ISSUES IN AGRICULTURAL RESTRUCTURING FOR FOOD SECURITY IN DEVELOPING ISLAND ECONOMIES, WITH SPECIAL REFERENCE TO THE CARIBBEAN COMMUNITY

BY

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ABSTRACT

The economic crises of the 1970s placed pressure on national policy makers and planners to find new ways in which to respond to preserve national development plans. Among the most serious of the issues was the ability to preserve access to food supplies without having to adversely affect capital investment for national development plans. The specific nature of food insecurity differed across continents and countries. The small islands of the Caribbean found themselves especially vulnerable to the volatile international market place. This thesis is an attempt to chart the issues of food security as it pertains to developing island economies, and specifically the Caribbean Community, and a consideration of mechanism of response that are at the disposal of the Community.

First, the exact context of a small country in the international food place is delineated. Because of their particular geographic, economical, military and political makeup these islands are subject to different considerations in their analysis than provided for in the main stream literature. The purpose was to outline the limitations that face them in the quest for food security.

Second, the region's food matrix was examined. This involved an analysis of both the production and consumption side of the matrix. Special emphasis was placed on the structure of the region's agricultural sector which for all intent and purposes has remained unchanged for the past 400 years.

Third, the regional response through the Caribbean Food and Nutrition Strategy (CFNS) was evaluated. The evaluation involved a consideration of the aims, means and results of the plan as proposed. The main conclusions are that the Strategy's focus on working within existing constraints, instead of attempting to remove them, and its failure to adopt a truly regional planning character have resulted in its failure to halt the decline of agricultural in the

region.

Finally, the use of an input-output framework with inter-industry, inter-country production flows as a mechanism for comprehensive regional agricultural planning was identified. The procedure involved establishing a framework for decision making and monitoring the process of regional agricultural restructuring and revitalization. The exact mechanism involves some form of island specialization based on regional priorities and national political and economic agendas.

Thesis Supervisor: Dr. Lance Taylor
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dedicated

to my father and mother, bertram and leontine williams
to the present caribbean generation who will have to heal
the wounds of the past while sewing the fruits of the future
federation, never forgetting the words of robert nestor
marley:

"see them fighting for power, but they know not the hour.
so they bribing with their arms, their air force, their
money, trying to belittle our integrity. they say what we
know is just what they teach us and every time they can
reach us through political strategy. they make us hungry
and every time you want to get some food your brother got to
be your enemy."

to the doctor of poets
to the rastaman
to the revolutionary
to the glided african
to the bearded revolutionary
and to shirvan

who by their examples and selflessness have thought us that,
"when their is no vision the people perish."

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CHAPTER I

FOOD SECURITY IN FOOD IMPORTING COUNTRIES

INTRODUCTION

In the 1960s the Green Revolution appeared as the agent of growth for agriculture in the Less Developed Countries (LDCs). The results on the new high yielding varieties (HYVs) has been well documented. Despite the difficulties surrounding the cold war, there was general optimism that the Malthusian prophesy had been avoided. The work of Professor Norman Bourlag at the International Center for Corn and Wheat Improvement Project (CIMMYT) in Mexico and of others at the International Rice Research Institute (IRRI) in the Philippines gave a new meaning to the struggle against the low-level equilibrium trap and the population bomb. Increases in food supply would help in rasing the standard of living of the underdeveloped countries, and through this birth rates would themselves decline.

The premise of the Green Revolution was based on the intensification of land use and new technological applications. The new agriculture was founded on the use of hybrid varieties dependent on large doses of fertilizer and other specialized production techniques. Nonetheless, its application spread rapidly around the globe. In many countries the impact was dramatic, and production doubled

and tripled over the traditional average yields. At that precise moment when famines had threatened to release the Malthusian dread in diverse groups of LDCs, technological advances had added a new dimension to food production. However, the general optimism soon gave way to cause for worry. Two factors were especially responsible for the change in perspectives.

First, global food prices skyrocketed in 1972 in the aftermath of the so-called "Russian grain deal." A mixture of crop failure and rising demand for meat protein by the Soviet working class saw the USSR's net grain imports rise from 1.4 million tons in 1971/2 to 21 million tons in 1972/3.[1] The Soviets had carried out a literal coup d'etat on the world grain market. Beside the diplomatic harangue that the policy unearthed, the impact on the world grain market was to worsen the grain shortage and bid-up the already high prices in the world grain market.

There were poor harvests in Southeast Asia, Australia and the U.S.A. The latter two being major exports of food. Famine conditions existed in India and the Sahel. The net results were higher world food prices and the depletion of the cereal stocks of the main exporters. The world cereal stock fell from a ninety-six day supply in 1972 to a 26 day supply by mid-1973.[2]

The second major factor was not directly related to food but was to prove the dominant theme in the 1970s. The

formation of the Organization of Petroleum Exporting Countries (OPEC) in 1970s struck new difficulties and themes into the post-World War II Bretton Woods agreement which had governed international economic life for the previous twenty-five years. OPEC's sudden rise to power was based on its members' control of the majority of the world's known reserves of hydrocarbons, the main energy supply of the modern industrial world. The use of an energy cartel as an element of diplomatic bargaining and economic leverage conjured up ideas of other vital commodities being used as bargaining chips on the world stage. Not least among those commodities with the potential for Bismarckian agendas was food --i.e. wheat, maize, soybean and livestock. The reaction of the world's main food producer, the United States, to the crises did little to avert fears of the main food importing countries. "Hungry men listen only to those who have a piece of bread," the U.S. Secretary of Agriculture is quoted as saying. He added, "food is a tool. It is a weapon in the U.S. negotiating kit." Senator Hubert Humphery concurred, "food is power. In a very real sense it is our extra means of power."[3]

Despite the technological improvements in most of the world's agricultural regions, the mid-1970s ushered in an era of perceived vulnerability by large groups of countries. The dimensions of world food production, distribution and consumption had been altered against them. It was the sense

of vulnerability to political manipulations and the uncertainty of nature that gave rise to the struggle for of Food Insecurity. This essay is an attempt to highlight the difficulties of gaining food security that is faced by small countries, especially the Commonwealth Caribbean, and to analyze their present approach to the crisis.

Most of the decisions for attaining food security were taken in the 1970s and so it is an analysis of this environment that will be the starting point of the thesis. The aim is not to chart the course of the world's food supply, but rather to understand the factors that led to the establishment of food security schemes in many parts of the world in the 1970s.

* * * * * * * * *

TYPES OF FOOD INSECURITY

Although a defined area of study in itself, there is no agreed upon definition of Food Security[4]. This stems not so much from a lack of consensus on the importance of food but rather from the multiplicity of factors involved in the process of food procurement. Within different geographical, political and economic contexts food insecurity takes on different proportions and manifestations. The most complete definition is that of Siamwalla and Valdes:

> "Food security may be defined as the ability of food deficit countries, or regions or households within these countries, to meet target levels of consumption on a yearly basis."[5]

Although this definition is acceptable for most purposes it will be necessary need to add additional dimensions to the concept for purposes of this presentation.

In many developing countries the question of food security is not simply a short term bread and butter issue. Rather it has to be placed within the development framework. The issue revolves not only around feeding oneself, but rather of doing so under conditions that do not adversely affect policies for economic development. For instance, it is not inconceivable that middle income countries can purchase as much food as they need on the world market. However, in doing so large amounts of foreign exchange is sacrificed for short term consumption and limits their ability to import much needed capital goods which contribute to long term growth. Being left open to the vagaries of the international market place offers as much a sense of insecurity as not being able to secure a constant food supply. While one manifests itself in a short term plate to mouth fashion, the other appears in an economic sense as reduced growth.

Before giving a working definition of food insecurity it is necessary to explore the different types of food insecurity. This will aid the development of our more

extensive definition.

Temporal Food Insecurity

At the very elementary level it is possible to speak of the temporal dimensions of food insecurity. Thus, differentiation can be made between short term and long term food insecurity. In short term analysis, the question revolves around an immediate crisis, i.e. a constant food supply for immediate use by the given population. The time period under scrutiny ranges from a couple of months to a year. Usually a crop cycle is the domination factor of definition. Long term food insecurity centers around more fundamental structural problems. Usually it implies continuous vulnerability of existing sources of supply, utilization of vast sums of foreign exchange for procurement, and the necessity for restructuring the present food production and distribution policies.

Important as they are, temporal considerations must be placed within a geographical context. And it is here that issues of food security are usually defined. In a geographical context there are three levels for evaluating food insecurity, the international level, the national level and the level of the household.[6] There are no clear boundaries between the three, and a delineation of where one ends and the other begins is open to subjective conclusions. The three levels are intricately linked. The following

delineation is necessarily a simplification for analytical purposes.

Geographical Food Insecurity

Household food insecurity invariably is a plate to mouth issue. In the short term famine is the main type of such food insecurity. In the long term, chronic malnutrition is the best representation of food insecurity. These two aspects of food security at the household level varies across regions and countries, but this generalization will do for the present purposes.

Aggregation of the household problem culminates in national food insecurity. Although the components of the nation is the household, food insecurity at the national level manifests itself in a different form. First, the country as a whole may be self-sufficient in food but have distribution inefficiencies because of economic inequality, transportation logistics, lack of information, or a combination of all three. Second, while the household may be able to purchase food, the country may not have the necessary foreign exchange to participate in the international food market.

At the international level food insecurity stems from a dwindling of reserves or a sudden rise in prices. At this level there is a myriad of political and economic factors involved as nations interact on the international scene,

each seeking its own ends.

The pivotal element on all three levels is the action and interaction of the nation states. National considerations and policies influence both household procurement and international demand and supply. This is not to say that there is no reverse effect. However, an exploration of the causes of food insecurity allows a better comprehension to the centrality of the nation state in the food matrix.

Having described the different levels of food insecurity it is now necessary to develop a working definition for this essay. In speaking speak of food insecurity the reference will be from the national viewpoint. The analysis will involve not only a short term context but also an appreciation of the long term economic consequences. Operationally, food security will be defined as the ability of nations to ensure a constant and sufficient supply of food to its population that is consistent with the preservation of national self-determination and national economic development. Importantly, a political-economic element has been added to the food security debate. This stems from the fact that too many times economists have treated the real world as an apolitical arena. The unfortunate reality is that it is not.

The definition as proposed enables us to focus on the

two sides of food security from the national viewpoint. First, it recognizes the problem as one ensuring the reference population of a food supply. Second, it acknowledges the action and interaction of states in the diplomatic complex and the market place as an essential issue. In reconciling the problem of food insecurity countries must invariably balance the two facets in designing their policies. The necessity is augmented by the growing interdependence of the global economy. An internal decision in the India that increases its agricultural inefficiency can mean higher food prices in Costa Rica.

* * * * * * * *

SOURCES OF FOOD INSECURITY

In developing an analytical basis for a workable food security policy it is necessary that certain assumptions that abstract slightly from the real world be made. In this context it is assumed that the national policy to be followed is dictated by the actions in the other two spheres, i.e. at the level of the household and at the international level. By initially assuming that the internal food supply is in equilibrium with demand it is possible to develop scenarios in which the nation state must undertake the development of national food policies that

recognizes its pivotal role in the food matrix.

Production Instability

The most important source of food insecurity is the nature of national production. In the expanded use of the term, internal sources of food insecurity have two facets. First, as may be that countries simply cannot grow enough food to feed themselves. The exact delineation of this problem lies beyond the scope of this paper, since the beginning assumption, as outlined above, is that internal measures at present are optimum strategies (within the conditions of the household and the international sphere) and react only when the balance shifts in such a manner as to present a threat to food security. Later in this essay as the analysis becomes more sophisticated there will be cause to relax this heroic assumption.

On a worldwide scale the production problem comes to light in the fact that the 1970s was characterized by a slowdown in growth rates for production, new areas of production, and output yields. These ominous signs were compounded by the fact that the poorer countries also tend to be those with the worst agriculture record. This is shown in Table 1-1, which shows the average annual growth rate for population, food production and consumption by regions since 1961. Agricultural production has generally increased faster for the LDCs. However, the high population

TABLE 1-1. Growth Rates of Population and of Production and Consumption of Staple foods in Developing and Developed Countries, 1961-1977.

COUNTRY GROUP	POPULATION 1977 millions)	*AVERAGE ANNUAL GROWTH RATE, 1961-77 Population	Productioon	Consumption	Production growth rate as a percentage of population gorwth rate	Consumption growth rate as percentage of population growth rate	Production growth rate as a percent of population growth rate
Developing Countries	2092	2.6	2.7	2.9	103	111	93
BY REGION							
Asia	1207	2.5	2.8	2.5	112	103	109
North Africa Middle East	240	2.6	2.6	3.5	97	132	74
Sub-Saharan Africa	311	2.7	1.6	3.4	58	86	67
Latin America	333	2.7	3.2	3.6	118	132	89
By GNP per capita growth rate, 1961-77.							
Less than '1.0 %	338	2.5	1.3	2.3	53	94	56
1.0-2.9 percent	1019	2.5	2.9	2.6	117	105	111
3.0-4.9 percent	279	2.8	3	3.3	110	120	91
5.0 percent	456	2.7	2.8	3.3	101	123	83
Developed Countries	1139	1	2.6	2.3	274	237	115
E E C	269	0.6	1.8	2.2	290	178	163
E. Europe and U S S R	369	1	2.8	3.5	294	364	81
United States	217	1	3	0.9	291	91	321
Others	284	1.2	2.3	2.7	182	216	84
WORLD	3230	2	2.6	2.5	135	128	105

Note : Mainland China is excluded
Source : J. Price Gittinger et al, FOOD POLICY p 42-43

growth rate has slightly outstripped production in those regions. The table shows that Third World agriculture has not kept pace with population growth.

Even those countries with the potential to feed themselves solely from internal production has suffered from the age old problem of agriculture -- its instability. Under the new agriculture technology of the Green Revolution that encompasses many of the world's surplus producing agricultural systems fluctuations have tended to be larger and more regular.[7] This occurs mainly because the technology of the Green Revolution is very sensitive to occasional changes in climatic patterns. Short periods with low supplies of water for irrigation schemes may mean the ruin of whole crops, while at the same time too much water can be detrimental to crops.

Economically, the Green Revolution depends on the increase of market exchanges. Thus, crucial inputs such as seeds and fertilizers have to be secured in the market place, making their acquisition very sensitive to shortages and price changes.

A representation of production instability is shown in Table 1-2. In many of the LDCs shown the probability of production falling below 95% of the trend is as high as 40%. The implications of a production shortfall of this magnitude can be ominous for a country's food security position. When consumption cannot be met internally countries must

TABLE 1-2. VARIABILITY IN THE PRODUCTION OF STAPLE FOODS, 1961 TO 1976

Region and Country	Instability in Production of Staple Foods: Standard Deviation (thousands of metric tons)	Coefficient of Variation (percent)	Probability of actual production falling below 95 % of Trend
ASIA			
Bangladesh	765	6.4	22
India	6653	6.4	22
Indonesia	1040	5.4	18
Korea, Rep. of	445	7.1	24
Philippines	346	5.7	19
Sri Lanka	107	9.3	29
NORTH AFRICA/ MIDDLE EAST			
Algeria	531	28.9	43
Egypt	282	4.5	12
Jordan	119	65.6	47
Libya	56	28	43
Morocco	1156	27.2	43
Syria	702	38.8	45
SUB-SAHARAN AFRICA			
Ghana	121	5.8	20
Nigeria	958	5.7	19
Senegal	325	18.6	39
Tanzania	430	12.7	36
Upper Volta	128	9.8	30
Zaire	190	4.9	15
LATIN AMERICA			
Brazil	1631	5.2	17
Chile	215	11.1	33
Colombia	126	4.4	13
Guatemala	56	6.5	22
Mexico	1060	7.7	26
Peru	197	9.8	30

notes:
St'd dev.: Defined as the standard of the production variable Q - Q
Coeff. of var.: Defined as the standard variation of the variable (Q-Q)/Q.100
Source: Barbara Huddleston, D.G. Johnson, S. Reutlinger, A. Valdes, INTERNATIONAL FINANCE for FOOD SECURITY, p20.

venture into the international market place. Once a country ventures into this new market place the variables under its control is altered and the interaction at this level can under certain circumstances increase problems of food insecurity.

Growth in International Trade

The growing inability of certain groups of countries to feed themselves (permanently and in the short run), and the ability of others to be large scale surplus producers have resulted in large increases in world food trade. It is customary to relate this increase in the world food trade to the high population growth rates in the LDCs. However, the inability of agriculture to keep pace with rising standards of living and demand for meat protein in the Eastern European countries, the restructuring of world production and new ideological trends also contribute.

The new industrialization drives of many Third World countries are usually undertaken with little regard to the role of agriculture in economic development, thus governments place priority on the manufacturing or primary (non-agricultural) sectors with large foreign exchange earning capabilities, while neglecting the indigenous food base. As the interdependence of the global economy tightens and many underdeveloped countries structure their economies towards export oriented growth based on assumptions of comparative advantage less resources are placed in national food production. With such policies

TABLE 1-3. TRADE IN CEREALS , BY REGION, SELECTED PERIODS
(millions of metric tons)

	1961-63		1969-71		1976-78		1981	
REGION OR COUNTRY	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
North Africa	2.8	0.6	3.5	0.8	9.9	0.2	15.2	0.1
Sub-Saharan Africa	1.9	0.7	3.1	0.6	5.3	0.5	9.2	0.5
South Africa	0.2	2	0.3	1.3	0.1	2.6	0.5	4.5
North America	1.2	45.8	0.9	50.1	1	101.8	1.6	136.2
Central Ameria	2	0.1	2.8	0.6	5.8	0.1	11.2	0.1
South America	3.7	5.7	5.4	11	9.3	14.9	12.1	19.1
Asia and Near East	19.5	6	26.6	7.3	37.9	9.9	53.7	12.1
Japan	5.9	0.1	14.7	0.7	21.9	0.1	24.4	1
Western Europe	33.1	7.6	40.3	18.6	49.9	26.5	44.1	40.3
Eastern Europe	8.9	1.7	8.6	3.6	14.4	3.7	15.5	3.9
U S S R	1.6	7.6	2.7	7.9	17.8	3.2	48.7	2.6
Oceania	0.3	6.4	0.3	8.9	0.3	12.3	0.4	13.3
WORLD	81.1	84.1	109.2	110.5	173.6	175.8	281.7	233.8

Source: Gittinger et. al. p225

countries once self-sufficient find themselves continually on the world food market and become net food importers.

The result is a net rise in the food trade, with the main exporters being the More Developed Countries (MDCs). Table 1-3 shows the increase in cereal trade by regions for selected periods. It is important to realize that the less developed regions have been characterized by small increases in exports and large increases in imports between the 1961-65 period and 1981. The chief exporting areas are North America, Southern Africa (dominated by South Africa and Zimbabwe), South America (dominated by the Brazilian soybean production), and Oceania.

Price Instability

As food deficient and food surplus countries meet in the international market place new elements of food insecurity are introduced. Not least among them is price instability. In the absence of any meaningful stabilization policy agricultural prices tend to roller-coaster. As the world market for food enlarges countries find themselves in a vice-grip vis-a-vis price fluctuations. When food prices fall countries find that it is to their economic benefit to import grain. While this may tend to be cost effective in the short run, this has the substantial effect of undermining local prices for farmers and making one more dependent on foreign supplies as the new competition destroys the local food producers. When the world prices are artificially low for prolonged periods the internal

economy may adjust to them, the end result being a distortion of the economy.

TABLE 1-4. INTERNATIONAL TRADE PRICES FOR SELECTED AGRICULTURAL COMMODITIES, 1970-81.
(US dollars per ton)

	Wheat	Rice	Maize	Beef	Soybeans
1970	54.75	143	58.26	1197	121
1971	61.73	130.1	58.26	1230	128
1972	69.81	149.1	55.9	1374	143
1973	137.79	368.1	97.63	1893	290
1974	180.78	542.1	131.88	1442	277
1975	151.02	363.6	119.29	1202	220
1976	121.99	255.3	112.59	1477	231
1977	104.72	275.7	95.27	1383	280
1978	130.81	369	100.78	2015	268
1979	163.14	334.2	115.35	2783	298
1980	164.24	433.3	126.37	2635	296
1981	174.53	521.3	140.54	2863	304

Notes:
wheat: u.s. No.2, hard red winter, ordinary. f.o.b. Gulf
rice:thai white, 5% broken, milled, f.o.b. BAngkok
maize: US No.2, yellow, f.o.b., Gulf
beef: Australian frozen cow beef, boneless, c.i.f., USA
soybeans: US No.2, yellow, bulk, NFS, c.i.f. Rotterdam (UK up to 1976)
Source: FAO, Commodity Review and Outlook, 1981-2, FAO Rome

Table 1-4 shows the international trading price for five major food commodities since 1971. Except in the case of beef, where the price per ton has double between 1970 and 1981, the rise in price has almost tripled over the period, with large fluctuations over the characterizing the general upward trend. Historically, the pattern has been that prices will rise since the price of artificial distortion is too much even for the advance economies to bear. This is illustrated by the periodic difficulties that surround state

funding for agricultural subsidies in the U.S.A and the E.E.C. When this occurs importing countries find themselves with gigantic food bills which necessitates large supplies of foreign exchange if national consumption is to be sustained at acceptable levels. Thus, many development efforts must be postponed or even abandoned to keep the food supply constant. At the same time the previous distorting prices that destroyed the national food base leaves it unable to help in confronting the national dilemma. One attempt at capturing price volatility is illustrated in Table 1-5, which shows the coefficient of

TABLE 1-5. VARIABILITY IN REAL EXPORT PRICES FOR WHEAT AND RICE, 1950-79

	WHEAT		RICE	
YEARS	Coefficient of variation (percent)	Standard Deviation (U.S) $/ton	Coefficient of variation (percent)	Standard Deviation (U.S) $/ton
1950-59	11.2	26	11.4	59
1960-69	3.6	7	17.5	89
1970-79	30	56	39	187.6

Source: Barbara Huddleston et al, International Finance for Food Security p 15

variation and standard variation for the world price for wheat and rice. Both commodities have higher standard deviations in the 1970s than in the 1950s.

Earlier reference was to the fact that production instability was an increasing source of food insecurity. However, it is necessary to realize that this is at the

national level only. The fact is that,

> "the global coefficient of variation is smaller than for most countries."[8]

This indicates that shortfalls in one set of countries is more or less off set by boom in production in other countries. The rational question that arises is, what is the source of the price instability? The answer lies in the harsh reality of the global market place. Most countries pursue national stabilization policies which reverberate in the international market as a source of instability. This effect is especially magnified when the major exporting countries are involved.

The economic reality is that there is no single "world market" for food. The "market" is so oligopolistic that national food policies on the part of the major sellers distort any semblance of a world market. The European Economic Community (EEC) is now one of the major exporters of wheat and other food stuffs, but the protectionist legacy and price subsidies of the Common Agricultural Policy (CAP) is legendary.[9] In the U.S. the belief is continuously expressed by farmers and congressmen that stabilizing world prices means that large storage costs are encountered for the sake of the rest of the world and leads to stable prices that are too low. As one observer put it,

> "The 1977 U.S. farm legislation may have been the first in modern time that was deliberately designed to increase price instability."[10]

Terms of Trade

The international market place has long been a place of contradictions. For example the very prosperity of oil rich countries has led to their increased debt problems as they borrowed on potential resources that have not translated into sustained higher foreign exchange earnings. The contradiction has manifested itself in a heightened form in the agricultural terms of trade for developing countries, the major countries with food security nightmares. It has long been an accepted economic fact that the terms of trade between agricultural goods and manufacturing products goes against agriculture. However, very little analysis have been done for trends between different classes of agricultural products. With the rise in the international grain trade it is now relevant, and possible, for such an analysis to be undertaken. Under a broad, but not inaccurate, assumption that LDCs are importers of food commodities (i.e. non-luxuries) and exporters of luxury agricultural products we can achieve a rough picture of the terms of trade for agricultural exchanges between the center and the periphery.

Tables 1-6, 1-7, and 1-8 show one attempt to capture the changes. In a study focusing on agricultural prices and export earnings of developing countries in the 1970s the Food and Agricultural Organization (FAO) devised means to show the difference between agricultural imports and exports

TABLE 1-6. AGGREGATE CHANGE IN DOLLAR PURCHASING POWER OF AGRICULTURAL EXPORTS IN IN DEVELOPING COUNTRIES, 1970-79. ($ million, 1970 prices)

BRAZIL	5992.8	MARTINIQUE	104.2	MADAGASCAR	-173.45
IVORY COAST	2276.93	JORDAN	98.39	T'DAD & T'GO	-173.93
COLOMBIA	2070.31	KUWAIT	89.23	PHILLIPINES	-204.62
THAILAND	1932.68	GUYANA	88.7	IRAQ	-211.95
INDONESIA	1388.78	SURINAME	63.98	TANZANIA	-321.24
CUBA	1355.86	CHAD	51.62	SYRIA	-325.7
GUATEMALA	1272.96	SOMALIA	42.68	NIGER	-340.16
EL SALVADOR	850.15	CYPRUS	18.21	PANAMA	-349.79
KOREA Rep.	847.66	UPPER VOLTA	15.86	ZAIRE	-366.73
INDIA	546.87	GAMBIA	3.79	PERU	-380.92
NICARAGUA	534.31	ZAMBIA	-7.2	GHANA	-442.76
DOMINICAN Rep	451.86	GUADELOUPE	-14.1	SUDAN	-653.45
KENYA	346.49	CENT. AF. REP	-17.56	URUGUAY	-696.25
COSTA RICA	342.18	SIERRA LEONE	-21.09	MOROCCO	-719.13
AFGHANISTAN	307.44	BARBADOS	-27.97	PAKISTAN	-744.32
CAMEROON	303.04	ETHIOPIA	28.87	MOZAMBIQUE	-754.86
ECUADOR	275.08	MALI	-35.99	UGANDA	-758.49
MALAWI	262.46	MAURITANIA	-62.32	ARGENTINA	-791.14
IRAN	245.55	CONGO	-74.26	ANGOLA	-832.03
MAURITIUS	238.85	TUNISIA	-81.13	SRI LANKA	-980.63
BOLIVA	231.85	REUNION	-82.06	MEXICO	-1104.51
HONDURAS	220.2	LIBERIA	-92.92	BANGLADESH	-1147.21
RWANDA	208.49	TOGO	-98.37	ALGERIA	-1263.88
PARAGUAY	188.31	VENEZUELA	-137.32	NIGERIA	-2022.01
SENEGAL	187	BURMA	-141.55	EGYPT	-2774.99
SAUDI ARABIA	155.05	BENIN	-146.17		
LEBANON	1153.52	JAMAICA	-152.71		

Source: FAO, Agricutural Prices and Export Earnings: the Experience of developing Countries in the 1970s, FAO Rome 1984.

TABLE 1-7. AGGREGATE CHANGE IN DOLLAR COST OF AGRICULTURAL IMPORTS IN IN DEVELOPING COUNTRIES, 1970-79. ($ million, 1970 prices)

EGYPT	4359.12	ARGENTINA	244.23	GAMBIA	45.91
BRAZIL	3257.43	IRAN	214.57	PANAMA	43.2
KOREA Rep	2930.22	CYPRUS	212.53	UGANDA	28.83
MEXICO	2508.08	MARTINIQUE	161	COSTA RICA	28.51
SAUDI ARABIA	1745.09	PARAGUAY	160.99	RWANDA	25.47
NIGERIA	1523.31	ETHIOPIA	146.42	SYRIA	23.48
PHILLIPINES	1242.47	IRAQ	129.71	URUGUAY	7.49
PERU	1172	NIGER	119.69	INDONESIA	5.52
PAKISTAN	1021.72	TOGO	117.65	CENT. AF. REP	-5.31
MOROCCO	905.42	GUADELOUPE	112.49	CAMEROON	-6.34
LEBANON	817.36	BENIN	96.03	SURINAME	-11.21
ZAIRE	765.6	MAURITIUS	88.89	SUDAN	-15.09
ZAMBIA	735.22	LIBERIA	87.63	BURMA	-18.42
JORDAN	667.08	GUYANA	87.6	TUNINISA	-25.5
VENEZUELA	643.84	CONGO	87.24	CHAD	-49.63
THAILAND	631.63	UPPER VOLTA	82.4	MALAWI	-50.38
ALGERIA	599.07	EL SALVADOR	79.81	KUWAIT	-61.4
INDIA	592	MADAGASCAR	72.61	TANZHNIA	-65.22
HONDUPAS	492.03	GUATEMALA	71.73	MOZAMBIQUE	-70.56
DOMINICAN REP	478.51	NICARAGUA	66.83	BOLIVIA	-140.44
REUNION	473.45	ECUADOR	64.63	JAMAICA	-159.26
SOMALIA	285.43	MALI	62.53	T'DAD & T'GO	-230.1
IVORY CONST	271.89	ANGOLA	58.72	SENEGAL	-286.94
COLOMBIA	266.41	SIERRA LEONE	53.71	GHANA	-343.95
AFGHANISTAN	254.34	BARBADOS	53.38	SRI LANKA	-362.86
MAURITANIA	252.32	KENYA	52.10	BANGLADESH	-565.54
				CUBA	-615.23

Source: FAO, Agricutural Prices and Export Earnings: the Experience of developing Countries in the 1970s, FAO Rome 1984.

TABLE 1-8. AGGREGATE DIFFERENCE BETWEEN PURCHASING POWER AND DOLLAR COST OF AGRICULTURAL EXPORTS AND IMPORTS IN DEVELOPING COUNTRIES, 1970-79. ($ million, 1970 prices

BRAZIL	2735.37	GUYANA	1.1	PANAMA	-392.99
IVORY COAST	2005.04	CENT.AF.REP	-12.25	NIGER	-459.85
CUBA	1971.09	DOMINICAN REP	-26.65	REUNION	-555.51
COLOMBIA	1803.9	GAMBIA	-42.12	JORDAN	-568.69
INDONESIA	1383.26	INDIA	-45.13	BANGLADESH	-581.67
THAILAND	1301.05	TUNISIA	-55.63	SRI LANKA	-617.77
GUATEMALA	1201.23	MARTINIQUE	-56.8	SUDAN	-638.36
EL SALVADOR	770.34	UPPER VOLTA	-66.54	MOZAMBIQUE	-684.3
NICARAGUA	467.48	SIERRA LEONE	-74.8	URUGUAY	-703.74
SENAGAL	473.94	MALI	-98.52	ZAMBIA	-742.42
BOLIVIA	372.29	GHANA	-90.81	LEBANON	-762.78
COSTA RICA	313.67	BURMA	-123.13	VENEZUELA	-781.16
MALAWI	312.84	GUADALOUPE	-126.59	UGANDA	-787.32
COMEROON	309.38	CONGO	-161.5	ANGOLA	-885.75
KENYA	304.31	ETHIOPIA	-175.29	ARGENTINA	-1035.37
ECUADOR	210.45	LIBERIA	-180.55	ZAIRE	-1132.33
RWANDA	178.02	CYPRUS	-194.32	PHILLIPINES	-1447.09
KUWAIT	150.63	TOGO	-216.02	PERU	-1552.92
MAURITIUS	144.96	BENIN	-242.2	SAUDI ARABIA	-1590.04
CHAD	101.25	SOMALIA	-242.75	MOROCCO	-1624.55
BARBADOS	81.35	MADAGASCAR	-246.06	PAKISTAN	-1766.04
SURINAME	75.19	TANZANIA	-256.02	ALGERIA	-1862.95
TRINIDAD	58.17	HONDURAS	-271.83	KOREA REP	-2082.56
AFGHANISTAN	53.1	MAURITANIA	-314.64	NIGERIA	-3545.32
IRAN	30.96	IRAQ	-341.51	MEXICO	-3612.59
PARAGUAY	27.32	SYRIA	-349.18	EGYPT	-7134.11
JAMAICA	5.55				

Source: FAO, Agricultural Prices and Export Earnings: the Experience of developing Countries in the 1970s, FAO Rome IP. 21

for LDCs.[11] Table 1-6 shows the aggregate increases in the purchasing power of agricultural exports for the 79 countries in the study. Fully one-half of the countries experienced negative changes.

Table 1-7 shows the aggregate change in the cost for agricultural imports of the 79 countries. Only 19 countries were able to lower their agricultural import cost.

Combining the two previous tables we get Table 1-8 which shows the aggregate difference between changes in purchasing power and cost of agricultural imports. Significantly, two-thirds of the 79 countries in the study experienced a net rise in import costs over purchasing power. In this scheme success means countries have been able to increase agricultural exports without requiring additional imports, or to maintain the stability of imports with out reducing export value. Unfortunately, for the majority of the countries in the study,

> "..domestic agriculture has been unable to keep up with the additional demands placed on it as earner of foreign exchange for the import of food, oil and other products."[12]

Thus, a significant number of countries continue to face food security hazards because domestic agriculture is weakening vis-a-vis the world commodity market.

Food Power

When a country appraises the capabilities of the

international marketplace to ensure its food security it must go beyond economic considerations. Theoretically, the abundance of food in the international market, and the fact that the variation of world production is low means that when countries face internal shortfalls they can resort to the world market to ensure supplies (or, given the comparative advantage argument, even trade there permanently instead of wasting resources on inefficient local producers). However, in the era of nuclear weapons and other military means that are expensive and sometimes overly destructive and disruptive nations often find it attractive to resort to the exercise of commercial power to further their foreign policy objectives. The case of the U.S., given its position of being the major world food exporter, is especially interesting. We must note that,

> "The use of food commodities in pursuit of economic, diplomatic and strategic objectives has long been an important element of U.S. foreign policy."[13]

Food presents itself as an attractive weapon because of its nature and the structure of the international food trade. From the buyers point of view: 1) it is in short or limited supply; 2) it is only in the hands of a few producers; 3) it is in regular demand by competing countries; 4) it is possible for the supplying countries to control producers closely in order to regulate accessibility; 5) relative to manufacturing products it has

high short term substitution costs; 6) it is a life and death commodity.[14]

Nations that depend on the world market for their food security can expect food exporters to exact concessions in the diplomatic and economic sphere for assuring access to their supplies. It is often argued that because the main exporters of grain have divergent national interests they cannot form a cartel comparable to OPEC and thus exert extreme leverage on countries importing their food supplies. This viewpoint misunderstands the concept of food security. Sellers may seek to sell their food on a case by case basis thus causing some kind of discrimination, and, given the fact that the world market is essentially oligopolistic, any one country can cause prices to rise, thus introducing price fluctuations as described above.

In times of crisis producers will sell to the highest bidders and to those who are more prepared to ally themselves in their objectives. A country may be in neither position and so face mass hunger (the ultimate fear of food insecurity), or at least constraints on its national development. The list of the use of food power is an extensive one. There are recollections of the French method of extortion in Francophone Africa, and the U.S. has not hesitated to use P.L. 480 as an extension of the State Department.

In economic analysis oligopolistic distortions are

always achieved at the expense of efficiency, with the cost predominantly being passed on to the consumer. Such is the case in the international food market. In the food exporting countries the market is under the control of oligopolies. These firms are notorious for their practice of being buyer, seller and intermediary for their own products as they attempt to manipulate the grain market. When we take into account that many of these Multinational Corporations (MNCs) have annual revenues that are larger than the GNP of many food importing countries, for many of the latter food security is jeopardized by the power of the former.

Macro-trends

So far food insecurity has been considered from the standpoint of the nation acting at the international level. Essentially, this dealt with the market place and the mechanics of food as a commodity. To increase the value of the analysis it is necessary to move beyond this to a higher echelon. These larger issues are referred to as world macro-trends. These result from cumulative occurrences which have profound effect on the demand, supply and price of food.

One disquieting macro-trend is the continual rise in the world population despite efforts to slow it down. More worrying is the fact that most of the growth is taking place

in the LDCs, most of which are already food deficient. As population growth continues unabated the effect on the supply of and demand for food will be dramatic. Many countries will find themselves unable to grow enough food or to generate the necessary foreign exchange to feed their populations. It would be left to the discretion of the food surplus countries, and the response of the international community in general, to decide their fate, providing their is indeed enough food to go around.

Population growth puts huge pressures on the land. Just when there is need for the land to be used for productive purposes, nonproductive purposes increase. Not only is good agricultural land converted to housing plots, but allocation of resources must be diverted towards other services for the growing population. Thus, short term consumption becomes dominant at the expense of capital formation for long term growth.

There is growing concern that the earth is undergoing changes that will significantly affect the ability to grow food. Not least among these concerns is the continual destruction of the ozone layer. To a great degree the exact impact of these changes can only be guessed at. However, the very fact that there is uncertainty leaves room for worry.

More importantly is the issue of the worldwide loss of topsoil and cropland. In many countries the intensification

TABLE 1-9. GROWTH IN IRRIGATED AREA, BY CONTINENT, 1950-85

REGION	TOTAL IRRIGATED AREA, 1985 (million hectares)	GROWTH IN IRRIGATED AREA (percent) 1950-60	1960-70	1970-80	1980-85	
ASIA (1)	184	52	32	28	8	
NORTH AMERICA	34	42	71	14	-11	(2)
EUROPE (3)	29	50	67	33	9	
AFRICA	13	25	80	27	13	
SOUTH AMERICA	9	67	20	28	17	
OCEANIA	2	0	100	0	0	
WORLD	271	49	41	26	8	

(1) includes the asian part of the USSR
(2) this is for the U.S. only
(3) includes the European part of the USSR
Source : Lester Brown et al. State of the World, 1987. p 125

of land use and the implementation of inadequate protective measures aid the loss of valuable topsoil. At the same time salination, overcropping, and the advance of the desert is destroying previously fertile regions all over the world.

Since the 1960s most increases in agricultural production has been dependent on water supplies from irrigation schemes. In the macro-environment this resource is becoming short in supply. Table 1-9 shows the slowing down of increases in irrigated land since the 1950-60 period. In many countries less land is being irrigated due to aquifer depletion, abandonment of waterlogged and salinated land, reservoir silting, lowered water tables, and the diversion of irrigation projects to non-agricultural uses. Even if food prices continue to rise there will be limits to the extent to which irrigation can contribute to a

TABLE 1-10. WORLD FERTILIZER USE, TOTAL AND PER CAPITA, 1950-86

YEAR	TOTAL (million metric tons)	PER CAPITA (kilograms)
1950	14	5
1955	18	7
1960	27	9
1965	40	12
1970	63	17
1975	82	21
1980	112	26
1981	116	26
1982	115	25
1983	115	24
1984	125	26
1985	130	26
1986	131	26

Source: Lester Brown et al., State of the World 1987, p. 128

growth in food production.

Fertilizer use has become an intrinsic part of agricultural production. As shown in Table 1-10, since 1950 world fertilizer use has risen by a multiple of nine, from 14 to 131 million metric tons. While this has contributed to increases in agricultural productivity, the fact is that there have not been a comparative response in production over the period. Table 1-11 shows that the "response ratio" declined from 46 in 1950 to 13 in 1986. Without major advances in technology that will allow for a better utilization of fertilizer by agricultural varieties the response ratio is likely to stagnate at the low level. As oil prices rise and the demand for byproducts other than fertilizers increases, the use of fertilizers in agriculture

TABLE 1-11. RATIOS OF WORLD GRAIN PRODUCTION TO FERTILIZER USE, 1950-86

YEAR	GRAIN PRODUCTION (million metric tons)	FERTILIZER USE	RESPONSE RATIO
1950	624	14	46
1955	790	18	43
1960	812	27	30
1965	1002	40	25
1970	1197	63	19
1975	1354	82	16
1980	1509	112	13
1981	1505	116	13
1982	1551	115	14
1983	1474	114	13
1984	1628	125	13
1985	1674	130	13
1986	1661	131	13

Source: Lester Brown et al., State of the World 1987, p.130

is going to be at once limited and costly.

Overall, the use of energy in agriculture is increasing tremendously without a corresponding increase in agricultural production. The implication is that agriculture has reached a saturation point. Table 1-12 shows total energy use by agriculture since 1950. In 1986 it took about three times the amount of energy used in 1950 to produce a ton of grain. In the presence of higher oil prices and declining reserves food insecurity is going to increase for a wide spectrum of countries unless innovative production methods and rational economic policies are introduced in the near future.

TABLE 1-12. ENERGY USE IN WORLD AGRICULTURE, 1950-85

YEAR	TRACTOR FUEL	IRRIGATION FUEL	FERTILIZER MANUFACTURE	OTHER	TOTAL ENERGY	GRAIN PRODUCTION	ENERGY USED TO PRODUCE A TON OF GRAIN
	(millions of barrel of oil equivalent)					(million metric ton	'(barels of oil equivalent)
1950	143	17	70	46	276	624	0.44
1960	288	33	133	91	545	841	0.65
1970	429	69	310	162	970	1093	0.89
1980	650	139	552	268	1609	1423	1.13
1985	739	201	646	317	1903	1667	1.14

Source: Lester Brown et al., State of the World 1987, p. 11 and p. 131.

CONCLUSION

Food is the lifeblood of any society. A society unable to feed itself is likely to soon decay. Throughout the ages agriculture has set the pace of civilization. In the modern era its role as a catalyst has not diminished. If anything there is an overwhelming need for the reinstitution of agriculture as an engine of growth. Unfortunately, the obstacles before it are immense.

The growing interdependence of the global economy has done little to sooth the fears of many countries that they may be left behind in the march of development, and still others have developed fears that their very survival and independence may be
at stake.

In formulating national policies for food security one can be easily tempted into the argument that Third World has been failing because it is not competitive with the advanced technology of the MDCs. Thus Third World countries should concentrate on products in which their limited resources can be better utilized. But the food security debate must be raised beyond this level. In the absence of a concerted effort to bolster local food supply systems the alternative is surely an increase in periods of mass suffering and decreases in national and international economic growth

rates. As one observer has put it,

> "There certainly is evidence to suggest that the existing marketing systems are not adequate to ensure international food security for all countries alike, even though available supplies appear excessive."[15]

Food deficit countries must make the judgement whether they are prepared to turn to the outside world to secure their food supply or place mare emphasis on the innovative ability and responsiveness of their agricultural class. Most LDCs are overwhelming rural societies and must come to realize that,

> "the expansion of the indigenous food production capacity is the only viable long term solution to chronic food deficits."[16]

Many observers see the achievement of self-sufficiency in food production as a function of a country's perception of its role in world affairs. Thus, countries like Brazil and India with aspirations of Great Power status will be likely to emphasize self-sufficiency. This is the inverse of reality. Those countries that are more powerful can in fact leverage a kind of ransom on the world community to ensure their food supply. No one can reasonable argue that the Russians will rather have mass starvation than attempt to gain access to food supplies by force if necessary.

In the event of an absolute world food shortage it is likely that decisions will be made in terms of a country's

ability to wage war, its regional and world importance, and other such "size-power" considerations. Small countries with little leverage will be the first to be abandoned.

Having laid the foundations of food security at the national level it is now appropriate to focus the analysis on the Caribbean Food and Nutrition Strategy and have this point reintroduced in a more explicit manner. The task before here is not to assume what the macro policy for the region should be, but rather to determine the specifics of achieving that policy once it has been decided upon. Caribbean agriculture has been for centuries a catalyst of growth for metropolitan centers, the question now is to what extent it can ensure food security for its population.

CHAPTER II

CHARACTERISTICS OF FOOD PRODUCTION AND CONSUMPTION IN THE CARIBBEAN COMMUNITY

INTRODUCTION

The past 20 years of Caribbean history has been the story of an ailing region desperately seeking a relevant model of economic transformation. Caribbean[1] economy as it exists today is the remnant of four hundred years of colonialism. The most striking feature of the modern Caribbean is the limited structural transformation it has undergone since slavery was abolished. The agricultural structure itself has proven to be the most stagnant of all sectors.

Despite gaining political independence in the 1960s the region has failed to transform its general economic structure. The economies of the region are still mono-cultures dominated by a few primary industries geared towards the export market. The dominant economic institution remains the metropolitan owned multinational corporation (MNC). Political independence has not brought with it economic independence. Caribbean economy remains a dependent economy, passively responsive to metropolitan demand and metropolitan investment. While extractive industries and raw commodity export are still the major earners of foreign exchange, imports are comprised of processed food products, manufactures and capital equipment.

The general economic stagnation has been coupled with a

decline in agricultural activity. Although predominantly rural (until recently, as we shall later see), Caribbean economy has feared poorly in this area. Export production is still the prime concern and the countries of the region continue to depend on foreign imports for the bulk of nutritional consumption. An attempt to decipher the sources of rigidity inherent in the structure of Caribbean economy is caught up in a multitude of factors. It is difficult to perceive that the "Jewels of the Indies", once the mainstay of the British Empire, have suffered from resource insufficiency. While some may accept such an argument there are general indicators that expose the inadequacy of such an argument. In general the real source of stagnation has been the failure of agriculture to be an "engine of growth".

Development theory, regardless of its ideological background, has always attributed some role to agriculture in the process of economic development. Generally, the agricultural sector is expected to provide surplus labor for the nascent industrial sector, generate foreign exchange earnings for the import of capital goods, provide an internal market for the new industries, and, most importantly, contribute to the food supply of the growing non-agricultural population. Caribbean agriculture has been unable to conform in terms of this model. However, it must be noted that for one brief period it appeared as if agriculture would indeed provide the Rostovian "engine of

growth". There is evidence to suggest that,

> "During the second World War, when the shipping lanes were blocked, the region was able to go a long way towards feeding itself through efforts founded on satisfying local basic needs."[2]

Since then it has followed a precipitous downhill path.

In the rest of this chapter an identification of the fundamental structural rigidities of the agricultural system will be undertaken. The influence on (and by) Caribbean social trends and the economic malaise to which it has contributed will be outlined. Finally, its implications in terms of food security if presents trends continue will be analyzed.

A word of caution is needed here before continuing. In the following analysis the Caribbean countries are treated as one generic area. It must be recognized that this is a simplification of the region's diverse economic, political, geographic and social makeup. However, this approach is justified on two accounts. First, the current food production problem is an analysis of a regional response to a regional problem. Second, while the countries of the region differ with each other in some respects, their general configurations do not. The countries are all subject to the same economic deformities and structural weaknesses. As such this permits a generalized approach without a discredit to the analysis.

* * * * * * * * * *

THE STRUCTURE OF AGRICULTURE

The predominant agricultural formation in the Caribbean is the plantation. A remnant of the colonial era, the plantation has shown itself to be flexible to changing political circumstances without having to alter its basic economic and social structure. The domination of the agricultural system by the plantation also ensures that most of the Caribbean economies suffer from the mono-culture syndrome. Coupled with the plantation structure is the large peripheral peasantry existing on marginal land and engaged mainly in subsistence cultivation. Any policy to revitalize agriculture in the region will inevitably have to deal with this dualism so characteristic of Caribbean.

The two tiered structure of agriculture produces a system that is grossly inefficient, and a production rationale that is incompatible with the attainment of food self-sufficiency within the region. Little headway has been made in setting up a food producing system because the plantation subordinates all their decisions to the maximization of profits, while the peasantry is intent on risk minimization. Technological stagnation in agriculture sets in because the plantation is built on a mono-culture that is resistant to capital innovations and immobilizes large chunks of financial resources. On the other hand the

small land owner has no capacity to initiate such improvements. Land tends to be badly utilized. Large tracts of land is left idle by the plantations while countries in the region continue to suffer from production shortages. At the same time the peasantry over-works marginal land that contributes to environmental degradation. Linkages with the rest of the economy are poorly developed. The plantation is set up as an enclave economy that has more linkages with the external world, while the peasantry is too small economically to make a meaningful contribution to the strengthening of linkages. The end result is a system where the ultimate irony exists with energy deficient workers laboring to export energy rich foods.

Caribbean agriculture is an agriculture built on the foundations of dualism. On the one hand there are the large plantations producing export crops, while on the other there is the peasantry with limited capacity to produce surplus food for the market. Table 2-1 shows the distribution of agricultural land in the region. The structure is one such that the majority of the agricultural class is found on small plots, while the plantations though few in number occupy most of the land. The unequal distribution of land is summed up in Table 2-2. This shows that in all of the countries the plantations represent a small number of landowners although they own a disproportionate amount of land. However, there is more to the dichotomy than

TABLE 2-1. SIZE AND NUMBER OF AGRICULTURAL HOLDINGS, CARICOM COUNTRIES. LATEST AVAILABLE DATA.

COUNTRY	YEAR	TOTAL	LANDLESS	0 - 0.4	0.5 - 2	2.1 - 4	4.1 - 10	10.1 - 20	20.1 +
ANTIGUA	1977	5551	---	---	---	---	---	---	7.3
BAHAMAS	1978	4246	---	981	2068	626	357	154	105
BARBADOS	1971	26052	13159	----- 12460 -----		161	68	23	N.A.
BELIZE	N.A.	8667	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DOMINICA	1963	8667	---	2135	4290	----------2007----------			175
GRENADA	1961	8002	---	----------7245----------		---------904------		N.A.	153
GUYANA	1978	24703	---	----------9484----------		4906	7020	1609	1284
JAMAICA	1978	182169	7681	----------142088--------		20789	8622	1505	1580
MONSTERRAT	1963	1023	---	639	254	80	28	15	4
ST KITTS/NEV NEVIS	1975	3535	---	2036	1232	----------161----------			106
ST LUCIA	1973/74	10938	502	4730	3828	1082	475	199	122
ST VINCENT & THE GRENADINES	1972/73	7794	706	3032	3171	659	161	28	37
TRINIDAD & TOBAGO	1955/58	91116	---	----------14 800------		N.A.	N.A.	N.A.	1113

SOURCE : UNECLAC, Agricultural Statistics: Caribbean Countries, Vol VI (1984)

TABLE 2-2. PEASANT AND PLANTATION LAND HOLDINGS IN SELECTED CARIBBEAN COUNTRIES, CIRCA 197*s

COUNTRY	A. PERCENT OF ALL FARMS		B. PERCENT OF FARM LAND	
	SMALL PEASANTS (LESS THAN 5 ACRES)	PLANTATIONS (OVER 500 ACRES)	SMALL PEASANTS (LESS THAN 5 ACRES)	PLANTATIONS (OVER 500 ACRES)
ANTIGUA	91.1	0.3	26.7	42.2
BARBADOS	90.3	0.2	11.4	31.3
DOMINICA	75.2	0.3	13.2	32.2
GRENADA	84.7	0.1	23.9	15
GUYANA	n.a.	n.a.	n.a	n.a
JAMAICA	78.6	0.2	14.9	44.9
MONSTERRAT	90.7	0.7	n.a	n.a
ST KITTS	94.5	0.4	15	86.6
ST LUCIA	82.5	0.2	18	38.8
ST VINCENT	89	0.1	27	24.2
TRINIDAD	46.5	0.3	6.9	31.1

* the data here is from a survey in 1975 which shows the latest available data then.
Source: Beckford, Caribbean Rural Economy in Beckford (ed) CARIBBEAN ECONOMY

expressed in the numbers. The present land distribution scheme has its foundation in the colonial era. Thus, not only do plantations dominate in size, but they tend also to occupy the most fertile soils. In general this results in a squeeze on the peasantry such that,

> "it appears that opportunities for peasant production have become increasingly restricted with the expansion of plantations on the one hand and population growth on the other."[3]

Effects of the Plantation System

Instead of being an asset to economic transformation the plantation system of the Caribbean endures as an inefficient user of resources and a drain on the regional economy. There are fundamental reasons for this. First, as already explained plantations have historically occupied the most fertile lands. However, most of it is regularly left idle for extended periods. The motive behind the holding of large tracts of land are varied. The aim is mainly an attempt to keep out competitors, control the right of away to other profitable tracts, and speculate on the future profitability of presently unused tracts. Even where governments undertake limited land reform it is usually the most unproductive plantations, occupying the worst soils, that are acquired in the process. Politically, large tracts increase the power of the plantations and can contribute to accounting flexibility for tax purposes, or in cases of

nationalization, to increase compensation claims. Thus,

> "the under utilization of land in plantation economies are structural phenomena that inhere in the system itself."[4]

This behavior by the plantations continues the marginalization of the peasantry. Since they exist on the poor quality soils the peasantry is limited in its capacity to be a serious contributor to the regions food production problem. As such,

> "the existence of low agricultural productivity among peasants in the plantation [dominated] economy is due more to a reflection of the poor quality and insufficient quantity of the land which the farmers are forced to work with..."[5]

The second factor that makes plantations a burden on the regional economy is that they tend to monopolize the credit market. Internally, the large size and influential role of the plantations affords them ready access to the credit market whether for capital expansion or speculative purposes. Externally, many plantations are linked either directly or indirectly with metropolitan concerns which gives them ready access to the international capital market. As such, regional governments are limited in their influence over the plantations and the ability to enforce diversification when warranted. The domination of the credit market by the plantations means that little of the capital earmarked by public and private agencies for agriculture is left over for use by the peasantry.

Third, plantation production is predominantly export production. Therefore, the regions most productive land is geared towards the production of luxury agricultural exports such as sugar, coffee, spices and cocoa. Most of the export is undertaken in the commodities' unprocessed form. The domination of agriculture by the plantation system also manifests itself in the agro-industrial sector. It leaves only a small, largely undeveloped, infrastructure for generating a local agro-industrial sector, and thus the linkages between agriculture and industry is tenuous at best.

With the agricultural infrastructure geared towards export agriculture the peasantry itself suffers from the demonstration effect. The peasantry, lingering on the edge of the plantations, are predisposed to participate in this endeavour because the plantation offers a ready market for their produce. By this process, not only does the peasantry become dependent on the plantations, but also the agricultural system as a whole tends to be less diversified and more concentrated in one crop. Even under conditions where there is growing internal demand for food products that can be cultivated regionally the plantation (and the dependent peasantry) cannot respond. Because it is built primarily for the diversion of domestic resources for external satisfaction, and because it responds only to external stimuli, the system is internally inflexible. This

rigidity is reinforced by the fact that many plantations are parts of vertically integrated corporate structures where forging of output prices is an inherent practice, warping the operation of market forces and making them less effective in signalling the need for adjustment and alteration.

Fourth, the plantation exists on a system of subsidies nd preferences. Many schemes have been undertaken to grant subsidies to the agricultural sector in the form of subsidies on fertilizers and energy. In general the peasantry is much less a user of fertilizers and energy intensive inputs than the plantations, so that the effect is more to subsidize foreign consumption than to target internal deficiencies.

In Caribbean economy the plantation are major employers. Thus, with the existing unemployment problems governments seeking short run solutions are forced to make significant concessions in the form of tax breaks and lowered tariffs to insure that plantations survive despite their inefficiency and the need for general restructuring. On the demand side, most plantation crops are traded under systems of preferences from metropolitan countries. A good example of this is the Lome Convention which governs trade in Sugar, Cocoa, Coffee and other crops between the European Economic Community (EEC) and the Asian, Caribbean and Pacific (ACP) countries. On the other hand the peasantry is

afforded no such luxury, they have no protected markets, either internally or externally. They are vulnerable to the vagaries of the market while bearing the full affliction of production and marketing risks themselves.

Although they are the main producers of food for the domestic market the constraints on the peasantry is such that at most times peasants are hardly able to devote themselves fulltime to the process of food production. Most rural inhabitants find themselves needing to work either as tradesmen or on the nearby plantations for part of the year. This process of "stagnant labor migration" is a direct result of the marginalization of the peasantry. As Beckford puts it,

> "the existence of open unemployment and underemployment as revealed in peasant production and the petty trades in all plantation economies is a reflection of a structural condition that inheres in the system."[6]

Overall, the dominance of the plantation sector in the rural economy contributes not only to the retardation of agriculture but, especially in a region like the Caribbean where society is predominantly rural, also contributes to the stagnation of the entire economy. It is safe to conclude that a plantation economy will be accompanied by persistent and expanding unemployment as population grows, low levels of national income, an unequal distribution of income, an under-utilization of land, extreme under-

consumption by the general population and inefficiencies in production. These are the characteristics of Caribbean economy.

* * * * * * * * *

THE PERFORMANCE OF AGRICULTURE

Caribbean agriculture has not only failed to keep pace with population growth but in many instances the output has in fact declined. The most important characteristic is the failure to diversify. The continuation of the plantation system has ensured the continuation of mono-cultures. In none of the countries does domestic food production exist as the largest agricultural sector. All the major crops are for external trade and are plantation products. The continuation of the mono-culture syndrome is a direct reflection of the intractable nature of the plantation system and its failure to respond to the needs of the local economy. The following analysis must be understood within the context of the mono-culture syndrome, the dominance of plantation agriculture and the limited capacity for change within the system as it exists.

Land Utilization

The general picture in land utilization shows that

despite the increases in the demand for food in the region, and despite the presence of vast tracts of arable land there has been little expansion of cropland. Table 2-3 shows the limited nature of the expansion of cropland in the region since 1966. Summing up the data we find that between 1974-76 and 1985 permanent cropland in the region as whole have actually diminished.

The actual utilization of available cropland adds credence to the fact that the regions most land is tied up

TABLE 2-3. PERMANENT CROPLAND IN THE CARIBBEAN. SELECTED YEARS. ('OOO HECTARES)

	1966	1976	1981	1985
ANTIGUA	3	3	3	3
BAHAMAS	13	14	14	14
BARBADOS	--	--	-	-
BELIZE	11	7	7	10
DOMINICA	10	10	10	10
GRENADA	14	14	9	9
GUYANA	10	15	15	15
JAMAICA	50	60	60	62
MONSTERRAT	1	1	1	1
ST KITTS	6	6	6	6
ST LUCIA	10	12	12	12
ST VINCENT	4	5	4	4
TRINIDAD	82	87	88	46

Source: FAO, PRODUCTION YEARBOOK, SEVERAL YEARS

in luxury production. Plantations crops, sugar, coffee, cocoa and bananas are very land intensive crops. It must also be recalled that in the Caribbean they tend also to be situated on the most fertile land. In most cases transformation of these tracts is very difficult to undertake. The tracts are usually foreign owned, and given

their preferential markets they appear to be more profitable (at least in the short run) than if used for food production. The issue of nationalization is also a very thorny policy in the diplomatic sphere.

In accounting for the failure to extend croplands it should be noted that the structure of Caribbean agriculture mitigates against the class most likely to undertake such a process, the peasantry. Its ability to hedge against risk is quite limited, and the necessary financial and technological resource flows aid its development are also in very short supply.

Agricultural Output

The decline in agricultural output has occurred in most commodities in the region, whether plantation or peasant crop. Figure 2-4 the output of selected commodities in the region with three year averages from 1970 to 1984. As the data show, stagnation and decline seems intrinsic to the region's agricultural sector. It is important to note however, that the vegetable sector has shown steady increases over the period. This sector is primarily in the domain of peasant production. Despite the deterioration of the region's agricultural base, the peasantry have shown the ability to adopt and respond to changes in the regional market.

TABLE 2-4 AVERAGE OUTPUT OF SELECTED AGRICULTURAL AGRICULTURAL PRODUCTS, IN THE CARIBBEAN SELECTED PERIODS

COMMODITY	METRIC TONS	1970-72	1973-75	1976-78	1979-81	1982-84
MILK	000	104	103	100	99	94
COFFEE AND COCOA	00	189	188	169	127	131
COPRA	00	479	396	295	190	190
VEGETABLES	00	-	944	1178	1498	943
TUBERS	000	690	677	875	846	--
MAIZE	00	287	355	345	292	--
EGGS	000	17	17	19	15	12
FISHERIES	000	44	59	52	48	43
SUGAR	000	1157	1022	1406	1258	820
RICE	000	212	311*	303	289	--

* 1975 only
Source: FAO, PRODUCTION YEARBOOK, VARIOUS YEARS.
UNECLAC, AGRICULTURAL STATISTICS CARIBBEAN COUNTRIES Vol VI 1984

A more general picture of agricultural performance is afforded by Tables 2-5, 2-6, 2-7 and 2-8. Using 1979-1981 as a base period the tables shows an index of agricultural performance for the period 1976 to 1987 for selected Caricom countries with comparative data for Africa, Asia and the World. Table 2-5 shows total agricultural performance in 1987 in Barbados, Guyana and Trinidad was below the 1976 levels. Only Jamaica showed any improvement. The general picture (when the fluctuations are factored out) is one of a continual decline in agricultural production in the region. The World, African and Asian average rate of increase is well above the regional performance. This occurs despite the problems of agriculture in the African and Asian

TABLE 2-5. CARIBBEAN PRODUCTIVITY INDEX, 1977-87
WITH COMPARATIVE FIGURES
1979 - 81 = 100

				AGRICULTURE TOTAL							
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
BARBADOS	84.13	92.75	90.32	97.07	108.81	94.12	85.84	79.96	84.36	82.31	88.24	74.49
GUYANA	99.01	87.47	109.8	100.15	96.07	103.78	102.45	93.04	87.67	89.06	90.61	89.11
JAMAICA	95.33	98.67	113.92	105.68	98.3	96.02	94.1	102.02	110.82	110.82	110.56	113.38
TRINIDAD	135.19	129.49	119.24	105.99	99.01	95	89.21	104.17	86.65	104.41	103.23	102.21
AFRICA	93.61	93.41	97.57	98.3	99.05	102.65	105.81	105.62	111.48	114.13	115.25	115.54
ASIA	87.28	90	95.49	96.71	99.35	103.94	108.35	114.72	120.85	123.15	125.68	126.35
WORLD	91.46	93.41	97.57	98.3	99.05	102.65	105.81	105.62	111.48	114.13	115.25	115.54

Source: FAO, MONTHLY STATISTICAL BULLETIN, FEB 1988.

TABLE 2-6. CARIBBEAN PRODUCTIVITY INDEX, 1976-1987
WITH COMPARATIVE FIGURES
1979 - 81 = 100

					FOOD TOTAL						
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
BARBADOS	84.13	92.75	90.32	97.07	108.81	94.12	85.84	79.96	84.36	82.31	88.24	74.49
GUYANA	99.13	87.52	109.91	100.18	96.04	103.77	102.5	93.11	87.84	89.24	90.8	89.23
JAMAICA	95.21	99.47	114.78	105.52	98.7	95.78	93.78	101.99	110.52	109.75	111.84	112.9
TRINIDAD	135.87	129.73	119.65	105.88	99.33	94.79	89.74	105.95	88.54	105.01	104.93	103.41
AFRICA	93.39	92.94	96.02	96.74	100.34	102.92	104.18	101.27	102.29	112.04	116.66	116.35
ASIA	87.33	89.87	95.39	96.79	99.48	103.73	107.62	114.56	119.61	122.07	126.16	126.44
WORLD	91.71	93.22	97.66	98.35	99.24	102.41	105.83	105.77	111.29	113.79	115.92	115.73

Source: FAO, MONTHLY STATISTICAL BULLETIN, FEB 1988.

TABLE 2-7. CARIBBEAN PRODUCTIVITY INDEX, 1977-87
WITH COMPARATIVE FIGURES
1979 - 81 = 100

AGRICULTURE PER CAPITA

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
BARBADOS	84.41	93.5	90.68	97.46	108.81	93.74	85.15	79.32	83.15	81.01	86.16	72.45
GUYANA	107.54	93.14	114.52	102.23	96.03	101.73	98.42	87.63	80.97	80.8	80.77	78.06
JAMAICA	100.19	102.42	116.79	107.03	98.32	94.65	91.43	97.72	104.63	102.87	103.89	103.24
TRINIDAD	144.13	135.8	123.05	107.65	98.9	93.45	86.35	99.26	81.29	96.37	93.78	91.42
AFRICA	105.44	102.23	102	99.74	100.46	99.8	97.98	92.92	91.13	96.73	97.33	94.72
ASIA	94	95.13	99.09	98.51	99.34	102.15	104.66	108.92	112.76	112.94	113.4	112.17
WORLD	98.06	98.42	101.03	100.03	99.04	100.94	102.33	100.46	104.28	105	104.33	102.91

Source: FAO, MONTHLY STATISTICAL BULLETIN, FEB 1988

TABLE 2-8. CARIBBEAN PRODUCTIVITY INDEX, 1976-1987
WITH COMPARATIVE FIGURES
1979 - 81 = 100

FOOD PER CAPITA

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
BARBADOS	84.81	93.5	90.68	97.46	108.81	93.73	85.15	79.32	83.35	81.01	86.16	72.45
GUYANA	107.67	93.2	114.63	102.27	96	101.73	98.47	87.69	81.14	80.97	80.94	78.17
JAMAICA	100.6	103.24	117.67	106.87	98.72	94.41	91.12	97.69	104.35	102.12	102.48	101.91
TRINIDAD	144.85	136.06	123.47	107.54	99.22	93.24	86.86	100.95	83.06	96.93	95.33	92.49
AFRICA	105.19	101.63	101.92	99.67	100.35	99.98	98.29	92.8	91.03	96.81	97.82	94.66
ASIA	94.05	95	98.98	98.59	99.46	101.94	103.95	108.76	111.6	111.94	113.83	112.25
WORLD	98.33	98.22	101.12	100.07	99.23	107.7	102.35	100.6	104.11	104.68	104.93	103.08

Source: FAO, MONTHLY STATISTICAL BULLETIN, FEB 1988

countries. By all accounts Caribbean agriculture is ailing.

Checking for the production mix, Figure 2-6 shows the production index of food for the same period. Guyana and Barbados have shown little changes from their 1976 levels while Trinidad and Jamaica have shown modest increases. The case of Trinidad is a particularly interesting one. The fact that general agricultural production is falling while the production of food is rising points to a production mix favoring food crops in the country's agricultural sector despite the general decline. In Guyana food production has fallen at a faster rate than general output, while Barbados's food output decline nearly equals the general decline in agricultural output. By this index only Jamaica has shown the slightest success. It should be noted that Jamaica is the only country that has undertaken a large scale attempt at land redistribution and increased emphasis on the agricultural sector in general and the peasantry in particular (under the Manley administration from 1972 to 1980).

Tables 2-7 and 2-8 are per capita data for the two indexes. An examination of this data show that the region's agricultural sector has categorically failed to keep pace with population growth. Again only in Jamaica was there some marginal rate of change above the population growth rate. This data point to the increasingly perilous situation in the region's ability to feed itself.

Agriculture in the General Economy

In analyzing the plantation structure dominant in Caribbean agriculture the lack of meaningful linkages with the rest of the economy was alluded to. Agriculture has failed not only to develop linkages but its role in the macro economy has continued to shrink. Caribbean economy has grown slowly in the past 25 years, but more importantly the rural sector, although demographically the largest sector in the economy, has failed to keep pace with the modest growth rates of the general economy.

Table 2-9 shows agriculture's contribution to Gross Domestic Product (GDP) for the period 1974 to 1983 for selected Caricom countries for which data is available. The general picture is one of relative decline in the agricultural sector as a contributor to GDP. Except for Antigua and St Vincent agriculture's share of GDP in the economy has declined. However, in several countries, notably Grenada and Jamaica it still remains a large part of the economy. While this index does not give the absolute magnitude of agricultural decline it presents a useful picture of the decreasing role of agriculture in the regional economy. Recognition of the fact that the regional economy has been growing ever so slowly bolsters the argument that agriculture is dying in the region.

As a source of employment the agricultural sector has continued to become less important. Table 2-10 shows the

percentage of the total economically active population occupied in agriculture for selected Caribbean countries for the period 1965 to 1983. In all cases the percentage of the

TABLE 2-9. AGRICULTURE'S CONTRIBUTION TO GDP AT FACTOR COST IN CARICOM, 1974 - 1983. (PERCENT)

COUNTRY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
ANTIGUA	7	8	8.9	8.2	7.8	6.8	6.4	7.3	7.2	8.2
BAHAMAS	-	--	4.6	4	4.3	---	---	---	---	---
BARBADOS	10.7	13.3	9.7	10.5	9.4	9.2	9.8	7.6	6.9	6.9
BELIZE	30.4	23.5	24.4	26.3	26	24.7	31.4	---	---	---
DOMINICA	32.9	37.2	40.5	41.4	44.1	39.9	38.2	30.7	30.7	30.2
GRENADA	24.9	28.7	34.9	33.1	30	31.9	26.2	---	---	---
GUYANA	30	31.1	23	20.8	22.6	22.3	23.4	22.2	23.4	24.2
JAMAICA	7.1	7.3	7.9	8.4	7.9	7.2	8.1	7.5	6.8	6.6
MONSTERRAT	10.4	5.2	5.3	4.7	4.7	5.2	4.1	4.7	4.8	4.4
ST KITTS	24.7	10.5	20.6	21.2	18.5	-	20.5	15.6	20.2	---
ST LUCIA	19.7	15.5	14.5	13.4	14.4	14	14.6	13.8	14.4	15.9
ST VINCENT	12.3	14.9	19.7	19.5	19	15	13.7	17.8	17	---
TRINIDAD	3.4	3.2	3	2.8	2.7	3.1	2.3	2.3	2.5	2.5

SOURCE:UNECLAC, Agricultural Statistics: Caribbean Countries, Vol VI,1984

the labor force in agriculture has declined since 1965. However, the data show that the percentage of the labor

force in agricultural in Jamaica and Guyana has increased between 1980 and 1985.

When an analysis for the countries shown both in Tables 2-9 and 2-10 several processes become evident. First, the percentage of the labor force employed in agriculture has declined more slowly than agriculture's contribution to GDP. Second, from the early 1970s agriculture contributed more to employment than its relative contribution to GDP. Third, when factors one and two are combined the precarious nature of the agricultural sector is more apparent. The fact that agriculture makes a relatively larger contribution to the labor force than it does to GDP means that returns to the agricultural sector, and thus the standard of living,

TABLE 2-10 PERCENT OF ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE FOR SELECTED CARIBBEAN COUNTRIES, SELECTED YEARS.

COUNTRY	1965	1970	1975	1980	1985
BARBADOS	23.2	20	18.1	16.4	8.1
GUYANA	32.5	28.1	24.8	21.7	24.5
JAMAICA	34.2	29.5	24.8	20.7	29.1
TRINIDAD	20.1	18.6	17.2	16	8.5

Source: FAO, PRODUCTION YEARBOOK, VARIOUS YEARS.

is lower than returns in the general economy. The data demonstrates that Caribbean rural economy is a marginalized existence.

In Caribbean economy sectoral decay manifests itself not by a flight from a high wage contracts but rather in the

existence of lower wages. Standard economic theory (and the Marxist theory for the new international mobility of capital) holds that as one sector continues to have higher wages its position is likely to become precarious as capital flees this sector for other sectors where the concentration of capital is lower. A good example of this phenomenon has been the decay of the U.S. steel industry in the 1960s and 1970s, juxtaposed with the rise of fast-food enterprises based on the cheap labor of the inner city. Of course the process of agricultural decline in the region is a makeup of more complicated factors. The depressing effect of the plantation structure has already been pointed out. The price fluctuations for Caribbean agricultural products in the international marketplace, the riskiness of agricultural endeavors, and the low productivity of Caribbean agriculture in general (because of low capital inputs), and poor peasant production (because of poor soil and technological conditions) must also be recognized.

Agriculture's decline has impoverished whole sectors of Caribbean rural society, but the effect has also disseminated to other sectors of the society as well. In particular the burden has been felt in the process of urbanization. The impact of agriculture on this sector has been so pronounced that it warrants special attention.

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THE URBANIZATION PROCESS

With the decline of the rural economy a multitude of push factors develop to propagate rural displacement. The impoverishment of the rural population inevitably leads to an exodus as attempts to raise the standard of living result in migration to the urban areas that are perceived to be better off. In the urban areas wages in industrial and service jobs are general higher than the existing wage structure in the rural economy and they have the added advantage of offering more regular remuneration. Social amenities such as health and education are more regularly available, and the shedding of the stigma of agricultural work can be achieved.

In analyzing the process of rural flight, its contribution to urban growth and the national effect that both entails, certain fundamental mechanisms can be distinguished. First, there is the rural decline as described above. Second, there is the higher standard of living in the urban areas that serves as a magnet for the more depressed rural folk. Third, due to the rural influx into the urban areas the need to divert the already limited national resources to the seemingly more urgent problem of urban growth develops. Finally, the previous three phases interact among themselves to form a vicious circle of retardation of the attempt at national economic development

and structural transformation. Having already developed the first point there is need to expand on the latter three.

The Rising Urban Population

By any standard urban growth in the Caribbean has been very rapid. Until 1960 the vast majority of the population could be classified as rural. However, as the standard of living in the rural areas has continued to decline so has its depopulation continued unabated. Table 2-11 shows the percentage of the total population classified as urban and the urban growth rates for four selected Caribbean countries. The Table shows that in 1960, of the four countries, Barbados had the highest urban population at 41 percent. However, by 1980 the lowest urban population was 46 percent in Barbados and as high as 69 percent in Jamaica. The region as a whole moved from 38 percent to 52 percent urban during the period. Projections indicate that the urban population is likely to reach 64 percent of total population by 2000.[7] The overall urban growth rate is a graphic description of the internal dynamics of the rural sector. For the entire region rural population growth since 1960 has been at less than one percent, while the urban growth rate has been consistently over three percent per annum. The data are displayed in Table 2-12. It points to the fact the flight from the rural sector has been a tremendous source of urban growth as being experienced in

TABLE 2-11. PERCENTAGE OF POPULATION DEFINED AS URBAN, AND GROWTH RATES FOR SELECTED CARIBBEAN COUNTRIES, (1960-82)

COUNTRY	PERCENTAGE URBAN			URBAN GROWTH RATE (1960-1982)
	1960	1970	1982	
BARBADOS	40.8	43.5	46.9	1.1
GUYANA	28.9	31.7	49.1	3.8
JAMAICA	34	41.6	77.6	7.1
TRINIDAD & TOBAGO	39.2	53	68.1	3.8
CARIBBEAN	38.2	45.1	54	

Source: K.R.Hope, URBANIZATION IN THE COMMONWEALTH CARIBBEAN

the region. The rural influence is felt in two ways. In the first instance there is movement from rural to urban areas by the first generation of migrants. Here the influence is direct

TABLE 2-12. AVERAGE ANNUAL GROWTH OF URBAN AND RURAL POPULATIONS IN THE CARIBBEAN FOR SELECTED PERIODS

URBAN GROWTH RATE			RURAL GROWTH RATE		
1950-60	1970-75	1980-90	1950-60	1970-75	1980-90
2.93	3.31	3.18	1.35	0.73	0.71

Source: K.R.Hope, URBANIZATION IN THE COMMONWEALTH CARIBBEAN

and immediate. As an example of this movement Table 2-13 shows the percent of urban growth that can be directly attributed to rural transfers for the period 1970 to 1975. One can surmise that up to 50 percent of urban growth in this period for the countries shown can be attributed to rural migration. After this first order impact however, there is a second process. The vast majority of migrants tend to be young adult women.[8] Thus, migrants are usually

those in their prime fertility periods. Through the demographic multiplier they add a relatively high number of members to the urban ranks, while less growth happens in the rural areas.

TABLE 2-13. RURAL MIGRATION AS A SHARE OF URBAN GROWTH FOR SELECTED CARIBBEAN COUNTRIES, 1970-75 (PERCENTAGES)

COUNTRY	URBAN POPULATION GROWTH RATE	SHARE OF GROWTH DUE TO MIGRATION
GUYANA	6.8	51.01
JAMAICA	3.8	52.6
TRINIDAD & TOBAGO	2	42.1

Source: K.R.Hope, URBANIZATION IN THE COMMONWEALTH CARIBBEAN

The Impact of Urbanization

The rapid urban growth does not take place without deleterious consequences to the national (and regional) economy. The formation of a large urban population happens at a much faster rate that the economic, social and political fabric of the society can adjust to the changes. As a result this disequilibrium within the national fabric institutions and services stutter in their ability to function properly.

Economically, the urban sector must provide jobs for the growing population. However, it is usually not able to do this. Not only is the rate of capital investment low, but it also tends to be capital intensive despite the large

pool of labor. In the Caribbean this is due to the strong presence of the trade union movement and the relatively high wages that exist in the region. In the face of high unemployment and inflationary spirals the government is usually forced to subsidize consumption. This presents results in a drain on the national treasury. Taking into account that a high percentage of consumption is based on imports the impact is even more damaging.

Socially, there is a rise in crime and congestion. Social amenities that proved so attractive at first begin to decay. Schools, hospitals and other such services become overcrowd and inoperative.

Politically, the worsening economic and social conditions coupled with a concentrated population distribution becomes volatile. For the immediate future political expediency demands that scarce resources be diverted to the urban malcontents. Instead of attacking the problem at the source government policies become a stopgap measure that serves only to exacerbate the situation as more urban in-migration ensue.

Although rural to urban migration eases immediate population pressures on the rural sector, agricultural production remains engulfed in difficulties. The rapid urbanization diverts away financial and technological capital from the rural areas. Therefore, the process of structural transformation in this sector is further

prohibited. Important as this factor may be there is a qualitative change that occurs in the rural areas that proves to be more debilitating. This is the issue of rural gentrification.

The majority of rural migrants tend to be in the younger age groups. As such the older folk with less energy are left to man the agricultural production process. The Caricom Secretariat estimates that, "the average age of the farmer is now probably over 60 years."[9] Even in instances where there may be an available young population for agricultural work the contradiction of rural areas having high unemployment rates and labor shortages exists. The stigma and relatively low wages existing in the agricultural sector combine to make unemployment more acceptable than agricultural labor to the young.

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FOOD SECURITY AND THE AGRICULTURAL DECLINE

From the analysis what emerges is a construct of agriculture as a millstone in the region's development process. Agricultural decay has proven expensive to the fragile economies of the region. The plantation structure has not only induced stagnation and decay in the economy, but it has also thrust the burden of growth onto the urban

sector. In the final analysis the question of food production is a question of consumption, nutrition and standards of living. In this regard the dismal agricultural performance has contributed to general economic retardation.

Following from the larger definition of food security proposed in Chapter One it becomes appropriate to illustrate the exact nature of regional food insecurity. The agricultural response (or lack thereof) to the growing regional food crisis manifests itself in both the short and long runs. In the short run the crisis presents itself in the growing balance of trade deficits and its high food import content. Implicit with this is the regional dependence on external food sources and the economic hazards that accrue from such an existence, together with the negative implications for pursuing national self-determination. In the longer run the effect is seen first in the failure to achieve structural transformation, whether in agriculture or the overall economy. And second, the nutritional deficiencies of the regions population becomes the expression of an inadequate and inappropriate food supply.

The Balance of Payments Burden

Since 1960 the majority of the countries in the region have shown a negative Balance of Trade. Table 2-14 shows the appropriate data between 1960 and 1983 for Caricom

TABLE 2-14. BALANCE OF PAYMENTS STATEMENT FOR CARICOM COUNTRIES, 1960 - 1983.*

COUNTRY	MILLIONS		1960	1965	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983
ANTIGUA	E.C. $	EXPORTS	4.27	6.34	27.26	59.92	23.61	17.69	33.85	27.44	74.99	102.87	92.34	
		IMPORTS	15.63	32.4	72.65	145.14	91.84	92.09	125	197.4	262.95	368.55	368.82	
		B-O-P	-11.36	-26.06	-45.39	-85.22	-68.23	-75.2	-91.15	-169.96	-187.96	-265.68	-276.48	
BAHAMAS	BHMS &	EXPORTS	5.9	19	89.6	2508.3	2992.3	3260.7	3058.4	3784	4906	3515	2460	2581
		IMPORTS	66.9	107	337.5	2696.9	3124.5	3568.2	3149.6	3985	5507	4203	3051	3230
		B-O-P	-61	-88	-247.9	-188.6	-132.2	-307.5	-91.2	-201	-601	-688	-591	-649
BARBADOS	B'DOS $	EXPORTS	40.9	64.3	79.2	216.5	173.6	193	261.1	306	455.7	391	528.6	717.4
		IMPORTS	83.3	116.3	236	437.2	473.3	545.1	628.2	852.5	1064.1	1151.1	1106.1	1249
		B-O-P	-42.4	-52	-156.8	-220.7	-299.7	-352.1	-367.1	-546.5	-608.4	-760.1	-577.5	-531.6
BELIZE	B'LZE $	EXPORTS	112.5	174.6	313.4	1204.0	940.4	1241.6	1604.1	1817.8	2216.9	2380.1	1820.3	1554.6
		IMPORTS	187.8	349.9	556.1	1592.3	1615.1	1801.5	2129.9	2637.5	2995.1	3239.3	2560.0	2235.9
		B-O-P	-75.4	-175.3	-242.7	-388.3	-674.7	-559.9	-525.8	-819.7	-778.2	-859.2	-739.7	-681.3
DOMINICA	E.C. $	EXPORTS	6.2	9.5	11.8	24.6	29.1	32.3	42.9	25.4	26.3	51.8	66	
		IMPORTS	10	17.2	31.5	45	49.8	59.1	76.8	60	128.7	134.1	128.2	
		B-O-P	-3.8	-7.7	-19.7	-20.4	-20.7	-26.8	-33.9	-34.6	-102.4	-82.3	-62.2	
GRENADA		EXPORTS			12.1	26.9	34.1	38.5	45.3	57.7	45.8	50.3	50.1	51.1
		IMPORTS			44.6	52.8	66.3	84.8	96.5	118	135.6	144.9	150.9	150.2
		B-O-P			-32.5	-25.9	-32.2	-46.3	-51.2	-60.3	-89.8	-94.6	-100.8	-99.1
GUYANA		EXPORTS	125.1	165.8	265.6	858.1	711.3	661.8	750.2	746.4	991.6	974.3	724	666
		IMPORTS	147.3	180.1	268.2	810.6	927.4	804.3	711.1	810.2	1010	1236.5	841.1	793
		B-O-P	-22.2	-14.3	-2.6	47.5	-216.1	-142.5	39.1	-63.8	-18.4	-262.2	-117.1	-127
JAMAICA		EXPORTS	113.3	153.1	284.8	690.2	572.8	698.6	1142.5	1445.8	1715	1735.1	1367	1389.1
		IMPORTS	155	206.5	437.8	1021.4	829.8	781.6	1260	1754.5	2086.7	2623.4	2460.3	2817.1
		B-O-P	-41.7	-53.4	-153	-331.2	-257	-83	-117.5	-308.7	-371.7	-888.3	-1093.3	-1428
MONSTERAT	E.C. $	EXPORTS	0.273	0.272	0.451	1.02	1.12	1.64	3.71	2.05	3.2	5.97	7.25	
		IMPORTS	19.79	4.89	8.8	16.54	20.8	18.93	26.93	32.32	44.55	51.02	5.46	
		B-O-P	-19.51	-4.618	-8.349	-15.52	-19.68	-17.29	-23.22	-30.27	-41.35	-45.05	1.79	
ST LUCIA	E.C. $	EXPORTS	5.4	11.2	8.7	35.4	49.9	61	72.4	86	124.4	112.3	112.3	
		IMPORTS	12.2	22	54.6	100.4	125.7	160.2	219.9	273.2	334.3	347.2	318.3	
		B-O-P	-6.8	-10.8	-45.9	-65	-75.8	-99.2	-147.5	-187.2	-209.9	-234.9	-206	
ST VINCENT	E.C $	EXPORTS	5.8	6.4	7.1	16.5	24.7	27	44.3	39.9	42.5	65.9	87.4	
		IMPORTS	13	14.8	30.5	53.9	62	81.9	97.7	125.1	154.2	157.1	164.5	
		B-O-P	-7.2	-8.4	-23.4	-37.4	-37.3	-54.9	-53.4	-85.2	-111.7	-91.2	-77.1	
TRINIDAD & TOBAGO	T.T $	EXPORTS	491.3	690.5	960.6	3878.5	5393.5	5231.5	4895.1	6265	9784.8	9025.9	7372.4	5728.7
		IMPORTS	504	817	1084.9	3243.9	4826.9	4340.4	4721	5051	7626.4	7498.9	8873.1	6138.6
		B-O-P	-12.7	-126.5	-124.3	634.6	566.6	891.1	174.1	1214	2158.4	1527	-1500.7	-409.9

Source: United Nations, INTERNATIONAL TRADE STATISTICS YEARBOOK Vol. 1983

countries. The only country that has posted a positive balance is Trinidad and Tobago and that is mainly due to its hydrocarbon resources. The export sector of the region has continued to grow. However, its rate of acceleration has proven to be slower than the rate of growth of imports.

Although not the only source of the increasing propensity to import, the region's food imports are a major contributor to the worsening balance of trade. Table 2-15 shows the percentage of the import bill that was accounted for by food imports between 1974 and 1983. On the surface the picture presented is a mixed one. Generally, Jamaica, Guyana and Trinidad shows that a rising percentage of their import bill over the period is accounted for by food imports. While all the others are more or less constant. However, there are other factors to be considered. First, the food content of the regional import bill is high both in the relative and absolute sense, even in circumstances where it has remained stable or declined slightly. Second, Trinidad, Jamaica and Guyana are the three largest countries. Thus, their impact on the regional bill is going to be correspondingly higher. When the regional food crisis first became evident in 1974 the regional food bill stood at approximately $US 500 million, by 1980 it was estimate to stand at $US One billion.[10] The rising food bill cannot be attributed solely to increases in population. The per capita food bill has risen by huge amounts during the period.

TABLE 2-15. CONTRIBUTION OF FOOD IMPORTS IN TOTAL IMPORTS FOR CARICOM COUNTRIES, 1974-1982 (PERCENTAGE)

COUNTRY	1974	1975	1976	1977	1978	1979	1980	1981	1982
ANTIGUA	15.2	16.9	22.8	25.8	28.8	41.8	24.2	26.2	--
BAHAMAS	3.1	2.4	2.4	1.9	--	--	--	--	--
BARBADOS	24.8	23.3	22.1	20.6	22.1	17.6	17.6	17	16.8
BELIZE	25.8	28.3	24.1	22.3	24.3	24	23.2	--	--
DOMINICA	32.1	31.6	33.3	28.4	29	25	20	22	23.4
GRENADA	40.7	34.8	32.4	---	---	29.3	28.9	28.2	27.5
GUYANA	7.8	5.9	6.1	8.1	8.8	7.7	6.2	5.9	8.4
JAMAICA	13.1	11.6	14	6.7	19	6.5	6.2	15.6	16
MONSTERRAT	24.4	27.3	25	27.5	23	21.3	20.9	25.3	24.5
ST KITTS	27.7	20.8	23.1	23	24.5	21	19.1	19.5	19.5
ST LUCIA	24.5	25.1	24	20.2	20.6	19.1	18	20.4	21.1
ST VINCENT	29.6	32.3	31.9	28.1	32.7	32.3	30	27.5	29.2
TRINIDAD	6.6	8.8	6.5	8.4	9.3	10.6	9.3	11.2	10.2

Source: UNECLAC, AGRICULTURAL STATISTICS, CARIBBEAN COUNTRIES, Vol VI, 1984.

Table 2-16 shows the per capita food import bill for 1970 and 1978 for Barbados, Guyana, Jamaica and Trinidad. During the period per capita food imports more than doubled for Barbados, almost tripled for Guyana and increased by multiples of 4 and 5 for Trinidad and Jamaica,

TABLE 2-16. PER CAPITA FOOD IMPORTS FOR SELECTED CARIBBEAN COUNTRIES, 1970 AND 1978

COUNTRY	UNITS	1970	1978
BARBADOS	B $	199	496.8
GUYANA	G $	46	134
JAMAICA	J $	34.5	177.3
TRINIDAD	T $	93.9	402

Source: F. Long, THE CARIBBEAN FOOD CRISIS, Third World Quarterly, Vol 4 No.4, Oct. 1982

respectively. This increase is accounted for both by the decrease in the internally produced food supply and the increasing marginal propensity to import evident in the regions changing consumption pattern.

The implications for national development are clear. As the region's balance of payments difficulties continue to increase, and even more the portion expended on imported food consumption, its ability to finance structural transformation will continue to be restricted. In the longer term this is the worst manifestation of food insecurity. Not only will opportunities for economic development be circumscribed, but the ability to finance growing food imports will be restricted in the face of foreign exchange crises. The Caribbean countries will have to depend on economic and food aid for their economic survival. Regional economic well being will then have to be accomplished with the brokage of regional self-determination.

Nutritional Deficiencies

The most explicit expression of food insecurity comes in the form of the nutritional status of the population. Inadequate supplies of vital nutrients are likely to present health risks and limit the development of the human resource base. In the Caricom region the nutritional status of the population is rather precarious. Table 2-17 shows the per capita intake of daily calorific and protein supplies in the region for selected periods since 1964. It shows that calorie intake has risen only very slowly since 1964. The region lags below the world average and is only slightly above the African average. For most of the period protein intake has remained close to the 1964 level but has improved substantially in the 1983-1985 period. However, it still lags below the world average.

The nutrition hazards involved are reflected in the high levels of malnutrition among infants in the pre-school years. In 1982 this was accessed as affecting between 2 and 19 percent of the relevant population in the countries of the region. Between 8 and 19 percent of all children are born underweight which contribute to later health problems. In the adult population there are complications arising from low iron intake contributing to anaemia. Concurrently, the obesity associated with the high levels of starch foods and diabetes is very common. At the same time it has been estimated that up to 70 percent of the male adults have

TABLE 2-17. NUTRITIONAL INDICES. CALORIES AND PROTEIN PER CAPITA FOR SELECTED PERIODS WITH COMPARATIVE DATA FOR SELECTED AREAS

	CALORIES PER CAPITA (number per day)				
	1964-66	1969-71	1974-76	1980-82	1983-85
CARICOM	2099	2208	2161	2267	1909
WORLD	2413	2488	2522	2652	2666
AFRICA	2194	2239	2278	2391	2278
ASIA	2039	2133	2186	2379	2437

	PROTEIN PER CAPITA (grams per day)				
	1964-66	1969-71	1974-76	1980-82	1983-85
CARICOM	53.5	57.4	52.1	54.5	63.2
WORLD	64.1	65.5	66.3	68.9	68.2
AFRICA	56.5	57.5	57.6	59.7	56.4
ASIA	51.1	52.7	54	58.4	58.7

Source: FAO, PRODUCTION YEARBOOK, VARIOUS YEARS

very low energy intake and reserves.[11] Overall, there is a problem with the food supply in the region. Of the countries that are members of the Caribbean Food and Nutrition Institute (CFNI) it has been estimated that,

> "only about 44 percent of households..get enough dietary energy, while 56 percent have adequate protein."[12]

Therefore, not only is the food supply limited, but as implied the sectoral and class differences so prevalent in the region, its distribution is also skewed.

The absence of a constant and satisfactory supply of food in the region it not only exposes it to international weaknesses but also inhibits the internal development of the

region. The process of regional development will depend heavily on the ability of the agricultural sector to contribute to economic transformation. Without an agricultural input structural change is likely to be slow at best, or non-existent at worse. On its own steam the export sector has so far proven itself incapable of answering to the rising expectations of the regions population. Food insecurity in the Caribbean is both an issue of long term national development, and the ability to feed the regions population in the short run. As has been demonstrated the region is in a food security crisis.

The following chapters involve a description of the attempt to alter the agricultural decline of the region through regional cooperation in the form of the Regional Food and Nutrition Strategy, and a consideration of the need to implement more realistic policies if the regions economic development process is to begin in the near future before it is too late.

CHAPTER III

THE REGIONAL FOOD AND NUTRITION STRATEGY: A POLICY FOR FOOD SECURITY

INTRODUCTION

The Balance of Payments difficulties and the rapid decline in agricultural output experienced by Caricom countries in the 1970s signalled the need for measures aimed at agricultural rationalization to end the economic malaise. The precarious world food situation outline in Chapter One served as an impetus to highlight the need for agricultural restructuring and improved performance. The gloomy world picture operated as a backdrop to the catalyst to the realization of the concept of food insecurity in the region. Through a series of consultations at the technical, Ministerial and Heads of Government levels the Regional Food and Nutrition Strategy (RFNS) was developed as a programme for concerted regional action to end the decline of the 1970s.

As early as 1975 (2 years after the signing of the Chaguaramas Treaty creating Caricom) measures were initiated for establishing,

> "a specific plan for the increase of food production, including fish, in the entire Caribbean Community area designed to achieve the greatest possible measure of food self sufficiency in the Region"[1].

Through a series of studies and reports under the aegis of the Caribbean Community Secretariat, the Caribbean

Development Bank, and various international agencies the Regional Food Plan (RFP) was formulated by 1976. It was designed to target action at specific agricultural sectors on a regional scale to offset the continuous agricultural decline. In 1983 the RFP was incorporated into the Regional Food and Nutrition Strategy. The RFNS differed from the Regional Food Plan in that in addition to food production schemes, it established policies for dealing with the malnutrition problems of the Region, which themselves were a direct consequence of the regional food imbalance. Thus, in addition to addressing the agricultural question, the RFNS addressed the necessary changes in health and education that were to be implemented. The Caricom Secretariat reported that,

> "The RFNS, a natural extension of the Regional Food Plan, was therefore developed with an explicit recognition of the multi-disciplinary demands of the exercise. Thus, it incorporates all the elements of the Regional Food Plan as well as introduces other complementary areas".[2]

The aim of this segment of the essay is to review the specific nature of the RFNS and the measures initiated under its policy perspective for dealing with regional food security. The RFNS has several components, from research and production to communications policies. However, the analysis will be restricted solely to those parts that have a direct bearing on food production and food security.

The rest of the Chapter is organized in the following

manner. First, the stated premise of the Strategy in its final form will be delineated. Second, an analysis of the organizational structure and mechanisms for enacting the Strategy will be undertaken. Third, other policies initiated outside of the RFNS but are designed to increase its effectiveness will be outlined. Fourth, a short synopsis of the results of the Strategy so far will follow. Most of this section will be contingent on the analysis in the previous chapter. Finally, a critique of the Strategy will be undertaken. The aim here will be to pinpoint segments of the Strategy that are inconsistent with its goals, discuss the implications of the designated policies as a means of increasing food production and food security in the Region, and outline crucial factors that need to be incorporated into the Strategy. This will lay the groundwork for introducing new approaches for regional agricultural planning into the Strategy if it is to be successful, which is the subject of Chapter 4.

* * * * * * * * *

THE PREMISE OF THE STRATEGY

As originally conceived the Regional Food Plan was designed to facilitate an increase in regional food production as soon as possible. However, as studies were

undertaken and the over ambitious nature of the Plan realized, the focus changed to one that stressed the structural nature of the problem and the need for long term planning. It was also recognized that the idea of total self sufficiency may not only have been undesirable, but may also have been uneconomical and wasteful. The RFNS in its final form introduced policies calling for both short term increases in agricultural production, and the need for long term alteration of the structural difficulties facing the Regions's agricultural sector. The Caricom Secretariat stated that,

> "The RFNS has as its goals increased economic self-efficiency and self-reliance and the improved health status of the people of the Caribbean. Moreover, one of the major aims of the Strategy was to bring about a reduction of the incidence of malnutrition and reduced dependence on imported food"[3].

Specifically, an attempt was made by the Strategy to delineate the areas where improvements were to be forthcoming. The aim was to introduce policies in several major sectors of the economy that would foster an improvement in the agricultural sector and the status of the consumers. Overall, the Strategy's major emphasis would be in the following areas:

I. Agricultural production and Agro-industry

II. Research and Technology

III. Post-harvest Activities

IV. Provision of Management Services

V. Assistance to Small Farmers

VI. A Disaster Preparedness Plan

VII. Targeting Specific Sectors

Agro-industrial Development

The foremost task of the Strategy was to increase agricultural production in the Region. The aim here was to allow the agricultural sector an opportunity to blossom and play a larger role in the economic development of the Region. Thus, production in all agricultural commodities, including import substitutes, import replacements, and exports was to be boosted. Essentially, this would allow for a reversal of the balance of trade problems, not only through an increase in exports, but also from a diversification of the agricultural export base and an improvement in the terms of trade for these commodities.

The Strategy was particularly explicit about the need for an,

> "increased proportion of domestic foods in total food consumption".[4]

This indicated that import substitution and self-reliance were to be the major themes of the Strategy. Up to this point in time, as shown in Chapter Two imports had become the dominant contributor to regional food consumption, and thus was one of the major reasons for the

balance of trade difficulties. In lessening the importation of food the regional economy could receive a boost from the increased domestic agricultural activity, and the multiplier effect contingent on increased linkages in this sector.

Not only was most of the region's food imported, but it tended to be imported in an already processed form, while the regions exports were usually in raw form. To remove this imbalance the food processing sector was to be given a major boost, technologically, managerially and financially. Weaning foods and food fortification were to be given special attention.

Although import substitution was a key element of increased agricultural production the Strategy also recognized that there would be need for

> "maintenance of critical levels of imports in certain key foods not readily produced in the region".[5]

This would be formulated around measures for bulk purchasing and the development of regional storage systems for managing extra-regional imports. At the same time the distribution of food in the Region would be facilitated by development of the intra-regional food trade system.

It was recognized that improvements in agricultural output would be successful only if the Strategy could lower unemployment (especially in the rural areas), generate higher incomes, improve the infrastructure and increase

overall economic activity in the agricultural sector. The new policies would not only increase self-sufficiency but would also generate an increase in foreign exchange earnings.

Research and Technology

Although a separate institution in itself the CARDI was entrusted with the task of research. The Institute was to identify possible areas for improving the sector. In conducting its research of systems of production CARDI was advised to pay special attention to the environment, economic and social circumstances. The role of the small farmer was to be of special importance in the Institute's Research and Development work.

Also to be involved was CARIRI. This institution was to be involved with the technical aspects of the food matrix. This involved research in hybrid seeds and trees, food technology and the technology of animal husbandry and the use of incubators.

Post-Harvest Activities

The Strategy recognized that a large portion of its activities would happen outside of the sphere of production. In the region it was estimated that between 20 to 40 percent of major food crops were lost after harvest.[8] Thus, a distinct effort was to be made to development techniques and

methods for reducing post-harvest losses. This was to include improvements in harvesting, handling, pre-sale sorting, the institution of control measures for storage pests and diseases, and the establishment of appropriate storage facilities.

In this regard the marketing infrastructure was to be reshaped. Marketing agencies were to be overhauled and given financial preference in national budgets. Marketing information systems to improve data collection and data dissemination were to be developed. This included prospects for market research, development and promotion programmes. Both land and sea transportation systems were to be rejuvenated at the national and regional level.

Development of Human Capital

Improvements in human capital for effective implementation of the Strategy were also to be initiated. It was recognized that without the proper training of managerial and institutional elements the plan was likely to be ineffective. Thus, academic and technical training schemes were to be introduced to aid in the development of production, processing and distribution of the increased agricultural output.

A key element of the plan was to be the improvement in training facilities for skilled manpower. This was to involve not only technical skills, but also was intended to

target improved managerial quality. It was recognized that initially much of the technical and managerial services for implementation of the Plan was to come from foreign participants, but it was stressed that as the region's human capital base developed nationals were to takeover the key roles. The Caribbean Agricultural and Rural Development Advisory and Training Service (CARDATS) was entrusted as the main implementing agency in this aspect of the plan.

Development of the Small Farmer

A major focus of the Strategy was to be the small farmer. It was recognized that most of the production of local food commodities was in the hands of small farmers and that this class was likely to prove the backbone of the new production thrust. As a result, the research and development of appropriate technology for small farming was to be a significant element of the plan. The Caribbean Industrial Research Institute (CARIRI)and the Caribbean Agricultural Research Development Institute (CARDI), regional research bodies, were to give priority to this area of their research.

Extension services were to be dramatically improved so that the small farmer could readily participate and take advantage of the new technological, managerial and financial provisions that were to be instituted under the Strategy. The University of the West Indies (UWI) and local Ministries

of Agriculture were to be the major implementing agencies in this aspect of the Plan.

The banking sector (both the Agricultural Development Banks and the commercial banks) was to pay special attention to this class of farmers in their credit and lending policies. Land reform measures and the development of a crop insurance scheme on the national level was also to be formulated to aid in the development of this class.

Disaster Preparedness Plan

The issue of food security was to be dealt with by a two pronged attack. First, there was to be the "development of strategic food reserves against disasters".[6] The stock was to be used strategically to alleviate suffering in instances of natural disasters, and was to hold a three month regional supply food supply. It was to be composed of cereals, legumes, starchy roots and tubers as well as sugar. Strategic stock locations were identified in Jamaica and Guyana. An administrative machinery was to be developed under either the National Disaster Preparedness Committees or the National Emergency Organizations in accordance with a regional body to be specifically established for such purposes. The ability to have a rapid deployment mechanism was considered important to the success of the reserve.

Second, it was recognized that,

> "food security, as well as the imperatives of balanced development, demand a significant

increase in domestic production and a reversal of food dependency as represented by the current food import/export ratio".[7]

The Strategy appreciated the fact that food security had both short long term expressions and made provisions for dealing with both dimensions over time.

Sectoral Policies

Specific sectors were to be target in the implementation of the Strategy. They were outlined to include fisheries, dairy production and processing; intensive beef production, poultry and pork production and processing; processing livestock feed; edible oil production; fruit and vegetable production and processing and the production of inputs, including fertilizers, small tools, containers and seeds.

* * * * * * * * *

IMPLEMENTATION OF THE STRATEGY

The Strategy went to great pains to describe the implementation process to be involved. An elaborate mechanism for implementation, coordination and supervision was designed. Since the region covered a large geographic area and there were different levels of development and rates of agricultural decay in the member countries stringent measures were needed if a coordinated

implementation plan was to be undertaken.

Before delving into the exact nature of the implementation process of the RFNS an important qualification must be made. Both the RFP and the RFNS was meant to be, in the words of the Caribbean Development Bank (CDB),

> "complimentary to national efforts in food production and were not meant to substitute for, nor compete with them".[9]

This point is reiterated several times throughout the official documents. As such, the organizational structure reflected the compartmented nature of the plan and to a great extent its implementation depended on cooperation among the political leaders of the various countries.

The Caribbean Food Corporation

When the original Regional Food Plan was developed its main institutional mechanism for implementation was the Caribbean Food Corporation (CFC). The CFC was established as a holding company owned by the Member Countries of the Community. It was mandated that it would participate in production , processing and marketing enterprises, either under its own initiative, through subsidiaries, or in partnership with other agencies including the private sector.

The CFC was to be involved in all elements of the food sector, including planning, production, processing, storage,

transportation, distribution and marketing. In these endeavors it would be assisted by local marketing boards. Essentially, the CFC would undertake three prime tasks. First, it would identify, plan and implement all stages of the food chain matrix in tandem with regional, national and local agencies. Second, it would provide the link in managing the financial, technological and managerial resources from outside the region necessary for implementation of the Plan. Third, it would organize the bulk purchase of production inputs.

After the expansion of the Regional Food Plan into the Regional Food and Nutrition Strategy the execution of policy was shifted away from the CFC. The CFC remained an integral part of the program, retaining its role as a holding company with a mandate to promote the efficiency and effectiveness of the regional food producing sector. However, because the RFNS involved substantially more programs than the RFP the implementation process was reorganized.

The Inter-Sectoral Committee and other Agencies

The structure designed for the implementation of the RFNS involved a multi-layered organization with several committees. Decision-making and advisory functions were lodged between the Standing Committees/Conference of Ministers, Committees of Regional Sector Planners/Officials, the Heads of Regional Agencies (HRA), Board of

Directors/Policy Committees of Regional Organizations, and the Ministerial Governing Bodies of the Regional Organizations.

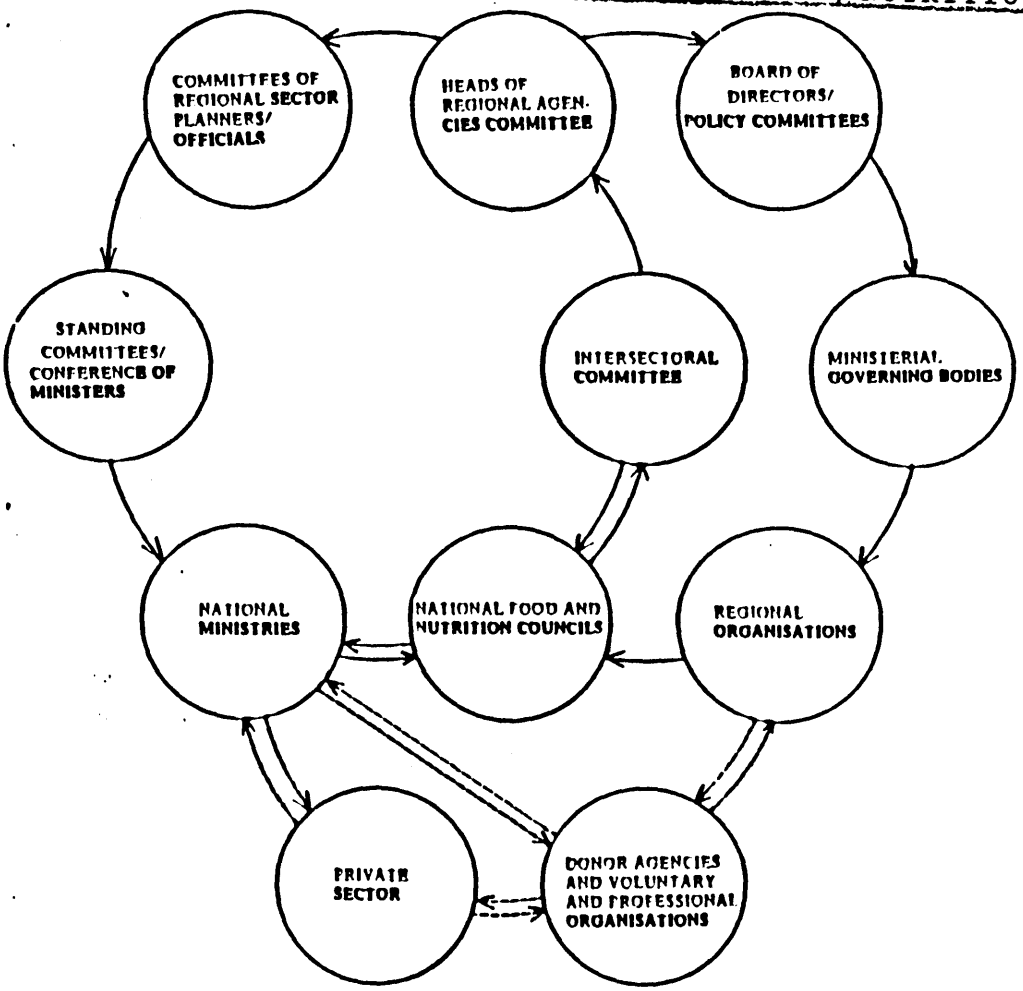
Two other bodies, the National Food and Nutrition Councils (NFNCs) and the Inter-Sectoral Committee (ISC) were entrusted with monitoring and evaluation of the implementation process.

Execution proper was the function of the National Ministries, with private sector agencies and regional agencies executing supporting activities. Figure 3-1 gives a graphical picture of the structure of the implementation process. As the figure shows, each of the bodies in the Strategy's implementation process is intricately linked together, either directly or indirectly. The process of implementation was based upon an interactive model among the agencies. In the process there was a predetermined route with each body assigned a particular and unique role, that when combined would enable an effective mechanism for successfully implementing the RFNS.

First, the Inter-Sectoral Committee and the National Food and Nutrition Councils would review the sectoral policies undertaken in the last period and determine new activities for the next period. In determining the next set of activities, these bodies would allocate responsibilities for the national and regional bodies involved. The implementation plans were to consist of a three year

FIGURE 3-1. THE IMPLEMENTATION PROCESS

FOR THE REGIONAL FOOD AND NUTRITION STRATEGY



→ REPORTING RELATIONSHIPS BETWEEN AGENCIES

⇢ RELATIONSHIP OF THE PRIVATE SECTOR, EXECUTING AGENCIES AND DONOR AGENCIES, VOLUNTARY AND PROFESSIONAL ORGANISATIONS.

Source: Caribbean Community, Regional Food and Nutrition Strategy

schedule with programmes prioritized on an annual basis. Although the process began with a segmented analysis the ISC was entrusted with the task of incorporating them into a comprehensive regional plan.

Second, the comprehensive regional plan would then be submitted to the Heads of Regional Agencies (HRA). This body would then review the plan and the allocation of activities for regional agencies. In tandem with the Regional Sector Planners/Officials, the HRA would them recommend the implementation plan on a programme basis.

Third, the plan would be again reviewed by the Board of Directors/Policy Committees of the Regional Agencies. These bodies would then recommend the approved programmes and budgets of the regional organizations to the respective Ministerial Governing Bodies. Finally, the Ministerial Governing Bodies would weigh the consistency of the implementation plan with the objectives and priorities of the general Strategy. Once this stage is approved regional and national agencies would then be entrusted with the implementation of the plan. At this point they are required to have the approved programmes incorporated into their work program and budgets for the next period and execution begins.

Once the cycle is complete it begins anew for the next period. Figure 3-2 shows the planning, evaluation and implementation process for one period of the Strategy.

Figure 3.2. SEQUENCE OF ACTIVITIES

STAGE	INSTITUTION	ACTIVITY
1	Inter-Sectoral Committee/ National Food and Nutrition Councils	Activity determination and allocations
2	Inter-Sectoral Committee/ National Food and Nutrition Councils	Elaboration of implementation plan
3	Heads of regional Agencies	Agree to implementation plan and allocation of activities for regional agencies
4	Regional Sector Planners	Recommend the Implementation Plans on a Programme basis
5	Board of Directors/ Policy Committees of Regional Bodies	Recommend the work Programmes and budget of regional organizations based on the recommendations of the Regional Sector Planners
6	Standing Committee /Conference of Ministers	Endorsement of the Implementation Plan on a programme basis
7	Ministerial Governing Bodies of regional Bodies	Endorsement of Work Programmes and Budget of Regional Organizations
8	National/Regional Executing Agencies	Implementation of the activities in the Implementation Plan
9	Inter-Sectoral Committee/ National Food and Nutrition Councils	Evaluation of the Strategy- its programmes, activities and projects at the national level

Source: Caricom Secretariat, The Regional Food and Nutrition Strategy, Vol I, 1983.

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SUPPORTING POLICIES

The main body of the CFNS concerns itself with the physical side of the agricultural situation in the region. However, the sphere of trade was also dealt with elsewhere in regional negotiations. These were structured with the aim of aiding the success of the CFNS and as a result they should be briefly described in this context.

Through the Common External Tariff (CET) the regional governments made provision for trade liberalization involving the removal of tariffs and non-tariff barriers to intra-regional trade. This agreement attempted to deal with the issue of a common protective policy vis-a-vis Third countries. It has also led to joint negotiations with the United States, the European Economic Community and the regional governments have presented a joint negotiating position at UNCTAD.

Agricultural trade has been specifically dealt with in the Common Market Annex (CMA) to the Chaguaramas Treaty that officially brought the Caribbean Community into being in 1973. In Schedule VII of the treaty it specifies the terms for intra-regional trade in unrefined sugar. The member states were to also declare their deficits and surplus for the purpose of each having the opportunity to meet supply

obligations. In the international market place there was to be a common regional price.

Schedule IX of the Treaty, termed the Oils and Fats Agreement, covered the trade in oils and fat. Trading was to be done on the basis of declared surpluses and deficits and a negotiated fixed price operating under the auspices of the Caricom Secretariat.

Raw commodity trade in 22 agricultural products was dealt with in Schedule VIII of the Treaty. The Agricultural Marketing Protocol (AMP) was to work with the States allocating markets based on declared surpluses and deficits on a six months basis. Upon the declarations, quantities for trade and fixed prices were then established. Member states undertook to create agricultural marketing corporations to coordinate and deal with the expected increase in regional trade.

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ASSESSMENT OF REGIONAL FOOD AND NUTRITION STRATEGY

The Regional Food and Nutrition Strategy made great strides in bringing the food crisis of the region into focus. Its planning and scale of implementation remains one of the most ambitious regional undertakings to date. Its most important aspect remains the fact that the Caribbean

food crisis was recognized to be a regional ailment and necessitated a regional response if there was to be an end to its debilitating effects. Unfortunately for the regional development effort, the Strategy has not led to the immediate improvements that was visualized by the signers of the agreement. It would be unfair to be too harsh on the Strategy for two reasons. First, it has only been fully implemented since 1983 (the RFP was in operation since 1975, however). In the scheme of things this may be insufficient time to give the Strategy to deal with the fundamental structural deformities it was designed to eliminate.

Second, the region has not been able to come up with the necessary financial resources to fully finance the implementation of the scheme. Capital from the international capital market have proven to be scarce as metropolitan banks attend to the Third World debt crisis. The price of petroleum (Trinidad), and bauxite (Jamaica and Guyana) has remained low and seriously affected the region's balance of trade dilemmas. At the same time the region's main source of external aid, the United States, has shifted its policy in the region from hard cash provisions to increased market access through the Caribbean Basin Initiative.

In such a pessimistic atmosphere it is hard to expect too much out of the regional plan. This does not except it however, from criticism of its conceptual weaknesses and

erroneous misunderstanding of the internal mechanisms which are likely to prove prohibitive to its success rather than aid its general contribution to the regional integration process and regional development.

Regional Agricultural Production and Trade

The most useful index of regional increase in general agricultural production is the production index shown in Tables 2-5 to 2-8. In this connection it can be seen that for two of the countries in Table 2-5, Jamaica and Guyana, agricultural production levels are slightly above 1979-81 levels. However, in per capita terms (Table 2-7) the picture has been dismal. The decline has continued in Trinidad, Guyana and Barbados. Only Jamaica has shown a slight improvement.

With regards to the food production index (Tables 2-6 and 2-8), the picture is hardly more promising. In general terms Trinidad and Jamaica has shown small improvements, while Guyana and Barbados continues to slide in their food output. When assessed over per capita levels, the food production index shows that all the countries have deteriorated vis-a-vis 1979-81 except for Jamaica which have remained more or less constant. Using this index one can conclude that so far the Regional Food and Nutrition Strategy has had no effect on the level or structure of agricultural production in the region. In fact, in 1987 the

region was in a more perilous situation than it was in 1976 when the Strategy was first conceived.

The regional trade agreements have also failed to stimulate increases in intra-regional trade. In one report the World Bank concludes that,

> "It is generally true to say that after 15 years of operation the intra-regional trading agreements have not stimulated intra-regional trade to the extent envisaged when the agreements were entered into. In fact in many instances regional production has experienced a decline in its market share."[10]

Trade in agricultural products have remained constant in value but not in volume. Given price increases this points to a decline in the volume of trade between the member countries. However, as shown in Chapter Two international trade with the region has not declined. Imports from third countries have continued to increased in the face of intra-regional declines. The sources of the declining intra-regional trade are diverse. In many cases the result has been due to declines in production. This has definitely been the case with the Oils and Fats Agreement. Regional output in copra has continued to decline and as such the importation of corn and vegetable oils is used to make up the consumption deficiency. Changing patterns in regional consumption, in favor of wheat and processed food not produced in the region, also exacerbate the situation.

The very nature of trade agreements have also contributed to this decline. The agreements sought more to

protect each country market from the others instead of forming an open market for intra-regional trade protected from outside hindrances. In any event,

> "The CARICOM experience has shown that highly institutionalized trade liberalization mechanisms do not generate significant increases in trade in the long run."[11]

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CRITIQUE OF THE STRATEGY

The RFNS involved an attempt to coordinate agricultural production strategies among countries that contain as much differences as similarities. In addition, any regional process involves large amounts of compromise on ideological tangents and the importance of national factors above regional issues. The RFNS reflects this general approach to regional cooperation and as such contains rudimentary flaws that are going to prove fatal in the success of the Strategy.

As the implementation scheme of the Strategy shows the plan is a disconnected mass of national policies attempting to find a common binding (in this case it is food insecurity). The implementation plan as proposed involves a decision making process that is disjointed and slow. As outlined, there is no direct mechanism for the implementing

bodies of the plan to interact with the governing body of the plan until the supervisory bodies have entered into their supervisory roles. It is very difficult to identify which body actually holds the final responsibility for the Plan.

The Plan dictates a three year planning horizon. However, it does not provide for periodic interim changes. In the unstable atmosphere of agricultural planning there is constant need for changes in previous plans. In a period of change when the final form of the new agricultural system is not yet clear there will be immense need for regular changes as issues materialize. As conceived the RFNS allows each country to hold on to the national reigns of a decaying system while attempting to build a modern regional agricultural sector. Both endeavors are incompatible with each other and so are inconsistent with the achievement of success.

Given the dismal performance of the national economies in general, and the agricultural sector in particular, it is difficult to see why the Strategy attempts to burden the agricultural sector with such a compact mandate. The expectations on the sector are too many. There is a lack of focus in the Plan. The broad plans leave open too many difficulties in attempting to distribute limited resources to the manifold problems involved. To expect to have traditional export production increasing at the same time as

production for the regional market is to fail to comprehend the linkages that are inherent in both, to come to terms with the constraints of the sector, and to appreciate the limited absorptive capacity in the system. Agricultural planning must involve a recourse to setting priorities, understanding streamlining in the sector, and attempting to influence both for the common good.

In this regard the Plan does not come to terms with the strangle hold of the traditional crops on the agricultural sector. In requiring that there be immediate increases in the output of the traditional sectors the Strategy sets in motion the age old complications of agriculture in the region. The strong plantation sector is likely to use its size to co-opt all the new provisions in its favor. Without explicitly make provisions for limiting the influence of this sector it will readily take command of financial, research and technological resources at the disposal of the rural economy. Given the resource limitations presently existing in the regional economy it is profound to think that the nascent agricultural sectors will be able to hold their own against the larger plantation sector. Both sectors will need to have recourse to the same technological expertise, the same financial institutions and the identical managerial resources. This is likely to overwhelm these institutions with their limited resources and render them inoperable.

The Strategy has no mechanism for restructuring or rationalizing agricultural production on a regional scale. The expressed aspiration is simply to facilitate national policies in the same avenue of dualism, so blatantly responsible for the decline in the first place. Restructuring of Caribbean agriculture is an absolute must. As changes in the international economy and regional economy take place, there will be commensurate need for agriculture to restructure or face the certainty of stagnation and being left behind. The dependence of many Caricom countries on sugarcane, coffee, cocoa, and bananas (and primary production in general) are outward manifestations of the failure to restructure in accordance with changing national priorities, technological processes and the changing international market place.

Without regional rationalization of agriculture the old deficiencies, constraints and lack of economies of scale are likely to remain intact. The very need for a regional approach to the agricultural question has demonstrated the failure of national policies to come to terms with the problem. To a great degree the limitations of agriculture on a national level are inherent in the economics of size and the limitations of resources. At a regional level these constraints are either reduced or comprehensively removed, since the pooling of regional resources creates opportunities for enlarged production and the creation of a

larger and more versatile market.

The provisions for technological research in agriculture are incongruent with the regional resource base or its immediate needs. First, there should be more emphasis on testing existing technologies instead of searching for innovations. Given the size of the regional economy at present it has limited capacity to finance basic research at present. If emphasis is placed on using existing innovations then the scientific society can remain just outside the threshold of scientific takeoff until the economy is able to sustain it on its own. Second, significant research resources have been geared towards the traditional sector (the effect of which have already been dealt with) and to the application of high amounts of energy in the production process. If this succeeds the likely result is that a high food import bill will be replaced with a high energy import bill and the regional dilemma will reemerge in a different form. The prospects for environmental degradation will also be increased. With their small sizes, very few countries in the region will be able to afford such a decay without it having a negative impact on their prospects for economic growth.

The emphasis on the needs of the small farmer is going to prove faulty. As shown in Chapter Two the small farmer is a dying breed in the region, not only for economic reasons but also because of changing social attitudes.

Provisions will need to be made for restructuring the agriculture sector around a new social class, which is most likely going to be a young, educated and technologically oriented group. In the modern era the dignity of agriculture will come from its attraction to this group, not from the few remaining aging planters. Emphasis will have to be made to develop farm sizes that will offer economies of scale under the new technologies.

The food storage scheme that has been devised to deal with national disasters is a misguided application of a good idea. If the only design is to have access to food in the case of a natural disaster then there is no need for a storage system. The international community is likely to respond as fast as any regional scheme, in as large quantities and with less cost to the region. The real purpose of a food storage systems should be to stabilize commodity prices, both of regionally produced goods and of those imported in large quantities, in the face of production fluctuations. This is an issue that the Strategy does not deal with.

In conclusion, it can be seen that the real limitations of the Regional Food and Nutrition Strategy is that it fails to include policies for removing the binding constraints on the region's agricultural sector. It does recognize several of them. However, it attempts to work within these constraints rather than focus its resources on removing

them. This will severely limit the eventual scope of the Strategy and its ultimate chances for success. More emphasis needs to be placed on altering the political, economic, technological, physical and social barriers to a successful agricultural policy.

The task of the following chapter is to point the major elements of a new regional planning policy within the context of RFNS based on an attempt to remove structural rigidities in the agricultural system. The freeing of the agricultural sector from its ancient bondage will in the end determine the eventual pace and standard of regional development.

CHAPTER IV

ELEMENTS OF AN APPROACH TO COMPREHENSIVE REGIONAL PLANNING WITHIN THE FRAMEWORK OF THE CARIBBEAN FOOD AND NUTRITION STRATEGY

INTRODUCTION

The fundamental weakness of the Caribbean Food and Nutrition Strategy (CFNS) is that it approaches regional agricultural planning from a national perspective. The Caribbean food crisis has the dimensions of a regional problem and so dictates a regional response to the crisis. It is acknowledged that any approach to regional planning becomes difficult because of the general weakness of all the economies involved, the fact that they compete with each other in the agricultural sector and the different political views existing in the region.

However, the CFNS represents a recognition of the need for agricultural reform in the region, and more so the need for a regional approach to the dilemma. Beginning from this standpoint the following Chapter attempts to lay out a framework for a comprehensive policy towards the regional agricultural sector. Instead of initiating the planning phase from the national level the analysis will begin with the regional level and work its way downward. The exact purpose of the framework will be to establish an environment in which the regional plan can operate at the national level without hampering the development plans of the latter. The general thesis is that a regional approach to agricultural

restructuring is feasible and necessary if national development plans are to be successful.

A regional approach to agricultural planning brings with it several advantages. First, one of the major problems facing the small countries of the region is the lack of economies of scale. In an environment where there is some sort of regional rationalization of production is it more likely that economies of scale can be achieved in the production process. The constraints on certain agricultural sectors in one country may not exist in other countries, thus a properly defined program can restructure in order to prevent this limitation.

Second, as has been shown, agriculture in the region is on the decline and there is widespread need for restructuring and revitalization of the sector. As the CFNS shows this will involve the need for phasing out some crops, introducing new ones, interjecting new technologies and research programs, market research and development and other procedures if the sector is to rebuilt as a contributor to the development process. The tasks as outlined are going to prove well beyond the capabilities of any single country in the region. In this contest a regional approach will reduce the burdens involved, spread the risks of the venture, and increase the likelihood of its success.

Third, as it exists the agricultural sector of the region is characterized by excessive duplication. This

takes the form not only of competition among the islands for the same markets, but also in research and development, in administrative tasks, and in international negotiations. The CFNS duly recognizes this, but because it puts the national approach ahead of the regional difficulties it fails to really address the problem. A comprehensive regional plan will allow for a reduction in competition among the countries of the region, and introduce some degree of specialization once restructuring is complete. In the final analysis this is the prime goal of agricultural rationalization on a regional scale. This can be conceived as,

> "a means of achieving the modernization and development of agriculture in all Member States within the integration movement but in the framework of regional policies which would encourage the most effective utilization and specialization of resources, foster integration of agriculture with other economic activities, lessen inter-territorial competition and duplication in resource use, and achieve greater complementarity in regional agricultural production."[1]

Finally, one of the stated long term goals of the countries of the region is to foster regional integration, not only economically but also politically. An exercise in regional planning for agricultural prosperity is going to contribute towards these ends. Once the task of agricultural restructuring is complete then the next logical step is to extend the exercise to other sectors. The

problems inherent in the regional agricultural sector also exist in other sectors and the process of regional development will demand that they to be addressed in turn. However, the limited development of the region's resources dictates that restructuring on all fronts may be too grandiose an enterprise.

The rest of the Chapter is an attempt to identify an approach to regional planning that takes advantage of regional resources and to establish a policy framework that removes the constraints. It is organized in the following sequence. First, a general accounting framework will be developed. The emphasis will be on creating an environment for regional planning, and also a scheme for monitoring the progress of the plan. Second, the uses and limitation of the framework will be analyzed. Finally, a general exploration of issues involved in the restructuring process will be undertaken.

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A GENERAL ACCOUNTING FRAMEWORK FOR COMPREHENSIVE REGIONAL AGRICULTURAL PLANNING

As it presently exists, the region's agricultural sector is characterized by each country's agricultural

sector having only marginal backward and forward linkages. This extends not only to linkages within the national economy but also on a regional scale. A process of restructuring involves the development of policy initiatives that will increase the linkages of the agricultural sector. In planning the restructuring process an appropriate framework must be developed that is capable of capturing these inter-industry and inter-island linkages and presenting a framework for their analysis.

Any such locale for regional agricultural planning must satisfy certain fundamental criteria. First, the chosen framework must be able to present both the regional and the national structure of the agricultural sector. The aim here is to be able to analyze the region as a single entity while at the same time recognizing that it is made up of individual parts. The framework thus must have the ability to both merge and differentiate the different levels of the agricultural sector.

Second, agricultural restructuring involves the enhancement of linkages both to and from the sector. The framework for analysis must be able to capture this effect. Because the linkages to be developed will demand both sectoral and geographic differentiation it is important that the framework be able to accommodate the two.

Third, the framework would be able to show aggregates for sectoral and regional demand and supply so that policy

markers can bring both into equilibrium during the process of restructuring.

Finally, because there is a heavy dependence on external trade by member countries a great deal of the restructuring process involves an attempt to reduce the importation of food supplies while increasing exports. Thus, the chosen framework must be able to capture this effect also.

All these criteria are met by using an inter-country inter-industry input-output matrix. Such a matrix will treat each country separately with the Rest of the World treated as a separate country. Figure 4-1 is one possible format that such a matrix can take on. The figure shows a two-country 10-sector model, with the Rest of the World as the third country. In this scheme the Rest of the World acts as the difference between internal demand and internal supply. It is not difficult to have the model extended to include all the parties to the CFNS.

The flows of the matrix will be denominated in production figures. This use of "hard" figures departs from the traditional procedures of input-output analysis in this respect. The use of hard values is defended on several grounds, all of which are concerned with the possibilities for economic analysis. The region's agricultural sector has been severely distorted from decades of economic mismanagement. All the countries in the region have

FIGURE 4-1. FLOWS IN THE INPUT-OUTPUT MODEL

	ANTIGUA					GRENADA					REST OF WORLD				
	/ Industry					Industry					Industry				
ANTIGUA	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
East															
1 Agriculture	.621	.000	.000	.000	.000	.055	.000	.000	.000	.000	.019	.000	.000	.000	.000
2 Mining	.000	.586	.000	.000	.000	.000	.063	.000	.000	.000	.000	.021	.000	.000	.000
3 Construction and Manufacturing	.000	.000	.738	.000	.000	.000	.000	.156	.000	.000	.000	.000	.105	.000	.000
4 Services	.000	.000	.000	.824	.000	.000	.000	.000	.141	.000	.000	.000	.000	.069	.000
5 Transportation and Utilities	.000	.000	.000	.000	.721	.000	.000	.000	.000	.165	.000	.000	.000	.000	.126
GRENADA															
1 Agriculture	.345	.000	.000	.000	.000	.865	.000	.000	.000	.000	.198	.000	.000	.000	.000
2 Mining	.000	.375	.000	.000	.000	.000	.851	.000	.000	.000	.000	.258	.000	.000	.000
3 Construction and Manufacturing	.000	.000	.239	.000	.000	.000	.000	.805	.000	.000	.000	.000	.177	.000	.000
4 Services	.000	.000	.000	.156	.000	.000	.000	.000	.826	.000	.000	.000	.000	.114	.000
5 Transportation and Utilities	.000	.000	.000	.000	.257	.000	.000	.000	.000	.794	.000	.000	.000	.000	.204
REST OF WORLD															
1 Agriculture	.033	.000	.000	.000	.000	.080	.000	.000	.000	.000	.783	.000	.000	.000	.000
2 Mining	.000	.039	.000	.000	.000	.000	.086	.000	.000	.000	.000	.720	.000	.000	.000
3 Construction and Manufacturing	.000	.000	.023	.000	.000	.000	.000	.039	.000	.000	.000	.000	.718	.000	.000
4 Services	.000	.000	.000	.020	.000	.000	.000	.000	.033	.000	.000	.000	.000	.817	.000
5 Transportation and Utilities	.000	.000	.000	.000	.022	.000	.000	.000	.000	.041	.000	.000	.000	.000	.670

subsidies and special treatment policies for the sector. These would complicate the picture if nominal values were used. The same holds for the differing tax structure that exist in the individual countries. Because the framework involves different countries with separate currencies, separate rates of inflation, and different rates of growth a matrix with nominal values would preclude any systematic planning decisions to be made, especially when the task at hand is to bring these disparate factors into line and to make economic sense of the fractured economies.

In the present contest agricultural prices have a limited inducement effect because aggregate supply elasticities are low due to the stagnant nature of the sector's structure. Therefore,

> "an effective use of price policy requires prior structural change to `elasticize' the aggregate agricultural supply response."[2]

As transformation and diversification takes place the apparent advantages of the preferential crops will begin to lessen. Therefore, in the short run present production costs are a poor basis on which to plan the restructuring process.

If one begins from this perspective, with the "hard" flows, then once the flows are captured and decisions (which will have a high political content) are made, then economic analyses for rationalization can begin. Every project

defined within the framework could then be subjected to economic analyses that take account of the respective countries taxes, subsidies, inflation rates and other pertinent economic factors. The matrix as proposed is not intended to be the point of analysis (its structure and inherent inconsistencies prevent orthodox matrix manipulations), but rather to present a rational framework in which planning decisions can be made and monitored.

The suggested matrix contains no provisions for labor inputs, services or transportation costs. The idea it embodies is that once the decisions makers decide on which sectors are to be altered then economic analyses on feasibility will be undertaken. Injecting these sectors into the decision making process as is defeats the entire meaning of restructuring. The process of restructuring will involve an overhaul of the production system, rationalization of the macroeconomic environment and the design of new fiscal policies. Consequently, once the framework establishes the targeted sectors for production enhancement, the re-division of production of existing crops, and the country specific location of the new industries, then the creation of a new production environment will become inevitable if the plan is to be successful. Agricultural restructuring is the goal but the means dictate a comprehensive overhaul of the existing economic structure. Thus, despite the limitations of the

proposed framework there are certain advantages that it offers to the process of regional restructuring.

First, it gives a comprehensive picture of the extent of the regional dependence on outside sources. Not only is direct dependence captured, but also the indirect factors that are centered in the inputs sectors and the lack of a viable agro-processing industry. The framework's greatest attribute is that it merges several disparate agricultural sectors into one paradigm, which is fulcrum of the CFNS.

Second, it raises the issue of linkages which tends to be forgotten in many planning processes. In the haste for economic restructuring and industrialization linkages are often forgotten until it is to late. Within the proposed framework, sector priortization can take place, while at the same time issues of linkages and streamlining are central to the decision process. Within the context of a regional plan this will be important both between sectors as well as across countries.

Third, having "hard" flows as the unit of account removes the mask of monetary value which emanates from the different cost functions both across and between industries and countries. An overly high concentration on monetary value will also tend to give wrong signals. This occurs because the markets of the LDCs tend to be anything but perfect. As shown in Chapter Two the Caribbean economies are overwhelmed with distortions. Starting from a "hard"

flows standpoint, attempts can then be make to infuse the agricultural sector with some sense of economic realism within the context of Caribbean economy. If monetary values continue to be the focus of planning decisions during the restructuring phase planners are likely to be led along the path dictated by a distorted economy. For example, plantations crops such as sugar and coffee with their preferential markets are likely to preserve special treatment on grounds of present prices.

Fourth, a major part of the restructuring process involves production diversification. By monitoring the import sectors planners can have a reasonably well-informed view of where demand is most concentrated. Thus, even without price signals consumers can still express their desired demand to the planners. Of course, part of the process itself involves bringing demand into line with regional production. This will mean that taste patterns that are metropolitan in outlook will have to be realigned towards tropical foods.

Fifth, as data is collected, and as planning decisions warrant, the proposed structure allows for a more detailed outlook by having the sectors disaggregated to lower SITC numbers. Indeed, because the propose matrix is not susceptible to orthodox matrix calculations this is no reason that it needs to conform to any of the traditional input-output principles. Therefore, sectors can be

disaggregated in some countries and not in others depending on their relative importance.

Finally, monitoring capabilities are inherent in the matrix as it is updated period by period. Thus, success can be judged by changes in cell values over time. Planners can even be able to set production, import, or export targets and monitor to what extent they are realized. Even in the advent of fiscal policies, the matrix will allow planners to judge their effect on production and consumption without the inhibiting masks of subsidies and taxes.

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ISSUES IN THE RESTRUCTURING PROCESS

Once the input-output interregional matrix has been completed the task of planning the restructuring process begins. Given the nature of the plan, decisions will involve a combination of economic and political processes. For the immediate present it is more feasible to deal with the economic factors involved. The general aim of the CFNS has been to have a food import substitution policy while expanding the export base of he sector. It has already been stated that the achievement of both is a rather difficult

proposal. Which of these policies will receive priority is going to be more a political than an economic decision. The regional Heads of Governments, with input from various technical agencies in the region, will have the deciding vote. However, it is accurate to predict that the eventual plan will involve elements of both strategies. Rationalization will also involve some element of country specialization, the phase out of some crops and the introduction of new ones. Special attention will also have to be paid to linkages and input sectors.

It is beyond the scope of this paper to give the exact nature of the restructuring process. However, several important facets that will need to be addressed can be pointed out.

In designing a restructuring program care should be taken to not too quickly remove all the old industries. The design of a general framework allows planners the opportunity to view linkages in the restructuring process. Crops that at present seem useless may indeed be very important in the new program. For instance, sugarcane use may be diversified out of the production of raw sugar into the manufacture of feed stuffs and detergents.

The question of diversification must deal with what is to be diversified out of. One may find that the issues at hand involves more a restructuring of existing industries rather than a phasing in of new ones. If the present

stagnant agricultural institutions remain dominant, then the introduction of new industries will offer little in the way out of the present food crisis.

As proposed the matrix allows for the input of all segments of the agricultural sector. Thus, a major component of the restructuring process will involve the possibilities for technological to be fully explored. This factor will play a significant role in the new regional agenda. This will be especially so in terms of the actual form of agricultural that eventually emerges. The new trend to energy intensive agriculture could prove detrimental in the long run. An adoption of a new agricultural base than is energy intensive could prove just as debilitating as the present structure. If the inputs are beyond the region's ability to provide, food importing would be replace by energy importaion. At the same time, political leaders are bent on expanding the industrial base, the new agricltural policy will have to take into account tradeoffs in energy supplies between these two sectors. Means will have to be found to increase bio-intensive agriculture, or the region may move from food importing to energy importing. Research in this field has been underway in a number of contexts and regional research efforts should be aimed at implementing and compliment the available body of knowledge.

Restructuring on a regional scale will involve some amount of country specialization. During the allocation

process transportation costs will have to be considered. For crops which are not susceptible to long hauling because of their costs or because of their perishability, one possibility will be to actually define "zones of influence". In this sort of scheme certain countries will be assigned to produce for a certain radius within the region.

In designing an appropriate framework for regional agricultural planning one of the most troublesome factors was the degree of protectionism evident in the region. For any regional program to work there must be effective liberalization of trade among the member countries. Once aspects of specialization are introduced and once production in some countries become inputs in other countries an efficient regional production system will demand uninhibited trade. In a process of restructuring one of the major challenges is to remove as much of the distortionary factors as possible so that planners can have clear signals that lead to efficient use of resources.

For planners the most worrisome technical input will center around the mobility of labor. For moderately populated countries such as Trinidad it will be difficult for them to accept additions to the urban sector, unless they are certain that the immigrants are going to the rural sector. Ensuring this will require very imaginative policies, that do not lead to a police state.

An intra-regional approach to agricultural production

will necessitate a solidified strategy to extra-regional agreements. This will extend to such areas as agricultural development aid and food aid. Some mechanism for pooling resources from these programs will have to be devised. All extra-regional agreements on agricultural goods will also have to be renegotiated and new formulas for country production shares developed.

Redefining which crops and which countries will be most affected from the restructuring process will prove a very thorny issue because of the fact that many countries are mono-economies and depend heavily on the preferential treatment. Therefore, some scheme for protection of these countries will have to be found. One possibility could well be the process of foreign exchange sterilization on regional earnings from the sale of crops. Sterilization can take place not only on the sale of extra-regional goods, but also on intra-regional goods. The Food and Agricultural Organizations already developed under the CFNS can be an integral part of this process. Thereupon, using some defined formula the earnings can be split among the member countries. Such a formula can be based on national growth rates (thus helping out the weakest economies), simply put in a special fund to be used to further the restructuring process, or for capital development as administered by the Caribbean Development BAnk (CDB).

Financing the scheme will prove a very important facet

of the regional program. Not only will the weaker economies need protection, but funds for research and development, for new agricultural implements, and for infrastructure development are going to essential ingredients in the process. There are several sources of finance for the scheme outside of government revenues and bilateral and multilateral schemes. First, the crops under preferential treatment must be made to pay for their own restructuring. In other words, reinvestment of profits from this sector must be central to the restructuring process. Second, imported food stuffs can be used to contribute to the program. Regional governments will need to keep their prices higher than would market forces in order to prevent the undermining of local crops in their nascent period of development. The process of keeping these prices higher than input costs will yield considerable sum of finances to bolster the restructuring program, while at the same time ensuring protection to local food crops. Third, prices of local food stuffs will also have to remain artificially high so that a supply response can be induced. Once restructuring is under way price policies can be effectively introduced to signal policy and sectoral preferences. Reconciliation of the second and third suggestions will depend on adapting a policy that reflects a higher priority on local food stuffs, i.e. although their prices must be kept high they will have to be lower than those of the

foreign goods.

The elaborate scheme that is being proposed cannot be implemented without a central coordinating body. This body will need to have wide-ranging powers and flexibility. Possible locations are within the Caribbean Development Bank or the Caribbean Community Secretariat. Its main task will include monitoring the restructuring process, coordinating the national policies and consulting with governments in the region as to the exact role they are required to play.

Because the region is still made up of independent nation-states the final phase of the program, and its eventual success will depend on the level of commitment that is embodied in the letter and spirit of the plan. The role of the national agricultural ministries will be to assist the respective agricultural sectors in fulfilling their assigned tasks. The planning stage will be at the regional level, but implementation will be a national concern. National agencies will need to oversee the reorientation of national sectors, the development of national urban and rural policies, and other such facets of comprehensive planning that are crucial to the success of any procedure for restructuring for development.

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CONCLUSION

A regional agricultural policy is a necessity if the Caribbean is to pull out of the present food crisis. The process as proposed here is built on the assumption that political actors will come to appreciate this fact. Success for development will depend on the level of political realism adopted by the respective governments. Regional planning must be done at a regional level. The exact process will involve some sort of negotiated setting of priorities. Once these are complete, the next phase will be to allocate geographic and agency specific responsibilities. Finally, faith must be have in the ability and commitment of the national bodies to act in the common good.

Agricultural planning cannot be the end all of regional cooperation. Instead as the success of agriculture becomes evident it will pave the way for cooperation in other spheres. An agricultural policy cannot be separate from an industrial policy, and in the same way an exporting policy cannot be unrelated to an importing policy.

The issues facing the region in the drive for economic development are many and diverse. The real challenge involves designing innovate policies to overcome the hurdles. An attempt has been made here to develop an appropriate framework for planning regional food security.

The Caribbean Food and Nutrition Strategy has been a step in the right direction, working under its auspicies has much to offer the respective national governments. It is hoped that the work embodied in this paper will further its original aims. For all intent and purposes it will advance the planning perspective of the region. The real contribution of the paper has been to show that planners must not concentrate on the limitations of the existing framework but strive to remove the constraints that at present shackle development prospects within the region. The era is ripe for a new perspective on regional economic prosperity. All the necessary ingredients for comprehensive regional planning exists. The real task before decision makers in the region is to develop the will to consolidate thes disjointed schemes into a realistic adn viable framework for regional development well into the next century.

NOTES

Chapter I

1. Padma Desai, **Weather and Grain Yields in the Soviet Union,** IFPRI Research Report No. 54, 1986. p. 75

2. Thomas G. Weiss and Robert S. Jordan, **The World Food Conference and Global Problem Solving,** p.10

3. Harry Cleaver, "Food, Famine and International Crisis," Zerowork No. 2, Fall 1977. p 34

4. The word **insecurity** itself is not always used. Some authors talk of Food **security.** Usually, the context of the term clarifies its meaning .

5. Ammar Siamwalla and Alberto Valdes, "Food Insecurity in Developing Countries," Food Policy, Nov. 1980. p 258

6. Some authors talk about the regional context within the country or at a regional division of the interntional level. We disagree withe such sub-divisions. A regional food problem within a country is a direct issue not only for the inhabitants of that region, but rather for the country as a whole. In the same way, Latin America's food problem is not a Latin American issue only, but, given global interdependence, an international issue. My point is that at a certain magnitude the problem moves to a higher level.

7. Per Pinstrup-Andersen and Peter B. Hazell, "The Impact of the Green Revolution and Prospect for the Future," in J. Price Gittinger et al., **Foop Policy.** p 108

8. Graham Donaldson, "Food Security and the Role of the Grain Trade," in Gittinger et al., p 96

9. See Harris, Swinbrick and Williamson for a treatise of the CAP.

10. Barbara Huddleston, D. Gale Johnson, Shlomo Reutlinger and Alberto Valdes, **International Security for Food Security,** p 17

11. Food and Agriculture Organization, **Agricultural Prices and Export earnings: the experience of developing countries in the 1970s.**

12. ibid., p22

13. Mitchel B. Wallerstein, "Foreign-domestic interests in U.S. Food Policy," Food Policy, May 1980 p 88

14. ibid., p 89

15. Richard Gilmore and Barbara Huddleston, "The Food Security Challenge," Food Policy Feb. 1983 p 36

16. Wallerstein, p 91

Chapter II

1. The Caribbean in this thesis is defined as the Member Countries of the Caribbean Community Secretariat. The Bahamas joined in 1980 and so was not part of the Commmunity for seven years. However they are included in the analysis nonetheless. The Member Countries are: **Antigua/Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Monsterrat, St.Kitts/Nevis, St vincent and the Grenadines, and Trinidad and Tobago.**

2. W. A. Axline, Agricultural Co-operation in Caricom. In William Payne and Paul Sutton (eds.) **Dependency Under Challange.** p153

3. G. Beckford, Caribbean Rural Economy. In G. Beckford (ed.) **Caribbean Economy.** p86

4. G. Beckford, **Persistent Poverty.** p178

5. ibid. p179

6. ibid. p179

7. K.R. Hope, Urban Population Growth in the Caribbean. CITIES Vol I No. 2, Nov. 1983. p167

8. ibid. p168

9. Caribbean Community Secretariat, **Regional Food and Nutrition Strategy,** Vol I, p19

10. Hope, op. cit. p171

Chapter III

1. Caribbean Community Secretariat, **Regional Food and Nutririon Strategy,** Vol I, p3

2. ibid. p14

3. ibid. p12

4. ibid. p27

5. ibid. p36

7. ibid. p27

8. Caribbean Development Bank, **Final Report on The (Caricom) Caribbean Regional Food Plan.** p7.

9. Food and Agricultural Organization, **Promoting Agricultural Trade Among Developing Countries,** p 122

10. ibid. p126

Chapter IV

1. Buckmire, "Rationalization as an Instrument for Development of Caribbean Agriculture", **Proceedings of the Eight Caribbean Agricultural Economists Conference,** 1978, Port of Spain, Trinidad. p14.

2. De Janvry, "Food Security and the integration of Agriculture", CERES 109, p35

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