the 10 percent *de minimis* clause could be equivalent to up to 40 percent price support on marketed output value.

iii *Special and Differential Treatment*

Special and differential treatment includes a special category of production support policies specific to developing countries. These are:

generally available investment subsidies; agricultural input subsidies, generally available to low-income or resource poor producers; and support to producers to encourage diversification from the growing of illicit narcotic crops. These are important exemptions and allow considerable room to support agricultural producers. This also may be a way that entails less distortion among agricultural commodity markets.

iv ***Production-limiting support***

The exemption of policies that limit production from reduction commitments accommodates certain policies pursued by certain developed countries (mainly USA and the EU). For most developing countries the policy problem is normally to address underproduction rather than limiting production.

v ***Green Box-related support***

Green Box measures include those having minimum market distorting effects. However, Green Box policies, especially those measures that entail decoupled income support to producers, are rare in developing countries. This is because, in part, they require an administrative capacity for designing and implementing targeted policies that probably are not available. Moreover, the extent of such policies is likely limited in developing countries by budgetary constraints.

Many developing countries have been undertaking policy reforms under Structural Adjustment Programmes (SAPs). Such reforms call for less government intervention in both input and output markets, and, more importantly, they require reductions of budgetary outlays associated with intervention. Thus, although the *Agreement* does not include any restrictions on public expenditures (or revenues foregone), aside from transfers to producers, it is unlikely that countries undertaking SAPs could pursue certain policies, because they are too expensive.

Consumption Policy

Many developing countries have consumption support programmes with a food security objective operating either through generalised price subsidies or through specific programmes targeted to poor households. The main provision of the *Agreement* that relates to consumer support is includ-

ed under the Green Box category of "domestic food aid". The *Agreement* in its general case stipulates that eligibility to receive food assistance shall be subject to clearly-defined criteria related to nutritional objectives. However, an important exception for developing countries to this general prescription allows them to provide foodstuffs at subsidised prices with the objective of "meeting food requirements of urban and rural poor ... on a regular basis at reasonable prices". This is important for countries which provide subsidised food through fair price shops on a regular basis.

Domestic food aid, suitably targeted in order to limit costs and meet appropriate objectives, may be essential in some food-importing developing countries, because relying on tariffs to support producers would increase consumer prices beyond levels accessible by food-insecure groups in the population.While SAPs have pushed many developing countries into cutting consumer subsidies, expenditures in relation to consumer support are not subject to reduction commitments under the URA. Therefore, the constraint on consumption support for most developing countries would not come from the *Agreement per se* but largely from budgetary limitations.

While the Uruguay Round does not attempt to address the budgetary constraint problem of many developing countries, it nevertheless contains a commitment which in principle should be helpful. This commitment is embodied in the *Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries.* If food import prices rise because of the implementation of the Uruguay Round liberalisation process, net-food-importing developing countries and the least developed countries could be eligible for some forms of assistance. Such assistance could include increased food aid, financing to help maintain normal food imports, technical assistance, and eventually favourable treatment regarding agricultural export credits. If implemented, such aid could help these countries to dampen consumer price increases while allowing prices for farmers to rise.

Import Policy

Import policy is an area where the greatest changes have occurred for most developing countries. Non-tariff barriers are to be abolished and policy in future shall rely almost entirely on tariffs. (Exceptions to this policy of focusing on tariffs are measures maintained under balance-of-payments provisions or other general provisions of the GATT or other WTO agree-

ments.) Tariff quotas have been allowed under access provisions of the URA and tariffs that are lower than the MFN rates can be applied to other members of customs unions or free trade areas. Moreover, because tariff schedules agreed at Marrakech represent bound ceilings, applied tariffs can be lower but not exceed bound levels. This is an important safeguard consideration, as we discuss below. Other ways of limiting imports were tightened up in the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and in the Agreement on Technical Barriers to Trade (TBT).

Export Policy

Export subsidies have been subject to international disciplines, and countries that did not use them in the past cannot do so in future. Mexico is the only country under consideration here that declared export subsidies in its Schedule. Countries using export subsidies should significantly reduce them in the future, but some of them could still support their exports in significant ways. In addition to agreed reductions in export subsidies, there are a number of measures that try to eliminate circumvention of the commitments (e.g. tightening conditions of food aid and agreement on export credits). These restrictions may not directly affect the policy choices of developing food exporters, but they could have consequences for the terms on which food importing developing countries arrange their food imports. The other area of export policy, namely, disciplines on the ability to ban food exports, is covered under Safeguards discussed below.

Safeguards and Price Stability Measures

Where significant price instability, or a surge in either imports or exports of foodstuffs, threatens domestic food security a number of safeguards can be applied.

1. Countries that have opted to do so, can apply special safeguards (SSGs) via the imposition of additional tariffs whenever import prices fall significantly to below 1986-88 levels, or when import volumes surge. In practice most developed, but not many developing, countries have reserved this right, as it only applies to products which were subject to tariffication. In the case of Mexico and Central America (except Belize,

Honduras and Panamá)[15] SSGs are available for all or parts of a country's cereal products.

2. Countries may avail themselves of normal GATT safeguard remedies, such as GATT Article VI regarding the use of countervailing duties. However, under Article 13 of the URA, "Due Restraint" export subsidies that are in conformity with the URA can be subject to countervailing duties, but only under certain conditions. Similarly, recourse to countervailing duties in connection with domestic subsidies is also limited by special conditions.

3. Countries may adopt a "sliding scale of tariffs" related inversely to the level of import prices (keeping the maximum at a level no higher than the bound rate of duty in the WTO). If the bound tariffs are fairly high, which is commonly the case, developing countries may offset variations in import prices by reducing tariffs when prices rise and raising them when prices fall. In practice this can be achieved by a "price band" policy whereby import tariffs are adjusted only when import prices are outside a range of floor and ceiling prices. Provided that the price band is not too narrow, the world price signal is not completely annulled by offsetting tariff changes, and domestic prices are allowed to move reasonably in line with world prices. The legality of the scheme has yet to be tested, although it could be challenged as a variable import duty not accepted by the URA, or as a violation of the principle of MFN by imposing different import duties to different countries.

4. Uncertainty related to international prices can be addressed using risk management instruments such as options and future contracts. These are compatible with the GATT and the URA. However, these instruments have not been applied in most of the countries under consideration due to the small size of their markets. For these countries, the utilisation of the larger commodity exchanges for cereals, such as the Chicago Board of Trade, may be a more realistic approach than the creation of smaller country-specific exchanges.

5. An important instrument of supply stability allowed by the *Agreement* is food security stocks. Although it is not clear whether these stocks

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15 All Central American countries, except Panama, are members of the World Trade Organization (WTO).

could be used as an extensive price stabilisation instrument, the *Agreement* allows individual countries to use stocks to achieve their food security objectives. Again, budgetary restrictions are the main obstacle to apply this instrument.

6. Another provision of the *Agreement* related to domestic market stability is found in Article 12. At times of sharply rising world prices or sharply rising demand from a neighbouring country, Article 12 allows a country to put limitations on exports, providing the importing countries' food security is taken into account.

Conclusion

We conclude with some concrete recommendations for the countries of the region, as a response to the changing world trading environment.

As a first priority, we would urge the countries of the region to seek to grasp any opportunities that arise for import substitution and export promotion in the agricultural sector. The anticipated increase in the world price of basic food commodities (imported heavily by the region) should provide some incentives for increasing domestic production. This requires that prices are transmitted to producers, i.e. that farmers do indeed get better prices for their produce. But the countries may wish to go further than that. As stated earlier, the Agreement on Agriculture allows for considerable flexibility in its implementation. Some strategic support of key food commodities and of small farmers is still possible within the Uruguay Round rules.

On the export side there could also be some opportunities for traditional export commodities, but more likely opportunities will be in terms of the diversification into niche markets and to some extent in terms of capturing some of the value added through a greater degree of processing. Of course, this option is not directly related to the cereals subsector, but increased export earnings would help to assure the ability to pay for cereal imports.

The other broad area of policy changes called for is to provide some protection to poor households. Policies of this nature are of two kinds. First, defensive policies are possible, which would entail some buffering against world price instability. These can be done at the border by a sliding scale

of tariffs (known as the "price band" policy in Latin America), which puts an upper and lower limit of fluctuations in domestic prices. There can also be direct transfers targeted to the most vulnerable households. The second and perhaps more difficult type of assistance to poor households is a pro-active one and entails measures which would increase the purchasing power of the poor through employment creation and overall equitable development strategies. These policies are certainly not easy, but they are the only means to deal with the problem once and for all.

Table 1. Projected world cereal utilisation in the year 2010.

	Reported 1988/90			Reported 1992/94			Projected 2010		
	Utilisation	Population	Per Caput	Utilisation	Population	Per Caput	Utilisation	Population	Per Caput
World Regions	*million mt*	*million*	*kg*	*million mt*	*million*	*kg*	*million mt*	*million*	*kg*
East Asia, including China	435	1,598	272	463	1,706	271	657	2,061	319
South Asia	196	1,103	177	220	1,188	185	302	1,668	181
North Africa and Near East	112	297	376	119	338	351	190	493	386
Sub-Saharan Africa	63	473	133	74	517	144	129	915	141
Latin America and Caribbean	113	433	260	128	459	278	184	622	296
93 Developing Countries	918	3,905	235	1,004	4,209	239	1,462	5,758	254
34 Developed Countries	791	1,242	637	755	1,276	591	866	1,370	633
World (127 countries)	1,708	5,146	332	1,759	5,484	321	2,329	7,128	327
Central American Countries	*1000 tm*	*1000*	*kg*	*1000 tm*	*1000*	*kg*	*1000 tm*	*1000*	*kg*
Costa Rica	546	2,941	186	565	3,270	173	932	4,366	213
El Salvador	981	5,140	191	1,208	5,518	219	1,853	8,491	218
Guatemala	1,860	8,938	208	1,922	10,032	192	3,531	15,827	223
Honduras	778	4,983	156	939	5,336	176	1,446	8,668	167
Mexico	30,307	86,740	349	33,687	90,024	374	46,577	125,166	372
Nicaragua	645	3,746	172	642	4,115	156	1,224	6,824	179
Panama	363	2,370	153	526	2,538	207	664	3,325	200
Total	35,479	114,858	309	39,489	120,833	327	56.226	172.667	326

Table 2. Projected world cereal production at year 2010.

	Production			Growth rates	
	Reported		Projected	88/90-92/94	88/90-2010
	1988/90	1992/94	2010	% p.a.	% p.a.
World Regions		*million metric tons*			
East Asia, including China	418	446	635	1.6	2.0
South Asia	200	214	292	1.8	1.8
North Africa and Near East	73	84	119	3.6	2.3
Sub-Saharan Africa	54	63	109	3.9	3.4
Latin America and Caribbean	99	111	159	3.1	2.3
93 Developing Countries	844	918	1,314	2.1	2.1
34 Developed Countries	850	843	1,028	-0.2	0.9
World (127 countries)	1,694	1,761	2,342	1.0	1.6
Central American Countries		1000 metric tons			
Costa Rica	220	161	423	-7.5	3.2
El Salvador	791	852	1,204	1.9	2.0
Guatemala	1,504	1,434	2,347	-1.2	2.1
Honduras	613	686	1,090	2.8	2.8
Mexico	22,543	26,510	30,930	4.1	1.5
Nicaragua	459	482	813	1.2	2.8
Panama	245	272	438	2.6	2.8
Total	26,375	30,397	37,244	3.6	1.7

Table 3. Projected world cereal trade in the year 2010.

	Base Year1988/90				Net	Year 2010			
	Utilisation	Production	Net Exp.	I/U	Exp. 92/94	Utilisation	Production	Net. Exp.	I/U
World Regions	*million metric tons*			%		*million metric tons*			%
East Asia, including China	435	418	-20	5	-12	657	635	-22	3
South Asia	196	200	-5	2	-3	302	292	-11	4
North Africa and Near East	112	73	-38	34	-33	190	119	-71	37
Sub-Saharan Africa	63	54	-8	12	-11	129	109	-19	15
Latin America and Caribbean	113	99	-10	9	-16	184	159	-25	14
93 Developing Countries	918	844	-80	9	-76	1,462	1,314	-148	10
34 Developed Countries	791	850	93	-12	94	866	1,028	161	-19
World (127 countries)	1,708	1,694	12	-1	18	2,329	2,342	13	-1
Central American Countries	*1000 metric tons*			%		*1000 metric tons*			%
Costa Rica	546	220	-352.4	65	-424	932	423	-509	55
El Salvador	981	791	-186.4	19	-330	1,853	1,204	-649	35
Guatemala	1,860	1,504	-324.8	17	-454	3,531	2,347	-1,184	34
Honduras	778	613	-166.7	21	-226	1,466	1,090	-356	25
Mexico	30,307	22,543	-6,675.8	22	-7,878	46,577	30,930	-15,647	34
Nicaragua	645	459	-171.5	27	-155	1,224	813	-411	34
Panama	363	245	-124.6	34	-246	664	438	-226	34
Total	35,479	26,375	-8,002.2	23	-9,713	56,226	37,244	-18,982	34

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Acronyms and abbreviations

AMS = Aggregate measurement of support
CIS = Commonwealth of Independent States
IFPRI = International Food Policy Research Institute
LIFDC= Low-income food-deficit countries
MFN = Most favoured nation
LDC = Least developed country
SAP = Structural adjustment programme
SPS = Sanitary and phytosanitary measures
SSG = Special safeguards
TBT = Technical barriers to trade
UR = Uruguay Round
URA = Uruguay Round Agreement on Agriculture

CENTRAL AMERICAN AGRICULTURE IN THE GLOBAL CONTEXT: A SYSTEMIC VISION

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IICA Headquarters, Costa Rica

The objective of this presentation is to analyze the agricultural sectors of Central America within the context of economic globalization. Rather than offering concrete conclusions, we prefer to put forth a number of hypotheses that will encourage reflection on the problems of the Central American region.

Economic Globalization and Agriculture

Today, agricultural activities take place in a context totally different from that of the past; one in which the price system and the way in which resources are allocated have changed. In the region, it is important to continue monetary-financial stabilization programs and to move forward with economic structural adjustment efforts which, of course, include the agricultural sector.

In addition, the global integration process currently under way has forced these countries to look more closely at technology, competitiveness and ways to gain a better position on the global market by adding value to products and through the industrialization of agriculture. At the same time, they must take steps to conserve natural resources and develop human resources, who, after all, are at the heart of the economy of today and the society of tomorrow.

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This situation is not different from the effect globalization is having on all countries. One common element is the fact that the world market has become the driving force behind the world economy. Over a period of almost twenty-five years, capitalism registered a slowdown in world production (a trend which is expected to be reversed over the next few years) as compared to the dynamic growth of world demand. As a result, the market has become the spearhead of global economic development, and an increasingly important topic worldwide for policy makers and society in the past few years. More specifically, indications show that world trade is growing at more than twice the rate of world production, as can be seen in the following table:

Table 1. Evolution of world production and trade

	Average Annual Growth Rates		
Period	**Production**	**Trade**	**% Rate**
1974-1980	3.5	5.4	1.5
1980-1990	3.3	4.9	1.5
1991-1993	1.1	3.3	3
1994-2005	3.2	5.9	2

Source: Based on World Bank. Global Economic Prospects, Washington, D.C., 1994.

The transformation of the Uruguay Round of the GATT into the World Trade Organization (WTO) has been a giant step which will result in the creation, in the year 2005, of a new market with a total annual value of more than US$800 billion, with agricultural trade accounting for approximately US$150 billion a year. Obviously, a large share of this market already belongs to the industrialized countries; however, with full liberalization, developing countries could compete for between US$35 and US$70 billion of the world agricultural market. This means it will be necessary to develop and enhance the economic competitiveness of these countries (Table 2).

Table 2. Possible effects of the liberalization of international agricultural trade.

	US$ million	
	Liberalization of only industrialized countries	**Global Liberalization**
Krissoff *et al*, 1990		
Industrialized countries	33,128	33,065
Developing countries	-4,985	2,060
World	28,133	35,125
Anderson and Tyers, 1993		
Industrialized countries	46,500	73,300
Developing countries	16,600	33,400
World	62,200	106,500
Brandao and Martin, 1993		
Industrialized countries	72,666	73,425
Developing countries	5,689	65,636
World	78,355	139,061

Source: Brandao and Martin, 1993. Taken from Word Bank, *op. Cit.* p.43.

Also, according to estimates of the group of seven industrialized nations (G-7), macroeconomic variables will remain stable over the next ten years. In this climate, which is favorable for world economic development, it is hoped that inflation will decrease and production and trade will increase substantially, as illustrated in Table 3.

Table 3. World macroeconomic indicators through the year 2003.

Average annual growth rates			
Variables	**Growth rate. 1991 - 1993**	**Forecast normal**	**Forecast low**
Gross Domestic Product	1.2	2.7	2
Inflation	3.3	2.7	1.9
Trade	3.3	5.9	4.5
Interest	4.5	5.8	7
Gen. price index	-5.5	0.9	-1.1
Price index			
Petroleum	-12.5	1.9	0.7

Source: Based on World Bank. Global Economic Prospects, Washington, D.C., 1994.

Latin America and the Caribbean and Economic Growth

There is consensus that the macroeconomic framework for the immediate future will be stable, expressed in an annual 3% growth rate in worldwide economic activity, which, although insufficient, can serve to mitigate the uncertainty and risks inherent in the period of change expected over the next few years. In this context, the Latin American and Caribbean region will grow at approximately that rate over the next few years, but the outlook is better for Asian countries, which will continue to enjoy a faster economic growth rate (Table 4).

In these scenarios, per capita economic growth in Latin America and the Caribbean could average less than 2% per year, compared to 6% in Asian countries. There is no doubt that this latter region has been the most dynamic in the world economy in recent decades, and that it will generate even more income in the future.

Table 4. Macroeconomic stability worldwide, 1994-2003.

Forecasts of average annual growth rates				
	Total growth		**Per capita growth**	
	normal	**low**	**normal**	**low**
World total	3.2			
Latin America and the Caribbean	3.4	0.8	1.7	-0.7
East Asia	7.6	7.1	6.2	5.7
China	8.5			
Southern Asia	5.3	4.2	3.4	2.5
Sub-Saharan Africa	3.9	2.4	0.9	-0.4
M. East/N. Africa	3.8	3.2	0.9	0.3
Europe / Central A.	2.7	1.5	2	0.9

Source: Based on World Bank. Global Economic Prospects *op.cit.*, 1994

Notwithstanding the normal, optimistic forecast, there is a less optimistic but still feasible scenario. Under same, Latin America and the Caribbean would grow at less than 1% rather than 3.4%. A growth rate of less than 1%, which is well below population growth, would produce negative per capita economic growth and generate other consequences. In contrast, the outlook for general and per capital growth in the Asian countries is excellent in both scenarios.

Regardless of the scenario, agriculture will play a key role. This holds true in the more optimistic scenario because it offers more opportunities to increase exports and the potential for real technological improvement; in the less optimistic scenario, this is also true because emphasis must be placed on matters related to food security.

Just like the other countries in the hemisphere, the Central American region has considerable experience in dealing both with adjustment policies and, in general, macroeconomic variables, having accumulated same during the 1980s and 1990s. In the early 1990s, the region experienced renewed, albeit moderate, growth.

Table 5. Latin America and the Caribbean.

	Initial stage of stagnation and recession 1980 - 1985	Recovery stage 1990 - 1996
Gross domestic product	Decrease and recession	Recovery
Employment	Drastic drop	Gradual increase
Inflation	High and uncontrolled	Moderate and on the decrease
Public finance	Disequilibrium	Equilibrium
Exports	Stagnated	Dynamic
Net flows of external capital	Low and negative	High and positive
Savings and investment	Low and negative	Moderate increase

Source. Prepared by the author, based on ECLAC, 1996.

In spite of all of this, there are certain macroeconomic maladjustments and disequilibriums in Central America that for some are structural; however,in my opinion, they are more of a short-term nature. Nevertheless, they equally affect the allocation of resources and the way in which agricultural activities are carried out in the region.

A manifestation of the new economic model in Latin America and the Caribbean is the generalized opening up to other regions, as can be seen in Table 6.

Over the past 15 years, Latin America and the Caribbean have seen dynamic growth in exports, which increased from US$88 billion in 1980 to US$223 billion in 1995. It is clear that there has been, and continues to be, a considerable effort to increase exports in Latin America and the Caribbean as a whole. Nevertheless, imports have also increased disproportionately and at a faster rate than exports.

Table 6 Latin America and the Caribbean: Balance of Payments and Current Account.

Million de dollars	1970	1980	1990	1994	1995	Annual growth rates 1970-80	1980-90	1990-95
Export of goods	13,616	88,585	121,966	181,988	223,375	20.6	3.2	12.9
Importation of goods	12,769	90,903	94,813	197,222	221,095	21.7	0.4	18.5
Trade balance of goods and services	-424	-12,678	24,487	-26,655	-5,860			
Balance of current account	-3,060	-30,459	-4,229	-50,022	-34,490			

Source: Prepared by the author, based on ECLAC, 1996.

This has led to a deficit in the trade balance of goods and services of approximately US$20 billion a year (except in 1995 and 1996, due to the economic shocks applied in Mexico and Argentina), and severe deficits in the current account balance. The countries of the region compensated for the trade disequilibrium by attracting flows of foreign capital. Beginning in 1991, the net inflow of capital became positive, covering almost the full amount of the trade deficit and the deficit in the current account of the balance of payments.

Table 7. Latin America and the Caribbean: Inflows and transfer of resources.

Year	Net inflow of capital	Payments of profits and interest	Transfer of resources
1980	31.6	18.9	12.7
1990	17.6	34.3	-16.7
1991	38.1	31.3	6.8
1992	61.9	30.3	31.6
1993	66.9	33	33.9
1994	44.9	33.4	11.5
1995	22.4	39.8	-17.4

Source: Prepared by the author, based on ECLAC, 1996.

Nevertheless, these capital flows put heavy pressure on the exchange rate, which was reflected in a trend toward currency appreciation in most of the countries. The clearest example was Mexico where, in 1991, the country began to witness a steady appreciation in the exchange rate which eventually required serious corrections in 1995 in order to establish a real effective exchange rate, through a severe devaluation of the Mexican peso. However, some countries, such as Chile, did not record wide margins of overvaluation. In general, the trend in recent years in the Central American region has been to keep the real effective exchange rate in balance, although there are some countries in which the exchange rate shows signs of appreciation.

Table 8. Latin America and the Caribbean indexes of real effective exchange rates for exports.

	1990	1991	1992	1993	1994	1995
Argentina	100	83.3	77.5	74.4	78.4	86.7
Brazil	100	118.5	127.7	115.4	92.9	71.2
Chile	100	98.9	98.3	96.6	96.5	93
Colombia	100	101	90	87	74.8	73.3
Ecuador	100	99.2	94.7	84	78.2	77.4
Mexico	100	91.1	84.1	79.8	81.9	120.5
Peru	100	82.1	80.9	83.3	84.4	86.2
Uruguay	100	88.1	84.1	74.2	76.6	79.3
Venezuela	100	93.9	88.5	88.9	92.5	74.3
C.A. Isthmus						
Costa Rica	100	108.3	103	100.7	101	98.4
Salvador	100	98.4	98.2	87.4	83.9	81.9
Guatemala	100	87.9	87	88.2	85.1	82.6
Honduras	100	107.9	102.2	112.6	125.3	113.1
Nicaragua	100	104.6	104.9	108.3	113.3	118

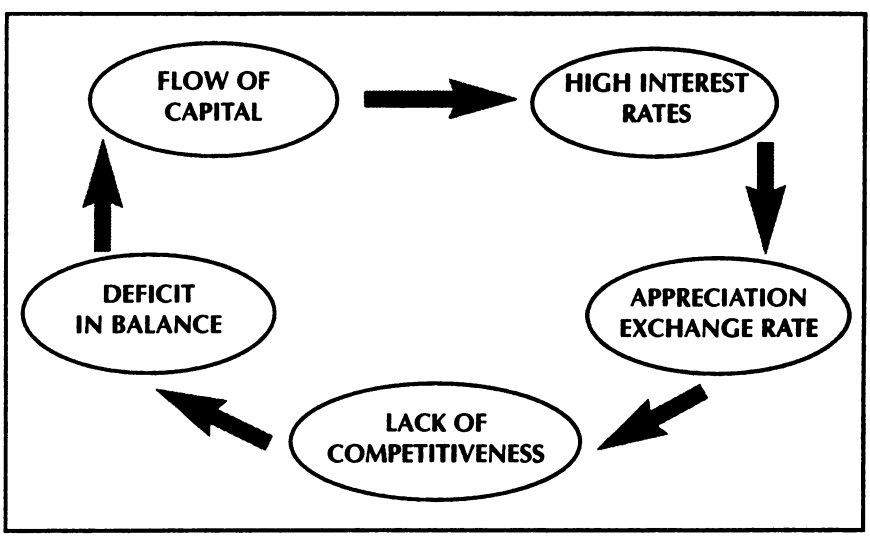
Source: Prepared by the author, based on ECLAC, 1996.

The exchange rate is perhaps one of the macroeconomic variables that can have the greatest impact in the short term on the economic activities of a country. The exchange rate is a key element for achieving a macroeconomic framework that is favorable to production; however, a slight maladjustment implies a negative impact on competitiveness, profitability and, in general, investment decisions for the agricultural sector.

This characteristic can be described as generating a vicious circle in the region's economy. In this connection, a deficit in current accounts and in the trade balance can be eliminated with inflows of foreign capital, using higher domestic interest rates to attract capital.

Nevertheless, this method of attracting capital increases the cost of money and makes it difficult to finance technological change, thus becoming a barrier for greater competitiveness. In addition, appreciation of exchange rates curtails competitiveness since it increases the cost of exports and reduces the cost of imports, putting pressure on the trade balance and boosting the deficit. This is a vicious circle, which has an important negative impact on the performance of agriculture in the region.

Figure 1. Vicious circle.

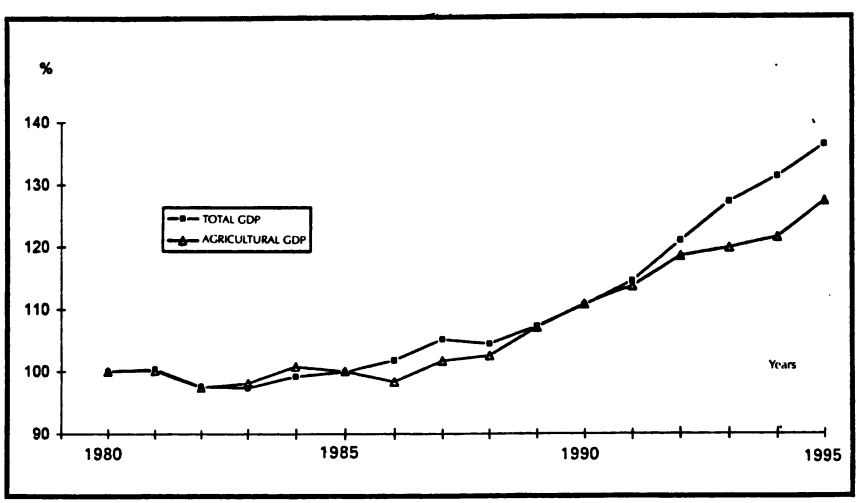


Source: Prepared by author.

External Opening and Food in the Central American Region

As has been noted, the countries of Central America have had broad experience with adjustment and monetary-financial stabilization policies over the past fifteen years. In general, it can be said that there is a balanced macroeconomic framework, in spite of certain situations and problems in the countries. Nonetheless, it should be noted that the growth of the agricultural sector in Central America has been slowing down and has started to lag behind overall economic growth. This is significant because the agricultural sector continues to be a very important contributor to the gross domestic product in this region.

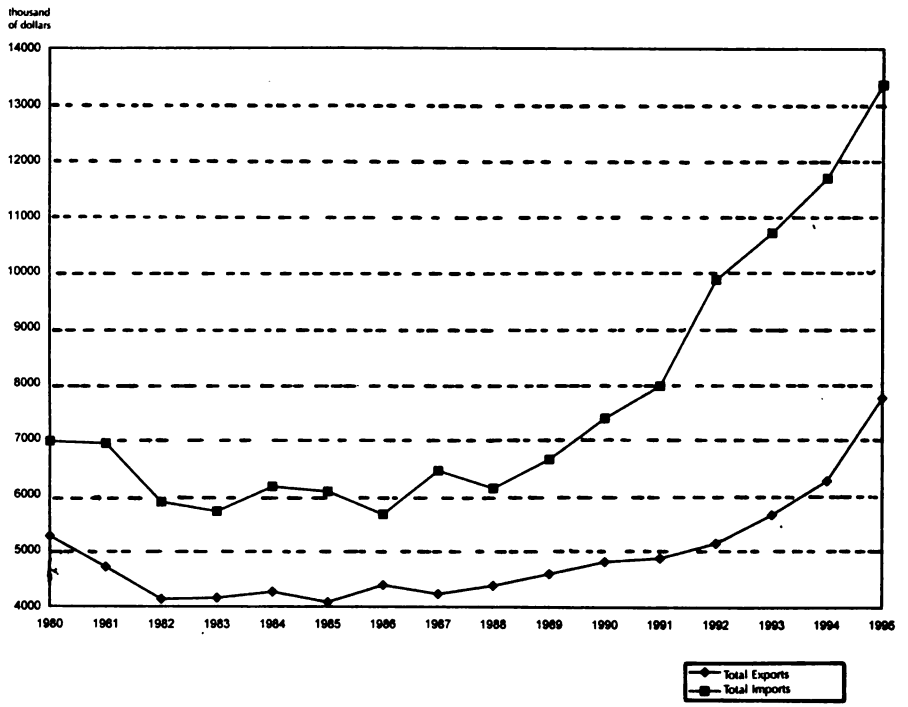
Figure 2. Growth of the GDP of the Central American Isthmus



Source: Prepared by the author, based on ECLAC, 1996

Nonetheless, Central America has also redirected its economy towards exports, and, as a result, total exports from the region have increased during the 1990s, but imports have also skyrocketed.

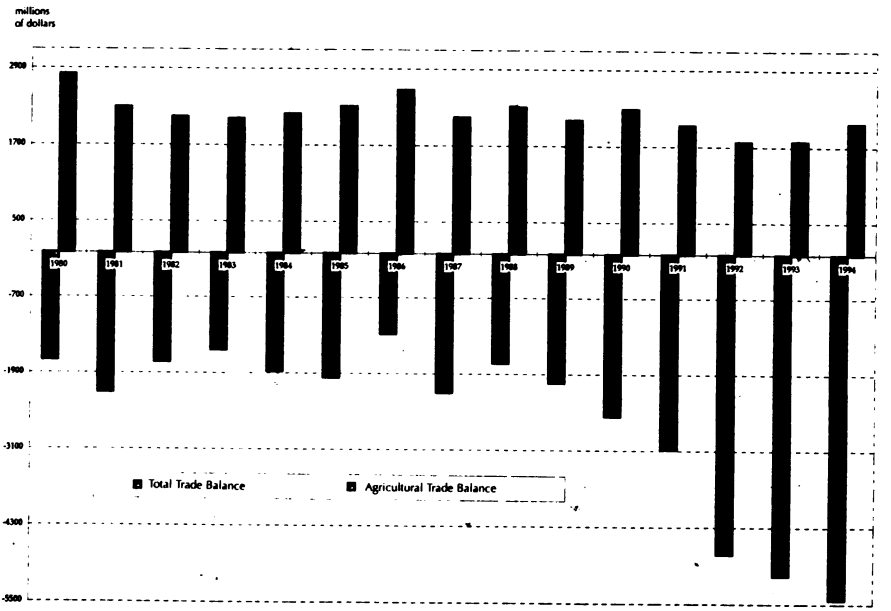
Figure 3. Central American Isthmus: Total foreign trade.



Source: Prepared by the author, based on ECLAC, 1996.

The dynamics of foreign trade have increased the trade deficit in the Central American region, as a result of recently applied macroeconomic policies. In this situation, however, agriculture's contribution through its traditional foreign trade surpluses has been significant, making it possible to counteract, to a certain degree, the spectacular growth of imports. It should be noted, however, that in the past few years there has been a dangerous drop in the agricultural foreign trade surplus which, in turn, has produced a greater overall trade deficit of the region. This can be seen quite clearly in Figure 4.

Figure 4. Central American Isthmus: Agricultural trade balance.



Source: Prepared by the author, based on ECLAC,1996.

With regard to food production, there has been a slight decline in the growth of food production in Central America, which is also true for the rest of Latin America and the Caribbean. More specifically, this refers to basic food production, which is in recession or stagnation, and the possibility exists in several countries that this growth is not keeping up with the population growth.

In sum, it can be said that the Central American region finds itself in a context of macroeconomic equilibrium, with overall relative growth, but somewhat lagging behind with regard to growth in the agricultural sector. Stagnation in the production of basic foodstuffs is not the only cause; agroexports are also to blame.

Table 9. Food production.

	Average annual growth rates					
	1980-90	**1990**	**1991**	**1992**	**1993**	**1994**
Latin America	2.4	1.6	2.4	2.3	1.5	4.5
Central America						
Costa Rica	1.4	-2.7	2.8	-15.3	-20.2	-1.3
Guatemala	3.7	7.5	0.7	0.0	0.0	2.1
El Salvador	0.5	0.9	-0.9	8.5	0.9	0.9
Honduras	2.2	5.0	1.6	3.1	4.5	-3.6
Nicaragua	0.6	6.9	-7.5	4.7	6.7	3.1
Panama	1.3	1.8	7.1	0.8	-2.5	1.7

Source: Prepared by the author, based on ECLAC, 1996

This leads us to think that, in the Central American region, the performance of the agricultural sector, despite all its linkages, is not improving consistently; there is considerably more growth in agroindustrial transformation, but same is hindered by a bottleneck due to the slow development of technology, productivity and competitiveness in the agricultural sector. I believe this is why important service markets have not been developed for technology generation and transfer, the health and quality of seeds and products in general, services related to capital investment, and foreign and domestic marketing of agricultural commodities.

Within this context, the food problem for Central America would seem to be not only a problem of agriculture in the region, but rather one with multiple dimensions, for example, the level of income of the population and their access to food. Therefore, the problem of products such as staple grains cannot be seen from the standpoint of production, marketing and distribution alone. Actually, the food problem should be envisaged within the greater context and take into account the relevance of macroeconomic policies and the external opening process, with a view to defining sectoral policies that are in harmony with the overall context, but in a more proactive and assertive manner.

Another interesting topic is the need to envisage the problem of agriculture in the region as part of the development of economic policies to foster greater human development (Figure 5). Lance Taylor presents a normal sequence in the application of monetary-financial stabilization programs, which perhaps could be adapted to the region, that demonsrates that macroeconomic equilibria have indeed been achieved, *a grosso modo*; that important agricultural sector adjustment programs are being undertaken, though perhaps still insufficient, and above all, that it has been possible to generate a certain amount of growth, albeit with some problems. Lastly, there could be a human development phase, based on an interesting sectoral macroeconomic sequence.

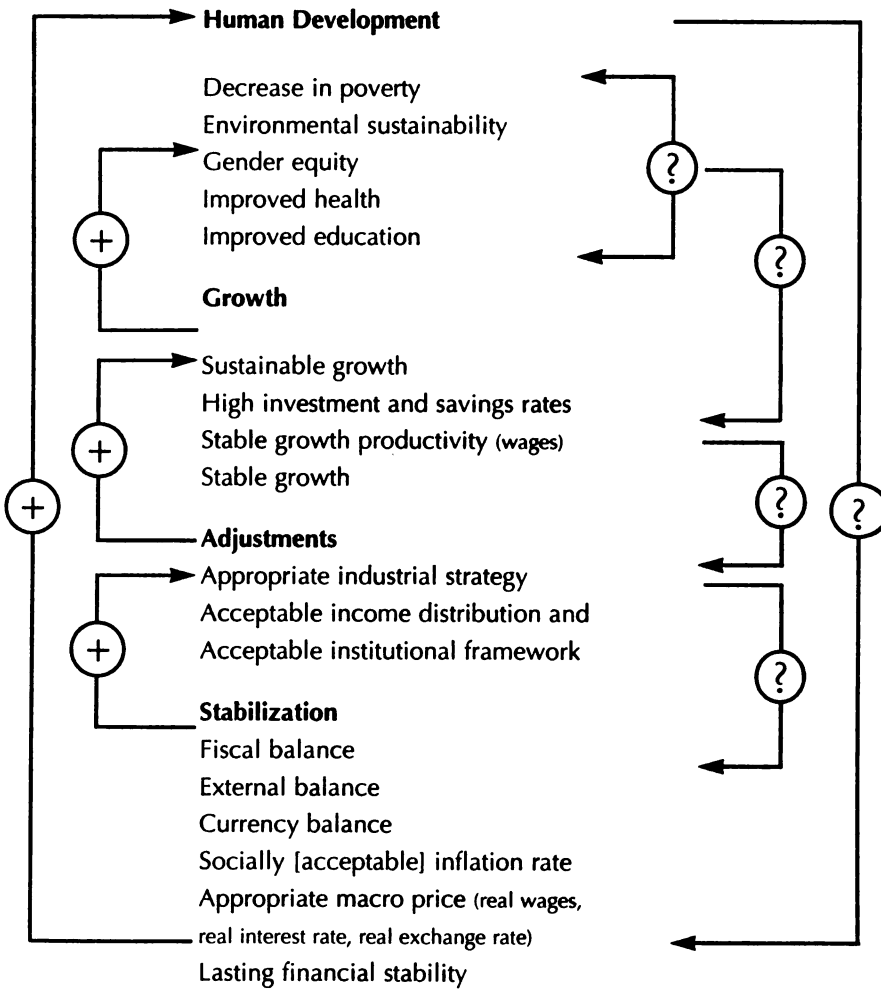
Figure 6 presents a virtuous circle regarding policy proposals which, in my opinion, is relevant. In summary, since 1982, monetary-financial stabilization programs have been applied in the region and macroeconomic equilibria were achieved, with the subsequent development of adjustment policies. In 1991, growth began and, theoretically, we should be entering a phase eliminating poverty and increasing human development, especially in view of the importance of human resources in upgrading competitiveness and adding value to products.

I believe it is important to move away from the false belief that stabilization, adjustment and growth programs, etc., are separate and sequential. I believe that in the next few years, as the new millennium approaches, a virtuous circle will be achieved for the first time in which stabilization programs are not eliminated, but rather maintained because they are necessary. At the same time, further structural adjustments will be made to achieve growth and to ensure that policies are aimed not only at eradicating poverty but also at generating a process of human resource development.

This process includes four fundamental components: food, health, work and education. The training included in the educational component is essential since it will equip human resources to meet the challenges of the society of the future, which is the society of knowledge.

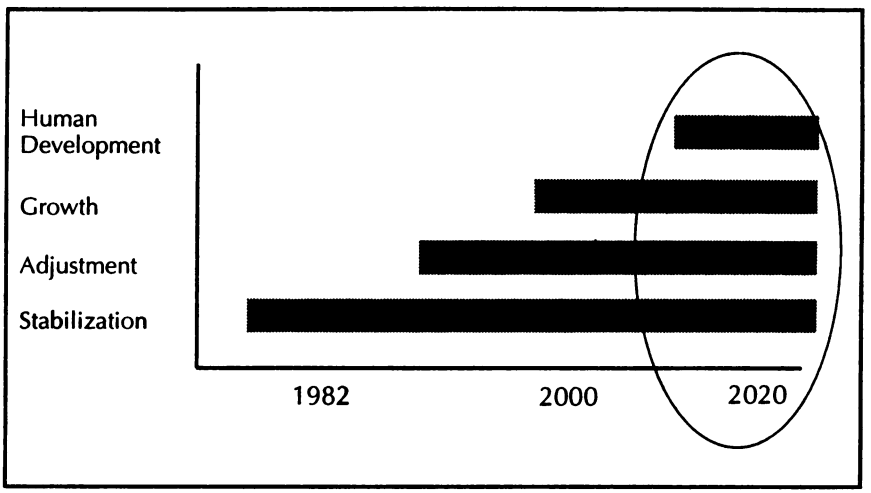
In conclusion, the overall proposal of the reflections and hypotheses that I want to share with you is an optimistic scenario for the region in the coming years; however, in order to make this a reality, economic stabilization, adjustment, growth and, above all, human resource development are subjects that must be addressed simultaneously in this process.

Figure 5. Stabilization, Adjustments, Growth and Human Development.



Source: Taylor, Lance, *op.cit.*.

Figure 6. Virtuous circle.



Source: Prepared by the author.

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FOOD SECURITY: MEXICO'S EXPERIENCE

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Undersecretary of Planning of the
Secretariat of Agriculture, Livestock
and Rural Development of Mexico

My presentation deals with agri-food policy in Mexico and consists of three parts. The first refers to the policy framework of the Mexican agricultural sector. The second offers an overview of food programs, especially those of the current administration. The third focuses on policy proposals or recommendations based on Mexico's experience.

Earlier speakers described the conditions surrounding agriculture worldwide, calling special attention to four elements:

1. The importance of macroeconomic stability in terms of prices and exchange and interest rates to agricultural policy decisions;
2. Foreign trade policies, which, in the case of Mexico, are the trade agreements with North America and Central America and which define rules for trade for the long term;
3. A legal and regulatory framework that clearly defines property rights and, therefore, provides economic agents with greater certainty in decision making; and
4. Decentralization policies and other reforms, which make it possible today to envision a new role for the state in the area of agricultural sector and food policy.

The challenges associated with food policy are defined by the general policy framework, and within which actions seem to occur on four levels simultaneously. The first level is the long term, in which countries such as Mexico experience major urban growth and a change in the contents of the family food basket, making it necessary to pay greater attention to the quality and appearance of agricultural products (for example, processed prod-

ucts) and adhere to strict standards. At the second level, the short term, what is important are those climatic conditions that sometimes cause short-term problems such as droughts and floods, and that have a strong impact on sectoral development. At the third level is the process of globalization and, in particular, the liberalization of most economies. In the case of Mexico, this is a key factor in decision making and policy formulation.

When thinking of the long-term for Mexico, a period of perhaps 25 years, continued urban growth and a steadily growing population (which may reach 130 to 150 million) will put pressure on the agricultural sector to produce approximately twice as much as today. There will also be pressure on the use of land, based on the opportunity costs of urbanization and agricultural activity. Given the opportunities and challenges facing the sector, it will be necessary to take a serious look at exactly how much can be done to increase the amount of agricultural land and develop the agricultural and food-production sector.

I mention this because today, the Mexican economy is almost completely dependent on climatic conditions during the spring-summer season of the agricultural production cycle. This limits our policy options to promoting projects in the field that combine the aforementioned three levels and a fourth and final level, which is that of satisfying the food needs of the population in an economy which has a poor or extremely poor rural sector.

Countless food programs have been implemented in Mexico over the last two decades. The objectives of these programs, some of which were part of a comprehensive social development policy while others were not, were to increase food production and foster integrated development in our rural areas. In the 1970s, the Program for Public Investments in Rural Development (PIDER) had the objective of providing the rural areas of the country with infrastructure works and services, creating employment and boosting productivity. In the late 1970s, a new program was launched called COPLAMAR (General Coordination of the National Plan for Depressed Zones and Disadvantaged Groups), which made investments in rural areas and focused on target populations in highly disadvantaged areas of the country.

In the 1980s, the oil boom in Mexico gave ruse to the Mexican Food System (SAM) program, whose objective was to transfer oil revenues basically to rural development. The fundamental aim was to overcome the food crisis of the mid-1970s caused by shortages on international markets

and adverse weather conditions in Mexico, and to ensure self-sufficiency in grains through subsidies for corn, bean, rice and oil consumption, primarily.

A second generation of programs began in the mid-1980s, with the National Food Program. To a certain extent, this program was a continuation of the SAM program of the early 1980s, though it was not as well funded. Its goal was to strengthen programs to improve access to food by ensuring adequate prices, adequate supplies at the national level, and products differentiated by quality, in order to raise nutritional levels in Mexico's rural areas.

Under the administration of President Ernesto Zedillo Ponce de Leon, food policy was set out in the 95-2000 National Development Plan, one of the key elements of the government's social development policy. This plan takes into account the macroeconomic and foreign trade context and builds upon the structural change proposals of the preceding administration. Consideration is also given to the agricultural sector strategy *per se*, which calls on the sector to adjust its policy instruments, as part of the liberalization process, in an attempt to link programs offering rural producers greater freedom in using the factors of production.

As in other Latin American countries, Mexico has begun to eliminate support prices and contract prices, replacing them with direct income support for a period of 15 years through the PROCAMPO program. In this program, rural producers submit modernization and diversification plans in order to trade such support (at present value) on the market and use farmland they have registered with the program for other agricultural, forestry or fishery activities.

Also, backward subsectors and low agricultural productivity areas are identified, with a view to designing instruments to improve training, investment and technology transfer. As a result, a program was instituted entitled "Alliance for the Countryside," which uses a variety of agricultural development strategy instruments. This program recognizes the sector's basic low productivity and seeks to eliminate distortion-producing economic instruments and to inject matching funds for state governments and rural producers' organizations, for projects that increase investments in the countryside.

The Alliance for the Countryside program is made up of several programs. Of particular importance is one called CAPITALIZA, which serves

as an umbrella for several subprograms. In CAPITALIZA, fiscal resources are earmarked for identifying investment projects in rural areas. As potentially profitable projects are identified, economic support is provided for the preparation of the feasibility study. Next, the project competes and is approved at the federal level through the participation of foundations (private trust funds administered by rural producers), where they receive matching federal funds for state resources and resources from producers. This makes it possible to fund the programs designed where real production decisions are made and to increase capital formation among rural producers, through one-time subsidies for fertilization and irrigation activities, and investments that contribute to natural resources (water, soil) conservation.

CAPITALIZA calls for the establishment of pastures in regions where the agricultural opportunity cost is very high and where, in social terms, there will be a positive impact, such as in a shift from the use of grain-based animal feed to natural grasses, leguminous plants, etc. Equipping rural producers for agricultural activity and mechanization are also fundamental points of this program.

The program known as RECONVIERTE is based on the need to replace price subsidies with others having a direct impact on the incomes of rural producers, as in the case of PROCAMPO. In RECONVIERTE, rural producers eligible to participate in PROCAMPO (which is a limited list of producers who register their farmland and receive a direct subsidy for 15 years) can access resources to identify profit-making investment projects in which risks are shared with the government, by trading this economic support on the market over a period of 15 years.

In other words, the producers have a variety of options. Some producers receive their resources on an annual basis because they complied with the conditions of the programs. Others opt to make changes in their production structure and identify an investment project. The government assumes the risk with them and agrees to fund part of the project to switch to other economic activities within the agricultural, forestry or livestock sectors.

These programs of the Alliance for the Countryside have a republican-type influence. For them to be successful, it is necessary to transfer decisions regarding what, how and when from the central level to the state level and then to the municipal level. In other words, decentralization is strengthened because decisions are made at a level of the foundations,

where rural producers play a fundamental role. This what we call "federalizing" rural projects and programs into the hands of the producers.

The third program directly related to food works to redirect the subsidies of different programs that supported wheat or corn flour, milk, etc. and had an important impact on fiscal revenues. These programs have been merged into a single "Nutrition, Health and Education Program." In contrast with traditional general subsidies, this program identifies a target population.

In the case of such general subsidies, usually offered to support a specific product, the target population (in this case, people in extremely disadvantaged rural areas) may have no, or limited, access to the subsidy. In contrast, today, a target population is identified, in this case indigenous communities, disadvantaged rural and urban areas, and vulnerable members of poor families, including children under the age of five, pre-school and elementary school children and pregnant or nursing women.

By identifying the target population, the disadvantaged areas are identified and a strategy is developed, based on three components: a) the development of human capital, b) the development of physical infrastructure, and c) a temporary employment program intended to serve as a stepping stone for people in these disadvantaged areas.

In order to develop human capital, the income transferred previously in the form of general subsidies is now transferred to direct-income transfer programs. It should be pointed out that this transfer is monetary and can become a basket of goods so long as the beneficiaries/consumers, not the government, so decide. This has made it possible to raise the level of well-being, with the same fiscal resources, by expanding the basket of basic products for the target population.

Also, as the structural adjustment of the agricultural sector continues, we can gradually_manage resources without the need for additional budgetary outlays for programs to develop physical infrastructure under the programs of the Alliance for the Countryside. Rural producers can make decisions related to investments in physical_infrastructure; in other words, decisions on physical infrastructure are transferred to the communities, who know what their needs and priorities are (a highway, electricity, a well, etc.). Also, the investment projects involve matching resources from the producers themselves, in the form of capital or labor.

One of the most important elements is the decentralization of the functions of the central government sector, which is possible thanks to efficient interinstitutional coordination. Mexico's former Secretary of Agriculture, Francisco Labastida, once made a comment to the effect that coordination of these programs can only be achieved if the office of the president is willing to grant to the members of the different official agencies associated with the programs the authority and decision-making power to transfer administrative duties from one government agency to another, or to civil society itself.

With respect to possible policy recommendations, I would like to raise three: one in the area of production, another in the area of sustainability, and the third in the area of food and nutrition surveillance.

In the area of production, I believe several policy options were mentioned here that can vary depending on the situation in each country. In the case of Mexico, it has been necessary to ensure consistency between structural change programs at the macro level_and the needs for investments at the regional and sectoral levels in agriculture, aquaculture, fisheries, etc. This has been accomplished not only with a more active participation of economic agents, but also through the promotion of public investment in programs to boost productivity and to access and generate technologies. Although all of these can have a high social cost, not to do so implies an even higher cost in the long term.

Also, it is necessary to promote the development of financial brokerage systems. As part of a liberalization process, it is necessary to build an institutional structure of financial, normative and regulatory instruments that will provide rural producers with access to financial products under the best possible conditions, given the intensity or abundance of the factors of production. In addition, marketing also has an important financial angle, and if we do not have financial instruments that provide the flexibility needed to fund the inventory of the agricultural products (even with the best price on the international market), rural producers will be affected negatively, in the form of low prices for their products. This problem must be solved with the willingness to create options, be they coverage on international markets, reporting programs, etc., that make it possible to provide funding for the short term through previously established prices, etc..

Another element of the production issue is competitiveness, which implies technology. In a country such as Mexico, we can only expect mod-

erate growth in the area under cultivation over the long term, which is why it is so important to move forward in the development of new technologies such as biotechnology.

In the area of sustainability, we have no other choice but to assign a cost to the use of non-renewable resources such as water. It is important to encourage universities, research institutions and government agencies to develop technologies adapted to the characteristics of our rural milieu, which will facilitate access to proven technologies for small farmers with production potential.

We must develop the infrastructure needed to gather and store agricultural products. How are we going to attract resources from the countries that have an abundance of capital if there are no norms or standards in place or incentives for private investment in the handling of grains and other agricultural products? This is directly related to the reeillance, we must work, in the case of Mexico, on two levels. At the overall level we must invest in education and infrastructure and improve the well-being of our population. At the second level, we must focus on target populations in extremely disadvantages areas and ensure that every peso invested in specific programs is used as effectively and efficiently as possible, in an effort to replace the vicious cycle of poverty with a virtuous cycle to improve the well-being of families.

As regards the nutritional program, the children of pregnant women enter the program directly. This program addresses not only nutrition, but also the basic education of individuals who receive this government subsidy through the health units operating at the national level. It is through these health units that the nutritional or education subsidy can be regulated. When the opportunity cost for the families is very high and the children must go to work in the fields, a decision must be made; we offer them education, seeking to resolve this problem with a long-term action. The best course of action in this case is to pay the opportunity cost of small-farmer labor, to prevent children from dropping out of school, because this represents a serious vicious circle for countries like ours.

In conclusion, these are the policies adopted in Mexico in recent years. They have not solved all our problems, but they are consistent within the context of economic liberalization and globalization.

FOOD SECURITY STRATEGIES: THE ASIAN EXPERIENCE

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Famine and food security are at opposite ends of a spectrum. It is only in modern times that entire societies, as opposed to privileged members of those societies, have been able to escape from chronic hunger and the constant threat of famine (Fogel, 1989, 1991). Many countries in the developing world, especially in Africa and South Asia, have not managed this escape. In these countries, understanding the factors that cause widespread hunger and vulnerability to famines, and the mechanisms available to alleviate their impact, remain important intellectual challenges (Ravallion, 1987, forthcoming; Sen, 1981; Dreze and Sen, 1989). Participants at the World Food Conference in Rome in November 1996, will focus much of their attention on these challenges of coping with hunger (USDA, 1996).

There is a different way to pose the question, however. Rather than asking how to cope with hunger and famine, the question might be how to escape from their threat altogether. As Fogel has emphasized, this is a modern question that is only partly answered by the institutional and technological innovations that are at the heart of modern economic growth (Kuznets, 1966). Without these innovations, to be sure, the modern escape from hunger to food security would not have been possible. But the record of economic growth for the Third World since the 1950s shows that even

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in countries with relatively low levels of per capita income, government interventions to enhance food security can lift the threat of hunger and famine. The countries most successful at this task are in East and Southeast Asia, although the experience in South Asia has been instructive as well.

Food Security and the Escape from Hunger

That rich countries have little to fear from hunger is a simple consequence of Engel's Law; consumers have a substantial buffer of nonfood expenditures to rely on, even if food prices rise sharply. In a market economy, the rich do not starve. Wars, riots, hurricanes and floods, for example, can disrupt the smooth functioning of markets, and all in their wake can perish. But rich *societies* usually have the means to prevent or alleviate such catastrophes, social or natural. Food security in such societies is simply part of a broader net of social securities.

Without the buffer of Engel's Law, consumers in poor countries are exposed to routine hunger and vulnerability to shocks that set off famines (Anderson and Roumasset, 1996). And yet, several poor countries have used public action to improve their food security.[1] The typical approach reduces the numbers of the population facing daily hunger by raising the incomes of the poor, while simultaneously managing the food economy in ways that minimize the shocks that might trigger a famine. These countries, some of them quite poor, have managed the same "escape from hunger" that Fogel documents for Europe.

The main premise of this essay is that an early escape from hunger is not primarily the result of private decisions in response to free-market forces. Improved food security stems directly from a set of government policies that integrates the food economy into a development strategy that seeks rapid economic growth with improved income distribution (Timmer,

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1 Defining food security is an exercise in itself, especially when both macro and micro dimensions are included in the definition. In a recent review, Simon Maxwell (1996) listed 32 (!) different definitions of the term used by various authors between 1975 and 1991. Each definition is sensible in some context. The goal of this essay is to understand the economic context in which food security is no longer a personal or a policy concern. Almost any definition that is intuitively plausible will do for that purpose.

et al., 1983). With such policies, countries in East and Southeast Asia offer evidence that poor countries can escape from hunger in two decades or less – that is, in the space of a single generation. Although two decades may seem an eternity to the hungry and those vulnerable to famine, it is roughly the same as the time between the first World Food Summit Conference in 1974 and the second one in 1996. Despite much well-meaning rhetoric at the earlier summit, including Henry Kissinger's pledge that no child would go to bed hungry by 1985, the failure to place food security in a framework of rural-oriented economic growth, in combination with policies to stabilize domestic food economies, meant that two decades have been wasted in many countries.

Food Security and Economic Analysis

The focus here is on food security as an objective of national policy. The emphasis is on food security at the "macro" level. At that level, policymakers have an opportunity to create the aggregate conditions in which households at the "micro" level can gain access to food on a reliable basis through self-motivated interactions with local markets and home resources. The perspective taken is, thus, primarily an economic one.

Surprisingly, however, recent literature on food systems and economic development makes such an *economic* assessment of food security a difficult task. Three bodies of literature are potentially relevant to an analysis of how countries can escape from hunger and provide food security for thcir citizens, and yet none addresses the topic directly.

First, there is a substantial literature on the achievements of rapid economic growth (World Bank, 1993; Lucas, 1988; Barro and Sala-i-Martin, 1994; Taylor, 1996). Export orientation and openness to trade tend to be the dominant policy issues in this literature. In none of this literature is food security even mentioned, and agriculture receives only passing notice. Both omissions are surprising in view of the historical links between agriculture and economic growth and the fact that no country has sustained rapid economic growth without first achieving food security at the macro level (Timmer, 1996b).

Second, agriculture is treated in the literature on rapid poverty alleviation through rural-oriented economic growth (Timmer, 1991, 1995, 1996a; Birdsall, Ross, and Sabot, 1995; Ravallion and Datt, 1996, Lipton, 1977;

Mellor, 1976). But even though the agricultural sector and the rural economy are the focus of this literature, no connections are made to price stability or other dimensions of food security, and trade issues are largely ignored.

Third, there is a growing literature on stabilization of domestic food economies and the contribution of stability to economic growth (Bigman, 1985; Chisholm, 1982; Sarris, 1982; Newbery and Stiglitz, 1981; Morduch, 1995; Tirnmer, 1989, 1996c; Dawe, 1996; Ramey and Ramey, 1995). But the stabilization literature is badly bifurcated into micro-based analyses of decision-maker response to risk (both consumers and producers) and macro-based assessments of the impact of instability, usually measured by rates of inflation, on economic growth. Virtually no analysis has been done to connect these two topics, which is surprising in view of the macroeconomic significance of the food sector in most developing countries. A further connection links food security to political stability, which is increasingly important as a factor influencing investment, including foreign direct investments and porfolio investments in these countries.

The Asian Approach to Food Security

Not surprisingly, food security strategies in Asia have been little influenced by this economic literature. The lack of influence stems from at least two factors. First, the dominance of rice in the diets of most Asians, coupled to the extreme price instability in the world market for rice, forced *all* Asian countries to buffer their domestic rice price from the world price. This clear violation of the border price paradigm and the accompanying restrictions on openness to trade seem to have escaped many advocates of the East Asian miracle, who see the region's rapid growth as evidence in support of free trade (World Bank, 1993).

Second, most Asian governments have paid little attention to formal efforts to define food security as a prelude to government interventions that would be seen as their approach to "food security." Instead, the food security strategies of most countries in East and Southeast Asia have had two basic components, *neither* of which is specifically linked to any of the standard definitions of food security used by international agencies. The United States' position paper for the 1996 World Food Conference, for example, uses one version of these standard definitions:

Food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Food security has three dimensions:

Availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports;

Access by households and individuals to adequate resources to acquire appropriate foods for a nutritious diet; and

Utilization of food through adequate diet, water, sanitation, and health care.

(USDA, 1996, p. 2)

This definition is obviously an ideal that no country could hope to reach in fact. By contrast, the Asian countries that have been most successful at providing food security to their citizens have based their strategies on two elements of their domestic food system over which they have some degree of policy control: income growth and food prices.

The rate and distribution of economic growth are primarily matters of macroeconomic and trade policy (once asset distributions are given as an initial condition). Although there is continued controversy over what role Asian governments played in stimulating growth and channeling its distribution, there is no disagreement that high rates of savings and investment, coupled to high and sustained levels of capital productivity, in combination with massive investments in human capital, explain most of the rapid growth (World Bank, 1993). Therefore, growth that reached the poor was one component of the food security strategy.

In the second element of the strategy, Asian governments sought to stabilize food prices, in general, and rice prices, in particular. Engel's Law ensures that success in generating rapid economic growth that includes the poor is the *long-run* solution to food security. In the language of Dreze and Sen (1989), such economic growth provides "growth-mediated security." In the meantime, stabilization of food prices in Asia ensured that short-run fluctuations and shocks did not make the poor even more vulnerable to inadequate food intake than their low incomes required.

Economists are highly dubious that such stability is economically feasible or desirable. It is not a key element of the "support-led security" mea-

sures outlined by Dreze and Sen (1989). In a recent review of food security and the stochastic aspects of poverty, Anderson and Roumasset (1996) essentially dismiss efforts to stabilize food prices using government interventions:

> Given the high costs of national price stabilization schemes (Newbery and Stiglitz, 1979, 1981; Behrman, 1984; Williams and Wright, 1991) and their effectiveness in stabilizing prices in rural areas, alternative policies decreasing local price instability need to be considered. The most cost-effective method for increasing price stability probably is to remove destabilizing government distortions. Government efforts to nationalize grain markets and to regulate prices across both space and time have the effect of eliminating the private marketing and storage sector. Rather than replacing private marketing, government efforts should be aimed at enhancing private markets through improving transportation, enforcing standards and measures in grain transactions, and implementing small-scale storage technology (Anderson and Roumasset, 1996, p. 62).

Although this condemnation of national price stabilization schemes might well be appropriate for rnuch of the developing world, it badly misinterprets both the design and implementation of interventions to stabilize rice prices in East and Southeast Asia (Timmer, 1993, 1996c).

For food security in this region, the stabilization of domestic rice prices was in fact feasible in the context of an expanding role for an efficient private marketing sector. The resulting stability was not an impediment, but was probably conducive to economic growth. In addition, the stabilization scheme and economic growth had to work in tandem to achieve food security as quickly as possible.

Both elements of the Asian strategic approach to food security—rapid economic growth and food price stability—address the "macro" dimensions of food security, not the "micro" dimensions found at and within the household. Governments can do *many* things to improve food security at the household and individual level, and most countries in East and Southeast Asia have programs to do so. Rural education accessible to females and the poor, family planning and child-care clinics in rural areas, nutrition education, and extension specialists helping to improve home gardens are just a few of the possibilities. Most of the literature on food security deals with approaches at this level, but problems of definition, measurement, project design, and management vastly complicate strategies that rely on household interventions (Maxwell, 1996).

The complications, in turn, sharply limit the number of households that can be reached with a micro approach. Without dismissing the potential effectiveness of these approaches to enhance food security in particular circumstances, it is still important to realize the scale of the problem. *Hundreds of millions* of people still do no have food security in Asia (although the number is shrinking rapidly in East and Southeast Asia), and programs directed at households will not bring it. Only food security at the macro level can provide the appropriate facilitative environment for households to ensure their own food security. That is the East Asian miracle.

Conceptualizing the Strategic Approach

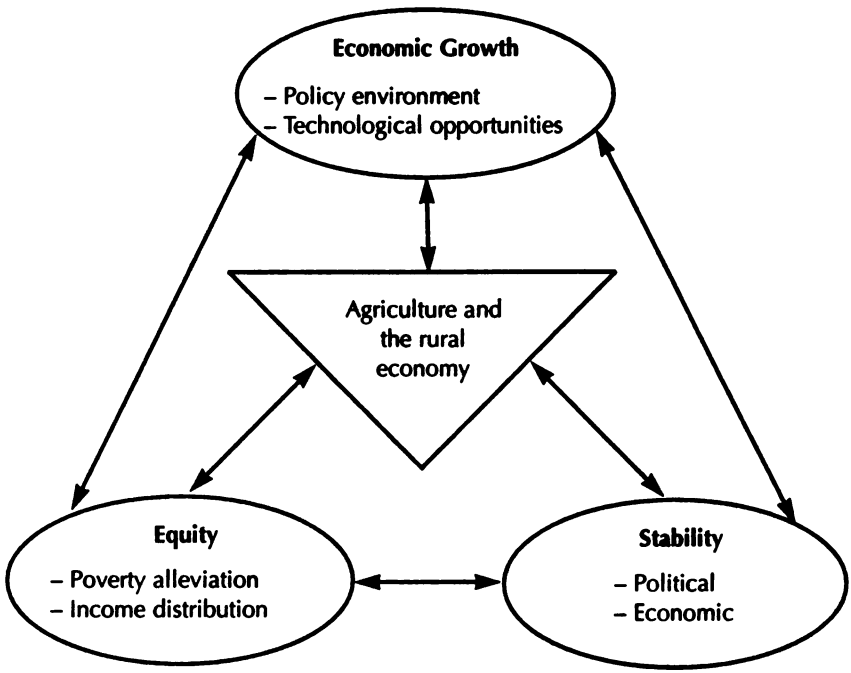
Achieving food security through a "macro" strategic approach involves active development of the agricultural and rural economy to link and stimulate rapid economic growth, poverty alleviation, and stability (see Figure 1). In turn, each of these three elements is a primary input into food security at *both* the macro and micro levels.

The mechanisms behind this strategic approach to food security are not well understood analytically or quantified empirically. The basic arguments, however, are straightforward. Improvements in agricultural productivity that are stimulated by government investment in rural infrastructure, agricultural research and extension, irrigation, and appropriate price incentives contribute *directly* to economic growth, poverty alleviation, and stability (Timmer, 1992, 1995).

For the large countries of Asia, investments to raise the productivity of domestic rice producers brought greater stability to the rice economy at the macro level, rnostly because reliance on the world market was destabilizing in relation to domestic production. Expanded rice production and greater purchasing power in rural areas, stimulated by the profitable rice economy, improved the stability of food intake of rural households.

The dynamic rural economy helped to reduce poverty quickly by inducing higher real wages. The combination of government investment, stable prices at incentive levels, and higher wages helped reduce the substantial degree of urban bias found in most development strategies (Lipton, 1977, 1993). Equity is nearly always enhanced when urban and rural areas compete equally for policy attention and resources.

Figure 1. The "development trilogy" and the rural economy.



Once the process of rapid growth is under way, political tensions are inevitably induced by a structural transformation that takes place too rapidly for resources to move smoothly from the rural to the urban sector (Anderson and Hayami, 1986; Timmer, 1993). The agricultural sector is less prone to these tensions if the gap between rural and urban incomes does not widen too much. All successfully growing countries have had to find ways to keep this gap from widening so much that it destabilizes the political economy and jeopardizes continued investment.

A third set of mechanisms connects growth in agricultural productivity with more rapid economic growth in the rest of the economy. An entire body of literature exists that analyzes the role of agriculture in economic growth (Johnston and Mellor, 1961; Eicher and Staatz, 1990; Timmer, 1992, 1995). Specific linkages that have been identified in this literature work

through the capital and labor markets, as analyzed by Lewis (1955); through product markets, as specified by Johnston and Mellor (1961); and through a variety of non-market connections that involve market failures and endogenous growth models (Timmer, 1995).

In turn, economic growth, poverty alleviation, and stability are linked to each other through the "virtuous circles" reviewed by Birdsall, Ross and Sabot (1995). Greater stability of the food economy contributes to faster economic growth by reducing signal extraction problems, lengthening the investment horizon, and reducing political instability (Ramey and Ramey, 1995; Dawe, 1996). In the other direction, stability contributes to equity and poverty alleviation by reducing the vulnerability of the poor to sudden shocks in food prices or availability. Greater equity also stimulates investment in human capital, especially in rural areas (Williamson, 1993; Birdsall, *et al.,* 1995), thus speeding up economic growth.

One important outcome of the strategic approach illustrated in Figure 1 is the achievement of food security. This occurs when economic growth has raised the poor above a meaningful poverty line and when stabilization of the food economy prevents exogenous shocks from threatening their food intake. In this approach, food security is sustained by the productivity of the poor themselves, but this security continues to depend on public action to maintain a stable macro environment, including the food economy, as the precursor to that productivity.

Modeling the Strategic Approach

This strategic approach to food security can be understood more clearly if it is developed into a simple model of economic development. A framework borrowed from Reutlinger and Selowsky (1976) is used here to organize the discussion (see Figure 2). A calorie-income relationship, illustrated in Panel A, is used to identify a "poverty line" and a "famine line" (World Bank, 1986, Annex A). The standard Engel relationship in panel A portrays a representative consumer or household whose income (Y) determines calorie intake (C) according to a semi-logarithmic function, conditional on food prices (P). When food prices are held at their "average" level (p^A), the relationship shows that individual i will be below the poverty line C^* when Y_i is below Y^*. A further reduction in income to Y^F would make

the individual vulnerable to severe hunger. Famine would be widespread if individual i is representative of a broad class of individuals.[2]

Panel A illustrates what happens to individual i when there are exogenous shocks to the food system, shown as equally likely "good" shocks, when food prices are low (P^L), and "bad" shocks, when food prices are high (P^H). When prices are high, more income is required to stay above the poverty line or the famine line. Obviously, factors other than food prices might effect similar vulnerabilities in particular households: illness, death of a wage earner, an additional child, and so on. The framework here abstracts from such idiosyncratic shocks to focus on individual income (or household income, where unitary decision making makes that a sensible approach) or economy-wide shocks.

From Individual Behavior to National Aggregates

The translation from individual behavior to national indicators of poverty or vulnerability to famine is shown in Panel B of Figure 1, which displays the distribution of income for the society. The starting point for the discussion is $Y_o \mid D_o$,where average per capita income Y^A is distributed in a log linear fashion, with each income quintile having double the per capita income of the quintile below (see Table 1 for illustrative data). Such a distribution means the top quintile has a per capita income that is 16 times higher than the bottom quintile, a "poor" but not "bad" distribution of income. For comparison, Indonesia started its modern growth process in the late 1960s with a top 20/bottom 20 ratio of 7.5:1, whereas, in the 1970s, it was 15:1 in the Philippines and more than 30:1 in Brazil.

Table 1 offers a concrete idea of income levels that might be appropriate for this discussion. To start, the society has an average income per capita of $310 per year (about the level of India in the mid-1990s), distributed in such a way that the lowest quintile has an income per capita of $50 and

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2 There is an entire body of literature devoted to estimating the calorie-income relationship illustrated in Panel A of Figure 2 and to examining the significance of any relationship between calorie intake and severe health consequences, such as infant mortality or shortened life expectancy (Srinivasan, 1981, Poleman, 1981, Behrman and Deolalikar, 1988). The perspective here draws on Reutlinger and Selowsky (1976), and Alderman and Paxson (1992).

the top quintile $800. The poverty line is drawn such that Y* = $200 and C* would be on the order of 2,100 kilocalories per capita per day [3]. Panels A and B can be read in combination to indicate the national degree of poverty and vulnerability to famine. To start, 60 percent of the population has incomes at or below the poverty line, and 30 percent is vulnerable to famine. This is a very poor, famine-prone society. The question is, how does such a society achieve food security?

Define food security as an environment in which the lowest income quintile has a near-zero probability of being vulnerable to famine. The "escape from hunger" has a more challenging definition; it requires a similar near-zero probability of falling below the poverty line (defined strictly in calorie terms). Within the framework presented here, the escape from hunger and famine can be accomplished through one or a combination of three approaches. First, incomes can grow with no change in income distribution. Second, income distribution can improve with no change in average incomes per capita. Third, the domestic food economy can be stabilized to eliminate shocks that result in P^H as the prevailing price environment. The argument here, following Figure 1, is that the East and Southeast Asian approach of "growth with redistribution," relying heavily on stimulation of the rural economy, in combination with a policy to stabilize domestic food prices, is the fastest approach to managing this escape (Chenery, *et al.*, 1974; Timmer, *et al.*, 1983; Dasgupta, 1993; Timmer, 1995; Birdsall, *et al.*, 1995).

What is Feasible?

Both theory and the empirical record of economic growth during the second half of the twentieth century argue that only certain combinations of growth, redistribution, and price policy are feasible as long-run strategies. In particular, two appealing strategies for overcoming hunger in the short run must be ruled out. The first, a strategy of keeping food prices low (P^L) through direct subsidies and macroeconomic distortions, such as overvalued domestic currencies, eliminates all probability of famine in our illus-

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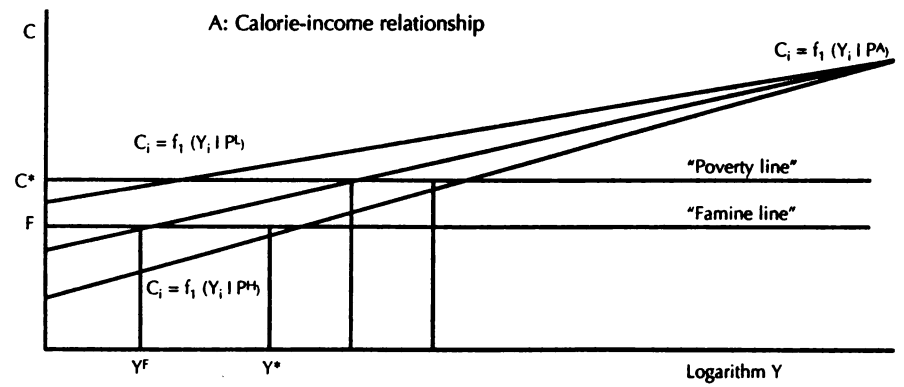
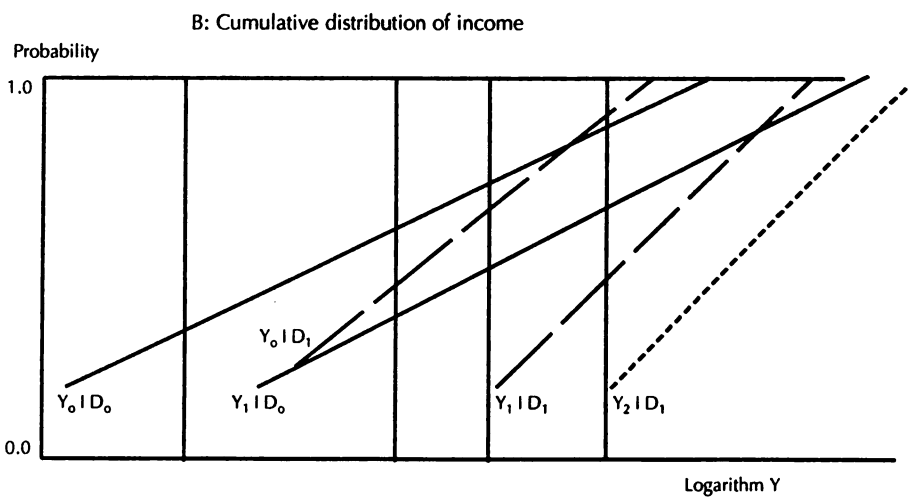
3 For convenience, all individuals in each income quintile are assumed to have the average income of that quintile. However, income distribution in Panel B is drawn continuously after the first quintile to reflect the smooth distribution likely after incomes rise above a subsistence floor.

Figure 2. Poverty, famine, and food security.





$Y_o \mid D_o$ = Starting point (widespread poverty and prone to famine)
$Y_o \mid D_1$ = "Revolution" (static redistribution of income)
$Y_1 \mid D_o$ = "Trickle-down Growth" (no redistribution of income)
$Y_1 \mid D_1$ = "Redistribution with Growth"
$Y_2 \mid D_1$ = "Redistribution with Rapid Growth"

Source: See Table 1.

Table 1. Illustrative data showing relationships among poverty, famine, income levels, income distribution, and food prices.

Income Quintile	Per capita income, US$				
	$Y_0 \mid D_0$	$Y_0 \mid D_1$	$Y_1 \mid D_0$	$Y_1 \mid D_1$	$Y_2 \mid D_1$
Lowest	$50	$100	$100	$200	$320
Second	100	160	200	319	494
Third	200	254	400	508	787
Fourth	400	398	800	797	1235
Highest	800	638	1600	1276	1978
Average	$310	$310	$620	$620	$961
Ratio: Top 20% to Bottom 20%	16:1	6.4:1	16:1	6.4:1	6.4:1

Proportion of population below the poverty line, C* (POV) or prone to famine, C<F (FAM), at various food prices.

$P=P^A$	Average price level, or stabilized prices				
POV	0.6	0.5	0.4	0.2	0
FAM	0.3	0	0	0	0
$P=P^H$	High "price shock"				
POV	0.72	0.68	0.52	0.38	0
FAM	0.5	0.35	0.3	0	0
$P=P^L$	Low "price shock"				
POV	0.37	0	0	0	0
FAM	0	0	0	0	0

trative society (see the bottom line in Table I), and it ends poverty with either doubled incomes per capita (Y_1) or a sharp redistribution of income (D_1). The problem with this strategy, unfortunately, is one of incentive compatibility. The strategy is not sustainable because it fails to provide incentives to the rural sector and, consequently, it is unable to maintain levels of agricultural productivity (Timmer, *et al.*, 1983; Nerlove, 1994; Taylor, 1996). Without this productivity, the entire growth process is threatened.

The second strategy that fails is an immediate redistribution of income, from D_0 to D_1. In Figure 2 and Table 1, this redistribution is shown as a change in the top 20/ bottom 20 ratio from 16:1 to 6.4:1. These particular numbers result from doubling the income per capita of the bottom quintile, holding average income per capita at the initial level, and then maintaining a log linear distribution for the remaining income quintiles. This doubling accomplishes immediately what economic growth takes years to accomplish–the elimination of vulnerability to famines in an environment of price stability. Unfortunately, such revolutionary redistributions of income have carried powerful, negative consequences for economic growth because they disrupt property rights and incentives for investment. Without such investment, economic output cannot be maintained (Barrett, 1995; Levine and Renelt, 1992; Barro and Sala-i-Martin, 1994; Taylor, 1996).[4]

"Trickle-Down Growth"

Two other strategies offer more hope. The first is economic growth with unchanging income distribution ($Y_1 \mid D_0$). On the face of it, this strategy would seem to require a very long time to eliminate vulnerability to famine and hunger (World Bank, 1986). In the event of an adverse price shock, for example, even a doubling of income per capita in the lowest quintile leaves 30 percent of the population vulnerable to famine and more than half the population below the poverty line. In addition, with such an adverse income distribution and price instability, doubling of incomes per capita is

4 The extensive land reforms carried out in East Asia after World War II can be considered as a strategy of immediate income distribution. They were carried out in revolutionary circumstances or at the instigation of foreign powers, and the reforms established a distribution of assets from which equitable growth was possible. The conditions for similar reforms in other countries do not seem widely applicable in the 1990s (Tomich, *et al.*, 1995).

likely to be slow, requiring 20 to 30 years (growth rates of income per capita of 2.4 to 3.6 percent per year) (Williamson, 1993; Birdsall, *et al.*, 1995). It is not surprising that such "trickle-down growth" strategies have a poor reputation among most development specialists.

However, if the probability of P^H is reduced to near zero through public action to stabilize the food economy, even such a modest growth performance benefits the poor quite quickly by eliminating their vulnerability to famine. Many remain below the poverty line, 40 percent in the illustration, but they are protected from falling to the famine line because adverse price shocks are eliminated by the stabilization policy. This approach, in conjunction with urban food distributions to holders of ration cards, is a rough characterization of the Indian experience with food security.

The Indian experience is particularly interesting because the country started with a relatively egalitarian distribution of income. Because the country was so poor, however, absolute poverty was widespread, thus presenting a difficult dilemma. If substantial resources were used to subsidize food intake of the poor, sufficient funds would be diverted from productive investments to slow the rate of economic growth. Thus the strategic choice in much of South Asia–to opt for food security through distribution mechanisms that were built during British colonial rule to alleviate famines–may have sacrificed some of the potencial for economic growth in order to provide "support-led" poverty alleviation (Dreze and Sen, 1989).

Growth With Redistribution

An alternative strategy of bringing the poor more directly into the process of economic growth offers considerably greater hope than trickle-down policies, even with effective stabilization of food prices. The alternative is, however, much more complicated to implement. Here, redistribution with growth is attempted, in order to shift from $Y_o \mid D_o$ to $Y_1 \mid D_1$, in a relatively short period of time. In this strategy, incomes per capita double on average, as before, but redistribution of the increased output doubles the incomes of the poorest quintile yet again. Such a strategy, if it is possible, eliminates all vulnerability to famine, even in the face of a price shock, and nearly eliminates poverty when the growth strategy is implemented in conjunction with a policy of price stabilization. This is the Indonesian approach.

What are the barriers to such a strategy? It is clearly difficult to find a way to structure the growth process so that the poor gain in relation to the rich. Historically, the only way to do that has been a rural-oriented development strategy that raises productivity and incomes of the broad population of small farmers and other rural workers (Mellor, 1976; Tomich, *et al.*, 1995; Timmer, *et al.*, 1983).

Such a strategy, however, requires significant price incentives to create the rural purchasing power that, in turn, stimulates the rural growth needed to make the strategy consistent with overall macroeconomic performance. This consistency is crucial to maintaining internal economic balance (World Bank, 1993; Timmer, 1995, 1996b). Thus a growth strategy that aims at $Y_1 \mid D_1$ is probably not feasible without a price policy that approaches P^H as an average rather than as an extreme shock. This "food price dilemma," in which poor consumers have their food intake threatened in the short run in order to fuel a long-run growth process that removes them from poverty, has been emphasized before (Ravallion, 1989; Timmer, *et al.*, 1983; Sah and Stiglitz, 1992). But experience in East and Southeast Asia since the 1970s shows that such a strategy, when implemented in the context of large-scale investments in rural infrastructure, human capital, and agricultural research, can lead to economic growth and an increase in average incomes per capita of 5 percent per year or more, with the rate of growth in the bottom two quintiles faster than that in the top (World Bank, 1993; Huppi and Ravallion, 1991; Timmer, 1995).

With doubling times of 10 to 15 years for incomes per capita and redistribution in favor of the poor, the "rural-oriented, price-led" strategy has the potential to reach outcome $Y_2 \mid D_1$, illustrated in Figure 2 and Table 1, and shown for the 1970-1995 experience of Indonesia in Figure 3. With this strategy, the escape from hunger and famine is as complete as in the United States, Western Europe, and Japan. At the rates of growth experienced by Malaysia, Thailand, and Indonesia since the mid-1960s, the escape has been managed in less than two decades.[5]

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5 It should be noted that the income gap between "rich" and "poor" continued to widen in Indonesia between 1970 and 1995, despite the faster growth rate of the incomes of the poor during that period. In the bottom quintile, for example, per capita incomes increased by $336 (in 1995 U.S.$) in the 25-year period, whereas incomes of the top quintile increased by $1,374. Even highly successful poverty alleviation does not necessarily solve the problems of income distribution, especially in the political arena.

Lessons from Asia

To achieve and sustain food security through rapid economic growth, the Asian experience suggests that the agricultural sector must be linked through three elements to food security: poverty alleviation, stability of the food economy, and growth itself. The effectiveness of these links depends critically on the initial conditions at the start of the process of rapid growth. In particular, agriculture can contribute little to equity if it is based on a 'bimodal" distribution of production or to stability if it is concentrated on a single export crop subject to substantial price fluctuations. Even in these circumstances, however, agriculture can be a significant contributor to economic growth.

Because of the dominance of rice in Asian diets, the prevalence of smallholder cultivators, the large size of many Asian countries, and the instability of the worid rice market, the most successful countries in achieving food security developed effective programs and policies to raise the productivity of their own rice farmers. Many of these programs were explicitly motivated by the objective of self-sufficiency in rice, especially after the world food crisis in 1974, when the "world rice market" in Bangkok disappeared for nearly half a year. When long-run costs of production are less than the costs of importing, such programs make economic sense, and the "self-sufficiency" slogan can be used effectively to mobilize political and bureaucratic support.

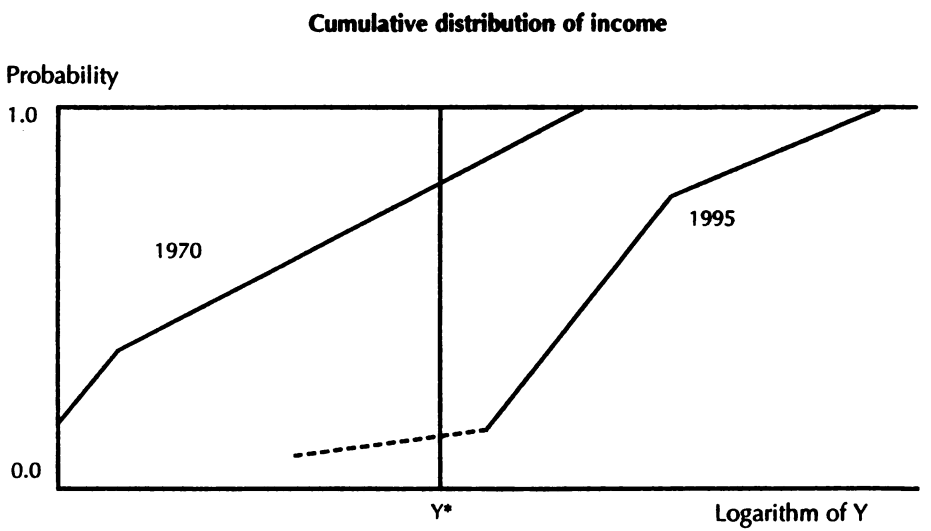
But self-sufficiency campaigns can do much mischief. Many countries have a deep aversion to international trade, an aversion seen since well before the Corn Laws debate in England in the early nineteenth century. Lindert (1991) has documented an "anti-trade bias" in agricultural pricing and trade policy that has deep historical roots. In the face of this clear political preference for self-sufficiency, Asian countries have had a difficult time distinguishing legitimate concerns for food security from a simple desire not to import anything that could be produced domestically, whatever the costs.

Even in Indonesia, which has an admirable record on stabilization of rice prices, higher productivity of rice farmers, and food security for nearly the entire population, self-sufficiency for a broad array of staple foods has become a policy objective (Timmer, 1994). An assessment of the steps needed to reach this objective concluded as follows:

Figure 3: Poverty alleviation, income distribution, and income growth in Indonesia, 1970-1995.

Income quintile	Income shares		Per capita incomes		Annual Growth rate,
	1970	1995	1970	1995	1970-95
Lowest	6.6	8.7	$99	$435	6.1
Second	7.8	12.1	117	605	6.8
Third	12.6	15.9	189	795	5.9
Fourth	23.6	21.1	354	1055	4.5
Highest	49.4	42.3	741	2115	4.3
Ratio of top 20% to bottom 20%	7.5:1	4.9:1			
Average per capita income			$300	$1000	4.9%

Note: Income shares are based on SUSENAS data for total expenditures, and are drawn from surveys drawn in the mid-1970s and early 1990s, respectively. The per capita incomes are in 1995 U.S. dollars, and the 1995 figure is based on projections using the newly revised national income accounts.



If economic considerations should play a significant (but not complete) role in determining appropriate policy for rice and its contribution to Indonesia's food security, the economic arguments are even stronger for all non-rice commodities. There is simply no nutritional, political, or logistical rationale to override the long-run signals from the world market on which foods Indonesia should produce domestically and which it will be more economic to import, because these economic signals are the surest indicators of where to allocate resources for increased productivity and incomes (Timmer, 1994, p. 39).

Such openness to short-run price signals from world rnarkets for all but the most important staple food, and for all commodities in the long run, will require more open and stable markets in the future than have existed in the past. One major attraction to developing countries of the Uruguay Round of the GATT negotiations was the promise that liberalizad agricultural trade would result in more stable prices on world grain markets. However, this promise may have been premature (Greenfield, *et al.,* 1996; Islam, 1996). The shortages that caused high grain prices in world markets in 1995 and 1996 have renewed anxieties about future food supplies, and policy-induced reductions in grain stocks seem destined to cause greater, not less, instability in grain prices. Asia, with nearly half the world's population to feed, is understandably concerned about how much to respond with new investments in domestic production and how much to rely on privately-held stocks available in international markets for supplies of basic grains.

However the balance is struck on domestic versus imported supplies, the striking improvement in food security in Asia since the mid-1960s, especially in East and Southeast Asia, is not likely to be threatened. That is the advantage of "growth-mediated" food security. From this perspective, the lesson from East and Southeast Asia for achieving and maintaining food security can be summed up in this way: a growth process stimulated by a dynamic rural economy leads to rapid poverty alleviation, which, in the context of public action to stabilize food prices, ensures food security.

This approach might not work in other settings– for example, where the staple foodgrain is traded in more stable world markets, or where land holdings are highly skewed, or where technologies are not available to raise agricultural productivity. In searching for appropriate food security strategies in these other environments, however, it is important not to misread the successful experience of East and Southeast Asia. In particular, free trade in rice and the full and immediate transmission of international price

signals to domestic producers, traders, and consumers, was *not* an element of food security in any of the successful Asian societies. Free trade is appropriate for most goods and services, but the historical lesson from the countries of East and Southeast Asia that have emerged from hunger is that free trade in basic foodgrains overly constrains the public actions needed for governments to intervene on behalf of food security. In different circumstances, free trade might well be a fast and efficient route to food security, but the role of government in ensuring this security would be radically different than the role played by governments in Asia.

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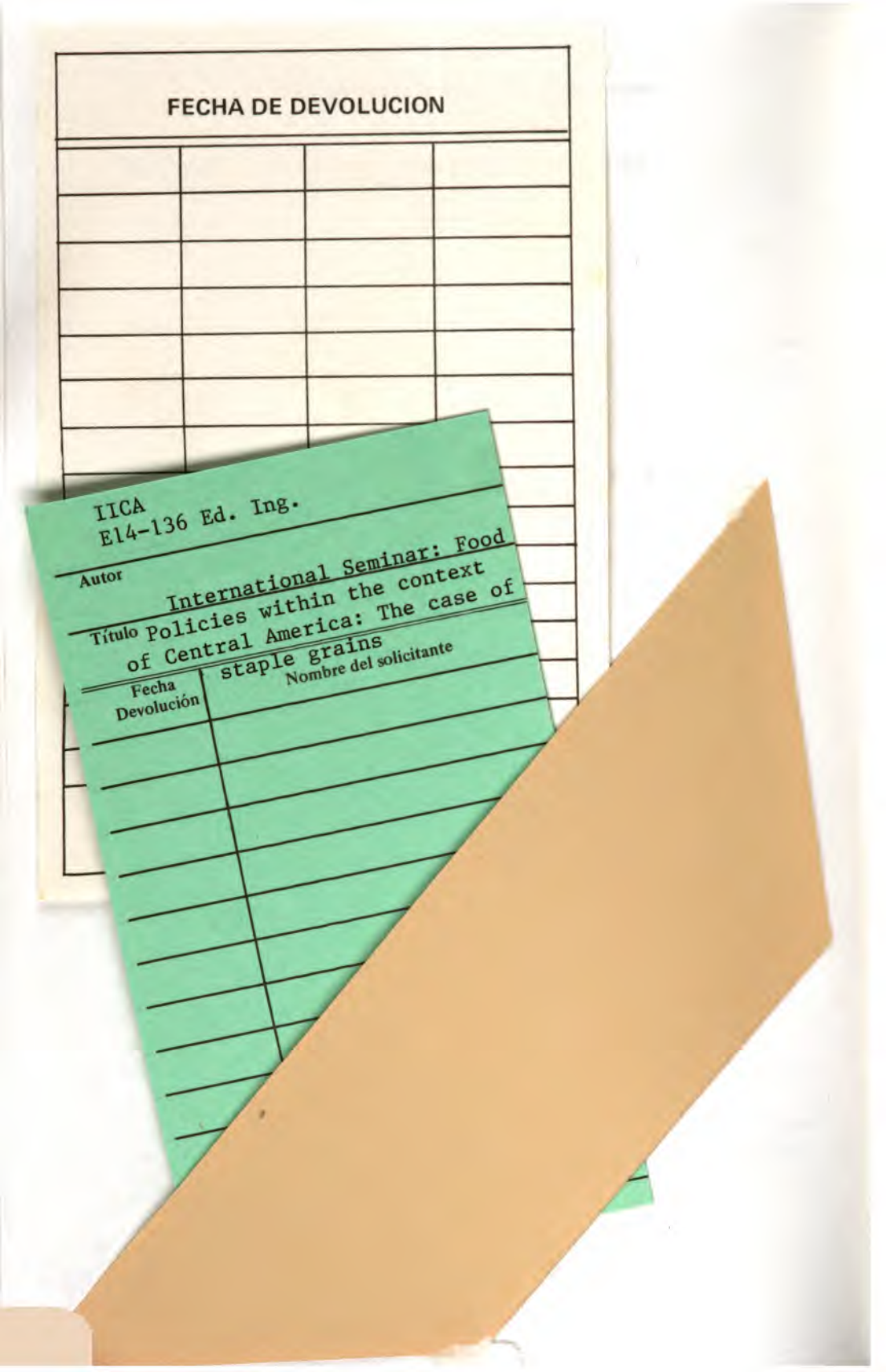
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