AGRICULTURAL DIVERSIFICATION IN THE CARIBBEAN COMMUNITY: SOME ISSUES

STATEMENT BY THE PRESIDENT, MR. WILLIAM G. DEMAS
TO THE BOARD OF GOVERNORS
AT THE SEVENTEENTH ANNUAL MEETING
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I. OPENING REMARKS

Mr. Chairman, Distinguished Governors, Members of the Board of Directors, Your Excellencies, Observers and Guests:

I am sure that we are all pleased that our Board of Governors is meeting for the second time here in Grenada - the last occasion being 1974; for Grenada is justly renowned for its natural beauty and for the charm and liveliness of its people.

Grenada is also equally renowned throughout the West Indies for one of its most outstanding sons - T. Albert Marryshow. Because of the life and work of T. Albert Marryshow, Grenada has long been regarded by many as being the cradle of West Indian Unity. We only have to recall the motto which appeared prominently on the front page of every issue of his newspaper: "The West Indies must be West Indian." I believe it to be an auspicious sign that our Seventeenth Annual Meeting is being held here in Grenada in the year which marks the centenary of Marryshow's birth. The best tribute which we West Indians can pay this year to his memory is to re-dedicate ourselves to the goal of West Indian Unity.

We are pleased to note that, under your leadership, Mr. Chairman, the light of West Indian Unity still shines brightly in Grenada and we are confident that, also under your leadership, Grenada will continue to play its full part not only in deepening and consolidating the two integration movements to which it belongs - the Organisation of Eastern Caribbean States (OECS) and the wider Caribbean Community (CARICOM) - but also in setting out once more on the course of West Indian Political Unity, beginning

with the creation of a single state among the OECS countries. Such action by the OECS countries is bound to have wider repercussions throughout the other and larger English-speaking countries (both island and mainland) in the Eastern part of the Caribbean. It is the general view that such political unity, especially among the OECS countries, is an absolute imperative for improving the existing state of affairs in many respects - defence and security; economic development; greater effectiveness in public administration and in external relations (including external representation) at probably lower overall costs; the attraction and retention of high-level West Indian manpower in both the public and private sectors; and, not least, the safeguarding of democracy and the upholding of human rights.

You yourself and your Government, Mr. Chairman, have also always been highly supportive of the Caribbean Development Bank. The Board of Directors, as well as the Bank's staff, are deeply appreciative of your understanding of, and constructive approach to, the issues and challenges facing the Bank.

I should also observe here that Grenada's Director-General of Finance, Mr. Lauriston Wilson, Jnr., has sat on our Board of Directors as both substantive Director and Alternate Director for the constituency of the four Windward Islands and has also, over the years, made a solid contribution to the work of the Bank.

II. PROGRESS OF THE BANK DURING 1986

A full account of the progress of the Bank during 1986, in the form of the Annual Report for that year, is before this Board for consideration. All the relevant information on the Bank's challenges and performance is set out in this Report which I am sure that you have all studied. Two aspects of the Bank's work during 1986 stand out. The first was a complete review and updating of the Bank's financial policies by the Board of Directors. The second was the adoption in broad outline by the Board of Directors of proposals bearing on the Future Role of the Bank in the medium-term, taking into account a discussion on this subject by the Board of Governors at its last Annual Meeting in Caracas.

III. AGRICULTURAL DIVERSIFICATION IN THE COMMUNITY: SOME ISSUES

A. Introduction

Every year I discuss in this Statement to you an important theme bearing upon the economic and social development of our borrowing member countries. This year the theme which virtually selects itself is that of food production and its corollary - agricultural diversification.

B. The Background to Agricultural Diversification

As Caribbean countries prepare to enter the 21st century, our agricultural sectors are still characterised - as they were at the beginning of the 20th century - by over-dependence on a small number of export crops, mainly sugar and bananas. Sugar in Barbados, Belize, Guyana, Jamaica, St. Kitts and Nevis and Trinidad and Tobago ranges between 54% and 95% of total agricultural exports, while in Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines banana exports account for between 22% and 82% of total agricultural exports. (The Jamaican figure for bananas of 6.2% was rather low, largely because of a significant diversion of sales from the export to the domestic market).

Dominance of the agricultural export sector is not the only characteristic of these two commodities. Both are produced at uncompetitively high costs of production and therefore depend for their survival on continuation of preferential market access to the European Community and the United States markets. In the case of bananas, the United Kingdom market is approaching saturation point and the precarious situation of the sugar industry, because of stiff competition from other natural and artificial sweeteners, is well known. Generally, in recent years prices of primary agricultural products have been falling relatively to those of industrial products, with obvious adverse consequences on our terms of trade. When account is taken of the growing protectionism evident in industrialised countries (e.g. recent US sugar quota cuts) and, paradoxically, the growth in the food import bill of our essentially agriculture-based economies, it is evident that deep-seated structural deficits in the balance of payments are likely to continue in the absence of remedial measures. A large portion of that deficit is made up of food imports from outside the Region, including raw and processed foods, animal feedingstuffs, drink and tobacco, which now stand at close to US$1 billion per annum.

Many of our countries have embarked on structural adjustment programmes aimed at correcting their weak balance-of-payments (and fiscal) situation and reducing the vulnerability of their highly open and undiversified economies to external shocks. But, with one or two exceptions, most still have a long way to go with such restructuring, and it is proving more difficult to achieve some measure of success with the restructuring of our economies on the supply side than with stabilising them by taking demand management measures (by restrictive fiscal, monetary, incomes and prices policies) - essential though these latter demand management measures are as a first step towards structural adjustment. In essence, the problem is one of changing and strengthening the structure of our economies partly by diversification, both inter- and intra-sectoral, and partly by increasing the efficiency, in the technical and economic sense, of production such that our products are competitive nationally, regionally and internationally. And we cannot afford to delay. Delays will require more drastic measures of stabilisation and adjustment later, accompanied by significant decline in standards of living and the likely emergence of political and social tensions.

Diversification of the agricultural sector in the Caribbean is one of the essential "supply-side" strategies for achieving more broadly based production structures and efficient and competitive production in our economies. I am fully aware that the topic has long been discussed - recently with increasing frequency and vigour - in our countries. The difference now is that most of our Governments have become fully aware of the critical situation and are now placing the subject in the forefront of their development strategies. My hope is that these remarks could make a modest input into the decision-making process in this vital area.

C. Our Ability to Produce and our Willingness to Consume More Local and Regional Food

Before we embark on the substance of our discussion, the simple but fundamental question arises: do we have the ability to produce and the willingness to consume significantly more local and regional food? Three points should be made by way of answer to this question.

First, studies undertaken at the Caribbean Community Secretariat, the Faculty of Agriculture of the UWI and the Caribbean Food and Nutrition Institute indicate both the technical and economicfeasibility of substantially ncreased production of food (including fish and meat as well as animalfeedingstuffs) in the countries of the Region. What is more, these studies also indicate that increased local and regional food production can have a substantial impact in raising nutritional levels in the countries of the Region. These studies obviously make use of the assumption that the relevant unit for such higher levels of production of nutritious foods is the Region rather than the individual country.

The studies also make the assumption that, where large infrastructural investments in land development, drainage and irrigation as well as main and feeder roads, etc., are concerned, they can be provided although at fairly high cost in terms of capital expenditures. Such large investments in infrastructure and land development may well be needed mainly in Belize and Guyana. Second, it should not be forgotten that most countries of the Region (even leaving aside for the time being the extreme cases of Belize and Guyana) have large amounts of unused and underutilised land in the hands of both the public and the private sectors co-existing with large volumes of unutilised manpower. The above-mentioned studies used this as a basic assumption in quantifying the scope for increased regional food production.

Third, there is the question of whether consumers in the countries of the Region would be prepared to re-orient their pattern of consumer tastes and so substitute local and regional food of high nutritional value for imported food, sometimes of dubious nutritional value. The answer on balance comes out on the positive side. Locally and regionally grown foodstuffs (particularly fruit and vegetables) are typically delicious - one needs think only of fruits and vegetables such as oranges, grapefruit, bananas, pawpaw, mangoes, sapodilla (or naseberries, as they are

called in Jamaica), plums, guavas, sorrel, watermelon; carrots, ackees, peas and beans, lettuce and tomatoes; ground provisions such as sweet potatoes, yam, dasheen, tannia and cassava; and confectionery and preserves made from local fruit, ground provisions and vegetables. With regard to alcohol, rum can be mixed with several local non-alcoholic juices in a remarkable variety of ways. In addition, it is quite possible to substitute other local fruit, juices and beverages for imported fruit (such as apples, peaches, pears and apricots) and the juices and beverages derived from them. It is also possible in some of our countries to grow locally fruit and vegetables traditionally imported - such as strawberries, grapes, English potatoes, etc. We can make delicious wines from rice and local berries, as Guyana has shown.

What is involved here is not only import substitution (for example, growing strawberries or grapes at home instead of importing them). What is also required is import replacement - that is, the use of products indigenous to the Region to replace imported products which cannot be grown at home.

Thus, guava jelly could replace imported apricot jam and mangoes could replace apples or pears or peaches.

A good and topical example of import replacement is to be seen in Guyana where the leading entrepreneur in the local private sector is about to invest in the manufacture of breakfast cereals and holiday snack-foods made from indigenous flours derived from cassava, rice and plantain.

We should also recognise that there is scope for a judicious restriction by governments, progressively over time, of many foods, fruits, vegetables, animal feedingstuffs and confectionery imported from outside the Region while efforts are simultaneously being made to increase the production of local and regional substitutes or replacements for much extra-regional imports. It should be emphasised here that experience has shown that there is need for gradualism and proper planning in this regard and that exchange rate adjustments could considerably assist the process of import substitution and replacement.

The question of the effect on tourism of substantial local and regional import substitution and replacement in the provision of food and drinks is often raised. Here observation has shown that tourists adapt readily to locally produced rum and other alcoholic beverages, local fruit and fruit juices, meat, fish, vegetables, ground provisions, rice, peas and beans, breadfruit and other local foods, provided that they are properly prepared and attractively presented.

The same applies in the case of many local people in some countries of the Region who are slowly but surely purchasing in supermarkets larger amounts of locally and regionally grown food, fruit, vegetables and drinks, once they are properly prepared and attractively presented. We can therefore conclude that a much greater measure of local and regional import substitution and replacement

in the agricultural sector is both technically and economically feasible in both the supply and demand aspects. The technology for so doing is also within our reach.

D. The Definition of Agricultural Diversification

As I see it, there are three main elements in the notion of "agricultural diversification". The first of these is the intensification of the product of traditional crops by increased productivity and by adding value through further processing. Implicit in this is the production of alternative products from the raw material of the traditional crops. The second element is the increased production of non-traditional crops for national and regional consumption. The third element is the increased production of non-traditional crops for export to extra-regional markets.

E. The Benefits of Diversification

It may be useful, here, to recall the potential benefits of agricultural diversification to the Caribbean Community economies. These can be considered under five related headings: Food Security; Foreign Exchange Savings and Earnings; Employment Generation; Creation of Production Linkages; and Utilisation of Underutilised Resources.

i. Food Security

The concept of food security incorporates valid economic arguments about the need to ensure that every household has adequate food of adequate nutritional value available and the equally valid political notion that no country could be considered truly independent if it must depend on imports for meeting the vast bulk of its food requirements. The goal of food security is thus closely related to the agricultural development objectives of: growth in output and productivity, to meet growing demands of the domestic market; sustainability, to maintain adequate levels of production in the future; and stability, to reduce the adverse effects of both the inherent instability of agricultural output and the periodic swings associated with cyclical changes in the economic environment, including the effect of such changes on prices and supplies of imported food.

I am sure that you will find it of great interest to learn that the Government of that most industrially successful country - Singapore - is now planning for a greater measure of food security through increased local production, making use, of course, of land-saving high-technology methods of production.

Obviously, complete food self-sufficiency for the Caribbean (as indeed for most countries) is not a feasible goal, given the absence of the extremely wide range of natural resources to be found in verylarge continental-type countries where the existence of widely different climates, rainfall, topography and soil types makes it possible to produce at home an extremely wide range of virtually every type of foodstuff and animal feedingstuffs.

Because of constraints in the range of natural resources of the individual CARICOM countries, food security has to be conceived of as having both national and regional dimensions. But, even regarded as a unit, the CARICOM countries will always have to import certain types of food from outside the Region. Thus both food production and food importation (and consequently trade policies) must be components of a policy on food security.

ii. Foreign Exchange Savings and Earnings

Today the Region's food import bill amounts to just under US$1 billion. With regional food exports totalling around US$0.5 billion, the resulting agricultural trade balance is highly negative - standing at some US$0.5 billion. These figures are, in my view, nothing short of scandalous; but at the same time they do give some idea of the potential for import substitution and replacement, both nationally and regionally, and the resultant savings in foreign exchange that could occur. The situation is put into even sharper focus when it is recognised that food imports tend to be in a highly processed form with the result that transportation, processing and marketing costs make up a significant proportion of final consumer prices.

Diversification of agricultural exports, apart from reducing the risk associated with dependence on a limited range of exports, could result in significant increases in foreign exchange earnings if the export products are carefully chosen so as to optimise exploitation of both resource endowments and market opportunities.

In this context, there would be much merit in focussing on products that have relatively high unit values and accordingly could be feasibly produced on relatively small scales (but still fairly large by Caribbean standards) - examples would include so-called 'exotic' (i.e. tropical) fruits, cut flowers, tropical foliage and high value Vegetables. From a strategic viewpoint, comparatively small volumes of high-value products have a much better chance of profitably penetrating extra-regional export markets than relatively large volumes of low-value traditional crops. When such a strategy is incorporated into a diversified pattern of production, greater production flexibility is assured so that production adjustments, in

response to changes in consumer tastes and in international supply and demand factors, constitute a much easier task than in the case of large mono-crop enterprises.

iii. Employment Generation

A dynamic and growing agricultural sector offers good opportunities for absorption into productive employment of increases in the labour force; but such dynamism cannot be realised, at least in any sustainable sense, if the sector continues to be dominated by one or two high-cost products heavily dependent on preferential treatment in export markets.

The employment generation potential of agricultural diversification is greatly enhanced if it is based on the concentration of high-value crops for domestic and export markets; on the encouragement of the family-type farms; and on intensive agricultural production which would tend to exhibit higher productivity levels, lower capital-intensity and more attractive family incomes.

I am not suggesting here that the family farm is the only production organisational form suitable in a diversified agricultural sector, for there are agricultural enterprises that exhibit economies of scale and as such would benefit from a large-scale production organisation. But a diversified sector can accommodate the full range of enterprise types, and there are significant advantages to be gained from the encouragement of family farms as well as larger commercial enterprises.

A major reason for the continued support for the traditional export enterprises, in the face of high costs of production and continuously declining terms of trade, is the high employment levels that these enterprises support. In most instances, the enterprises are well suited to the agro-environments in which they are found and contribute significantly to export earnings. While rationalisation of production in these traditional export areas is needed, it would be entirely impractical to visualise complete cessation of production of them, at least in the foreseeable future. But this underscores theimportance of viewing agricultural diversification in the Region as including diversifying within the traditional export enterprises by product intensification.

To the extent that medium- and large-scale commercial farms and business-oriented family farms are established, we will move more into agri-business, with all the linkages (such as packaging, preserving and processing) and ancillary services, facilities and infrastructure that will be brought into being. Activities in transportation and distribution, the sale and maintenance of equipment, and the sale of tools, inputs and final products to the farming community - all will increase along with the growth of farm output and incomes. This is bound to lead to the growth

and modernisation of the rural sector of the economy and a bigger demand for labour of all levels and skills - both on-farm and off-farm.

It cannot be emphasised too much that, in order for our agricultural enterprises to become agri-businesses, we need more entrants annually into the agricultural sector with a higher level of general and/or technical education than the present large majority of (much older) small farmers have.

Increasingly we should train and orient our young people at the secondary and tertiary levels of education towards agriculture so that they become not merely extension officers but genuine full-time farmers. A corollary of this is that rural areas have to be provided with more amenities, services, facilities and infrastructure to become attractive to the young people.

Most important is the existence of a clearly viable level of income to the farmer that is competitive with other occupations (perhaps less arduous ones). This can only be achieved with the development of reasonably remunerative markets that in turn depend on both price and volume. Governments will have to establish farming incentives - the best being a remunerative price for the reasonably efficient farmer through the removal of price controls and, where deemed appropriate, a devaluation of over-valued currencies.

We should not, however, be dogmatic and should concede the obvious benefits of having many engaged in Agriculture on a part-time basis - be they non-agricultural professionals (lawyers, doctors, accountants, etc.) or general secondary and/or technical and vocational school graduates.

iv. Creation of Economic Linkages

The creation of "backward and forward linkages" in an economy is a critical element in development strategy and (after, of course, making due allowance for the size and range of natural resources of the country concerned) there is a direct relationship between the degree of development and the extent of such linkages. Historically, the traditional agricultural sub-sectors in the Region have not established any significant linkages much beyond those created during colonial times - in most instances hardly going beyond the marketing infrastructure. Agricultural diversification into non-traditional products, by increasing the range of agricultural products available and, where applicable, by producing quantities in excess of fresh market requirements, can, through the setting up of agro-industries, contribute significantly to creation of linkages within the national economies. In the traditional crop enterprises, diversification via product intensification can create significant linkages with the manufacturing sector. And, obviously, the greater local production of food can more effectively link Agriculture with Tourism.

The significance of economic linkages in the development process can be illustrated by comparing two agricultural enterprises: poultry (broiler) production and citrus production.

It is frequently argued that many CARICOM countries are self-sufficient, or nearly so, in poultry production. While this may be correct in the sense that the country produces most of its own requirements for poultry meat, the fact that about 60%-70% of the value of output from the poultry industry consists of imported animal feed or its ingredients means that the net contribution of the industry toforeign exchange savings and employment is significantly less than if the majority of the feed ingredients were produced locally. In many ways the poultry industry is an agricultural equivalent to the so-called "screwdriver or finishing-touch import-substituting industries" found in the manufacturing sectors of many of our countries.

Consider, on the other hand, the citrus industry in Belize, in which the import component of the value of output does not exceed 15%-20%. Over 85% of the commercial citrus produced in Belize is processed in two factories, primarily into fruit concentrates and citrus oils which are exported to markets in the Caribbean, Europe and the USA. Local value-added in citrus processing is relatively high, as reflected, for instance, in the margin between the price paid to growers and the average selling prices for citrus concentrate on the world market. In 1986/87 this margin was about US$649 per tonne, based on a grower price of US$1,071 per tonne equivalent and a concentrate price of US$1,720 per tonne. The citrus industry in Belize thus has strong linkages with other sectors of the national economy and generates significant foreign exchange earnings and employment.

But the most frequently encountered situation in agro-industry in some countries of the Region is one in which so-called "manufacturing" agro-industry plants depend entirely or overwhelmingly on imported inputs.

It is easy enough to talk about establishing agro-industries based on local and regional food production. But the practical technical and economic problems involved in doing this are numerous and well-known: the irregularity as well as seasonality of the supply of raw materials; the dependence of the financial viability of the processing plant on low prices paid for the raw material and on the availability of large volumes of such materials; the high cost involved in the local and regional production of cans, the manufacture of which is subject to economies of large-scale production, etc. On the other hand, these problems can in part be overcome by a system of contract buying by the processing plant from the producers of the raw material, the use of means other than canning for

preserving the product, such as asceptic packaging, vacuum packaging, tetra-packing, dehydration of fruit - not to mention short-term forms of preservation such as chilling and freezing of milk, meat and fish products and concentrate fruit juices - even though chilling and freezing may entail heavy energy costs.

Moreover, in order to cope with seasonality, irregularity and low volumes of production of the raw materials, the processing plants should be capable of processing more than one kind of product - that is, they should be "multi-purpose" plants. Alternatively, in order to secure large volumes regularly supplied, the processing plant may have to seek "backward vertical integration" through the establishment under high level management of large commercial farms.

v. Utilisation of Underutilised Resources

A diversified agricultural sector, because of the inherent instability of agricultural output and the location-specific nature of agricultural technology, almost by definition leads to a better utilisation of a country's resources. Inter-planting of crops with different growing periods is one example of improving resource utilisation. So too would be the bringing into production of land which previously remained uncultivated because of unsuitability for production of traditional crops - due to soil type, rainfall, incidence of pest and diseases and/or topography. Further, increasing productivity in the traditional crops - one aspect of the diversification process in my definition - will facilitate the reduction of actual acreages under these traditional crops while maintaining or even increasing production levels. If this results in the removal of marginal lands (marginal in the context of the traditional crops), better resource utilisation would result from the introduction of crops more suitable to the lands so released. For example, if the marginal lands are such because of steepness in topography, the introduction of tree crops would result in production increases and also reduce soil erosion problems.

The replacement in part of sugar-cane by other crops (particularly sea-island cotton) raises certain problems in countries such as Barbados and St. Kitts and Nevis. This is because cane as a grass preserves the soil, while sea-island cotton production can lead to serious soil erosion and is also susceptible to disease and pests. This means that great care will have to be taken so as not to allocate too much land to that kind of crop in such countries.

Product intensification of a traditional agricultural export enterprise is a special example of the improvement of resource utilisation and the sugar industry presents some useful examples of the possibilities. Many types of products can be produced from the sugar cane plant and from the by-products arising out of sugar manufacture itself.

A good case in point is the production of ethanol from sugar cane. A review of the possible products is beyond the scope of this Statement, but it may be useful to list the range of diversification choices as an indication of the potential available. This list, shown at Appendix I, is taken from the Report ofa Committee to Consider the Rationalisation of the Sugar Industry in Trinidad and Tobago,prepared in 1978.

Obviously, not all of these products are capable of financially and economically feasible production at this time. In some instances the technology is available but requires a scale of operation that may be ill-suited to the size of the national and regional markets, and extra-regional markets may already be adequately serviced by existing producers or be already over-supplied at competitive prices from other sources of imports. In other instances the technology has not reached commercial application. But within the list are a number of products capable of immediate development. One such product is animal feed from the sugar-cane plant. Some information on this is given at Appendix 2.

The banana industry also exhibits interesting possibilities for product intensification that are of particular significance since the existing output of the fruit is unaffected. High-quality banana fibre can be produced from the pseudo-stem which can be spun into thread for use in sack-making. Such organic sacks are in high demand for transport of certain agricultural products which are affected when transported in synthetic materials (e.g. coffee and cocoa).

Banana fibre can also be made into high-quality water resistant paper suitable for making tea bags and currency notes. Presently, abacca fibre (mainly from the Philippines) supplies this market and shortages exist. Interestingly, the abacca plant is related to the banana plant and the abacca fibre is also made from the pseudo-stem. Also, by-products identified in the fibre manufacturing process include the sap which has applications in animal feeds, detergents, food processing (because of the high pectin content) and in the pharmaceutical industry for making cortisone. The stem core is also potentially useful in animal feeds.

Other possible products include banana powder for baby food, breakfast cereals from green bananas, banana chips as snack foods cereal, rope from the stem, and straw from the leaves. It should be emphasised that the constraint with respect to many of these possibilities is not technical feasibility but economic viability.

Work done in St. Lucia, in a pilot plant, suggests that fibre production can increase the net returns to small banana growers by around 10%. This, together with the export potential of the fibre and by-products and the

intensive inter-sectoral and intra-sectoral linkages implied, indicates the significant potential for continuing developmental work in this area.

F. Possible Costs of Diversification

It may be argued that diversification could in some aspects entail costs to the country concerned in so far as large overhead costs in the form of support services - such as new forms of infrastructure, research, marketing, irrigation, etc. - have to be incurred and spread over a fairly small volume of output. This situation could arise in one or two of the OECS countries. Yet one must not exaggerate the extent of the problem. For one thing, the only major overhead cost may be in the area of research and the cost for each country might be reduced through the organisation of research (as well as other support services) on a regional and/or sub-regional basis. Similarly, the costs of marketing (both intra- and extra-regionally) could be reduced by joint regional or sub-regional action. For another, reasonably large volumes of production could in some cases be able to supply extra-regional markets.

G. Reasons for Slow Progress and Guidelines for the Future

The benefits of diversification of the agricultural sector have long been recognised and various attempts have been made, both nationally and regionally, to deal with the situation. By and large, these efforts have not been successful, as is evidenced by the continuing dependence on a limited range of export crops and the heavy reliance on imported food. What accounts for the very limited progress? I shall try to answer this question in the following section, concentrating on six highly inter-related aspects - namely, Macro-economic Policies, Credit, Technology, Land Distribution and Tenure, Marketing Systems and Methods, and Infrastructure.

i. Macro-economic Policies

The macro-economic framework of a country is a series of inter-related policies that affect all aspects of economic behaviour. These policies include fiscal, monetary, foreign exchange, foreign trade and prices and incomes policies and they influence the economic environment in such a way as to determine the very structure of production and levels and composition of exports and imports. It is thus not possible to conceive of a dynamic, diversified agricultural sector unless the macro-economic policy environment is conducive to such development.

Many macro-economic variables - exchange rates, interest rates, wage and salary rates - are prices and themselves affect other prices. The role of prices is central in determining the direction and rate of agricultural development - although governmental non-price intervention and

institutional changes are also of great importance. Both the level of prices of agricultural products and the stability of such prices are crucial. There are "good" and "bad" types of government intervention. A "good" type is government intervention designed to maintain agricultural production levels in the face of widely fluctuating commodity prices. Another "good" type of intervention is where changes in land tenure are effected so as to increase the farmer's incentive to produce. But frequently governmental intervention has been such as to generate significant disincentives to production. This occurs, for instance, when price controls are imposed on locally grown farm products, in response to pressure from the urban consumers who, in our Region, are pre-occupied with the cost of living to the point of obsession. There are a number of examples in the Region where this situation has occurred and has resulted in significant declines in food production. The fundamental issue here can be put as follows: which should come first in the interests of sustained economic development - growth in production or cost-of-living considerations?

If we are serious about achieving higher levels of local and regional food production, we must accept that in some cases food prices may have to rise and that protection is necessary against highly subsidised food exports from the developed countries. If we are not prepared to accept this, we might as well abandon attempts at greater self-sufficiency in food. The cost of living will in all probability be somewhat higher than it would be without protection. On the other hand, there will be the benefits of an improvement in the balance of payments, a stronger and more diversified economy and higher levels of productive employment.

The effect of macro-economic policies on the relative prices of farm inputs can also have a significant impact on agricultural production and particularly on the choice of technology. For example, an over-valued exchange rate can result in farmers using capital-intensive technology because of the low local currency price of imported equipment. Wage policies (or absence of them) may exacerbate this situation and so can concessionary rates of interest on (or zero or very low import duties on) equipment importers.

Many CARICOM governments have provided generous incentives to the local manufacturing sectors in the form of tax benefits and import protection. While there may be valid reasons for this, it frequently results in the internal terms of trade shifting against agricultural products since the highly protected local manufactures can command high prices on the local market at the expense of the local farm products. If the manufacturing incentives are combined with an over-valued exchange rate, the result is to encourage highly import-dependent manufacturing investment and production at the expense of export-earning (or import saving) agricultural investment and production. An over-valued exchange

rate, in effect, imposes an implicit tax on agricultural exports and on local food production and an equivalent implicit subsidy on local consumption of all imported goods (both food and manufactures).

A very common form of incentive used by regional governments to encourage agricultural production is the granting of a subsidy on farm inputs such as fertilisers and other farm chemicals. Input subsidies are frequently used in conjunction with price controls on local food output in an attempt to offset the negative effects of the price controls. But subsidies may have the effect of encouraging the overuse of the subsidised input or the diversion of the input for sale through extra-legal channels, with adverse effects on foreign exchange if the inputs are imported. Also, as in the case with concessionary credit, the benefits of subsidies are frequently captured by the larger at the expense of the smaller farmers.

Another area which cries out for "good" government intervention is in the field of fiscal policy. The instrument of land taxation has rarely been used in the CARICOM countries to encourage better and more productive utilisation of agricultural land that is currently unutilised or under-utilised.

In effect, therefore, in spite of various forms of intervention (or, indeed, because of some of them) the macro-economic environment in most Caribbean economies remains a significant constraint to the agricultural diversification process.

ii. Credit

The poor performance of so many agricultural credit programmes in the Region (indeed, in many other parts of the developing world) is, to my mind, ample testimony of the ineffectiveness of credit without the existence (or at least simultaneous provision) of the other factors required to stimulate agricultural production. Such factors include markets at remunerative prices, proper marketing systems and methods, adequate infrastructure, the availability of agricultural inputs at the right time and at the right prices and the existence (and knowledge) of relevant technical and organisational systems of production. When these elements are available at the appropriate levels, however, credit can serve as a powerful catalyst in increasing the rate of growth of agricultural investment and output. Properly applied, credit can also be used, along with other measures such as an appropriate pricing policy, to encourage patterns of investment and production activity deemed desirable under prevailing economic and social circumstances.

Credit, particularly when directed to small farmers, is frequently seen as

an income transfer mechanism and accordingly perceived as a political strategy rather than an economic one. This explains, for instance, the tendency to believe that highly concessionary lending provided at low or in some instances negative real rates of interest (that is, when the rate of interest is lower than the rate of inflation) is a necessary feature of agricultural programmes, when in fact the rate of interest is just one attribute of credit, and not necessarily the most important one, considered significant by farmers. Other important attributes of credit are the speed of delivery and the length of the repayment and grace periods.

But concessionary rates of interest can have adverse effects on the viability of credit institutions and cause these institutions to remain in a dependency relationship with the Central Government or with external providers of aid. Concessionary interest rates also largely preclude those credit agencies which take in deposits from attracting savings so that the institutions only operate on one side of the market, thus seriously restricting their access to funds. Low rates of interest also mean that the credit institutions are hard pressed to cover administrative costs - costs which tend to be higher in rural areas and among small borrowers due to higher risks, lower loan sizes and the geographical dispersion of clients. This financial cost-price squeeze frequently results in limiting credit available to the poorer farmers by essentially increasing the borrower's transaction costs. Small borrowers are thus effectively debarred from obtaining loans, and the resources of the institution become concentrated in the hands of a relatively small number of larger enterprises almost in direct contradiction to the "equity" grounds on which many of the agricultural programmes were based.

iii. Technology

Improvement in technology is the major basis for intensified agricultural production and expenditures on appropriate agricultural research provide the principal source of improved agricultural technology. Well conducted agricultural research provides very high returns in relation to the expenditures involved. Three questions arise. Are we spending enough on agricultural research? Is the research that is being done appropriate? Are the research results reaching the relevant farmers?

An examination of the budgetary allocations devoted to agricultural research in the Region would suggest that the answer to the first question is negative, certainly in comparison to the developed countries and many developing countries. It may be argued that small developing countries facing critical budgetary constraints, as are most Caribbean countries, are unable to devote much resources to research and that in any event research

work performed at the international research centres should be adequate to meet the needs of such countries. While there is some validity in this argument, it ignores the fact that agricultural technology is location-specific. At a minimum, national and regional research needs to concentrate on the accurate recording of the country's biophysical resources and on the adaptation of new technologies (e.g. new crop varieties, pesticides, fertilisers or new production systems) to local conditions.

The second question may be answered by examining the nature and extent of agricultural innovations that have been generated in the Region over, say, the last 10 to 20 years. Even a cursory look at the situation would reveal that the limited research resources in the Region are still concentrated on the traditional export crops - sugar, bananas, cocoa, coffee and citrus. I am not here suggesting that we should not do research on the traditional crops but, if we are serious about agricultural diversification, then the imbalance in the allocation of research resources must be redressed. I am also not trying to play down the excellent research done by national research centres and by such regional institutions as the Caribbean Agricultural Research and Development Institute (CARDI) and the Faculty of Agriculture at the University of the West Indies, but simply suggesting that we may benefit from a more rational and better coordinated direction of research efforts. We need a better articulation of the agricultural research effort as between the UWI Faculty of Agriculture, CARDI and national institutions. For years we have failed to deal with this need. (However, one must point out that, in recent times, CARDI's work has become more oriented towards solving problems in the field).

The third question I posed earlier - namely whether the research results are reaching the farmers - is in some respects the most important determinant of agricultural progress. For well conducted research in agriculture is of little value in the absence of an effective system for transmitting the research knowledge to farmers through a well run extension service. And a major criticism of the extension services in the Region is their poor coordination with the research programmes. This reduces the effectiveness of research not only because the research results are not passed on, but also by virtue of the fact that the researchers receive little feedback from the farmers themselves and thus are unable to respond to the real needs of the farming community. Importantly, agricultural technology is also location-specific in both the socio-cultural and economic senses and any technological improvement must be sensitive to the totality of the environment facing the farmers, if it is to be widely adopted. It is a lack of appreciation of these dimensions that frequently results in what appears to be "irrational" behaviour when farmers refuse to adopt improved technological alternatives.

I conclude this Section by referring to the use of so-called "high technology" in regional agriculture. Clearly there is some scope for the use of relatively high technology (such as hydroponics) in some branches of agriculture - particularly vegetable growing. Often high technology is both capital- and skill-intensive so that it can only be effectively used by educated full-time or part-time farmers or by large-scale commercial farms with high levels of management. In many cases the establishment of such large-scale high-technology commercial farms should follow upon pilot activities since it cannot be repeated too often that technology in agriculture is highly location-specific.

iv. Land Distribution and Land Tenure

The pattern of land distribution and the security of land tenure have profound influences on the way land is utilised for agriculture. For well known historical reasons, the countries of the Region exhibit, for the most part, a highly skewed pattern of land ownership with a relatively small proportion of the owners holding a very high proportion of the available land. And the distribution becomes even more significant when one looks at it in terms of arable land. The limited land size of most of the Caribbean countries tends to exacerbate the situation by pushing the price of land up beyond the reach of most small farmers.

The effect of the land distribution pattern on agricultural diversification is twofold. In the first place, the large private landowners, if they are no longer involved in the traditional crops, have tended to use their landholding either for speculative purposes or as collateral to invest outside of agriculture, mainly in trade, commerce and tourism. This too has historical antecedents, and the result is that large areas of land are removed from productive agricultural use and either remain fallow or are taken out of agriculture altogether. This is not surprising because traditional export crops tend to yield poor and uncertain returns, have high-cost structures and are usually perceived as being less lucrative sources of income than trade, commerce, tourism and speculation. A related problem that has occurred when the land is taken out of agriculture is that frequently this leads to serious land erosion and degradation with significant and long-term effects on the environment.

Secondly, a skewed distribution of landholding is paralleled by a skewed distribution of agricultural income. If small farmers are denied access to sufficient land and if the limited land they do control is not under very secure systems of tenure, then the incentive to invest in agricultural improvements is absent.

In many ways, a most remarkable characteristic of Caribbean agriculture, and one which underscores the potential that exists, is that, against this

background of land distribution and tenure that is so inimical to small farmer production, the contribution that these farmers make to total agricultural production is very significant. And this applies to the export crops as well, as is exemplified by banana production in the OECS states. How much more could be done if the small farmer is provided with the land resources (including consolidation of fragmented holdings) and with the security of tenure that will encourage adoption of innovations and investment in land improvements that will enhance productivity?

In many of the countries the Government is a major, if not the major, landholder. This suggests that the task of land reform could start with the re-distribution of State lands in such a way as to optimize the use of the resource. Different approaches to the re-distribution could be tried. Some countries in the Region have opted for long-term leases, one Government offering 25-year agricultural leases with options for renewal for a further 25 years, in an attempt to control the use of the land. While there is much validity in this approach, there is one respect in which the system may have disincentive effects - namely, the acceptability of the land as collateral security for credit.

An alternative approach which may be more beneficial is to lease the land but with an option to buy after some specified period. In this way, the initial capital can be devoted to the necessary land improvements and not be tied up in land purchase. At the same time, if the farmer is successful, he can accumulate his surpluses over time and purchase the holding outright. And, during the initial lease period sufficient controls could be incorporated in the terms to ensure that the land is used for production and not for speculative purposes.

A related issue in this whole question of land distribution is that of the production organisation. We should avoid dogmatic "single ideal approaches". In fact agricultural production can and should be organised in a variety of ways in the countries of the Region and different production technologies are needed for the various organisational forms - for example, small peasant holdings, part-time farming, family farm-businesses and large-scale commercial farms. Attempts at land tenure reform should incorporate this notion and provide a production technology that is suited to the organisational system or blends of systems chosen.

A production organisational form that tries to overcome some of these problems has been attempted in other parts of the developing world, with varying degrees of success. More recently it has been tried in Jamaica. This involves the "mother farm" - "satellite farms" concept. In this system one large commercial farm is established along with numerous small farms owned by individual peasant farm- families. The "mother farm", which could be publicly or privately or jointly owned, develops the

technological packages and serves as a demonstration for the small "satellite farms". In some instances, the "mother farm" may provide, in addition to the technical advice, working capital (in the form of seedlings, fertilisers and chemicals) and guarantee a market for the small farm production. It may be too early to determine how successfully the system is working in Jamaica but it does provide an organisational alternative that may help to overcome many of the problems faced in the implementation of land settlement schemes in the Caribbean. What is called for in this kind of operation is an initial "pilot project" phase, if only because technology is highly location-specific. One must also bear in mind that it may not be easy for the "mother farms" to transfer very high technology to the "satellite farmers".

In this context too, Belize and Guyana, given their large land sizes, present some special problems but also significant opportunities. There is considerable scope in these two countries for land tenure reform and for alternative systems of production organisation. But the extent to which the substantial land resources in these countries could be exploited is largely dependent on heavy investments in infrastructure and land development. (However, fortunately, Guyana already has in place three very large drainage and irrigation schemes - Black Bush Polder, Mahaica-Mahaicony-Abary and Tapakuma - with large amounts of land waiting to be used), requiring only relatively small amounts of additional infrastructure.

v. Marketing Systems and Methods

We come now to what has been perhaps the critical shortcoming in attempts to date at agricultural diversification - marketing systems and methods. The obtaining of access to preferential markets is futile unless our marketing systems and methods are drastically improved. Witness our inability to take advantage for many years of such preferential markets for manufactures as the EEC under the Lome Convention.

Previous attempts at diversification have not paid sufficient attention to markets and marketing arrangements. In the words of a recent publication, many diversification efforts in the past were "production oriented rather than market led".[1/] This has resulted, for instance, in the situation wheremany farmers, large and small, devoted some of their land to produce new crops and then quickly reverted, because of market failures, to the traditional crops for which established markets and marketing infrastructure were existent and functioning effectively. This implies that deficiencies inour marketing systems and methods, and not production, may be the most significant constraint to agricultural diversification; for

whenever marketing systems, along with the supporting infrastructure, are good, farmers have responded positively and have continued to improve quality and productivity. And this experience is not unique to the Caribbean.

Any diversification policy, and its implementation, have to take into account three "markets": the national market; the regional market; and the extra-regional market.

Everyone now understands the problems of agricultural marketing within the national market and I will discuss some of these shortly.

A genuine regional market is now in existence as a result of the abolition of the Agricultural Marketing Protocol (AMP) and the decision by the Conference of Heads of Government of the Caribbean Community that all tariff and non-tariff barriers to intra-regional agricultural trade be removed.

In relation to regional markets, it is almost certain that such a system of free intra-regional trade, will only be feasible if regional producers are protected to a reasonable extent from extra-regional imports. I am fully aware of the political and other difficulties that this "protectionist" approach entails, but I am convinced that it is the only way regional agricultural development can proceed effectively.

The arguments for protection of regional agriculture are many, varied and valid. I shall only mention a few. In the first place, the very nature of agricultural production is such that, even with advanced production techniques, the risks associated with farming are significantly higher than with most other forms of production. Secondly, for historical and other reasons the economic environment faced by farmers in the Region tends to be extremely distorted (due, for example, to adverse internal terms of trade vis-a-vis the manufacturing and services sector) and is structurally rigid (due, for example, to problems related to land distribution and land tenure), with the result that, in the absence of governmental intervention, it is unlikely that the right economic signals will be forthcoming to encourage production in socially beneficial ways. And, finally, the fact that some major food items can be imported into the Region at costs considerably lower than our own costs of production is not only the result of greater production efficiency in the countries from which we import (partly due to the use of advanced technology and partly due to economies of scale) but also a function of the high level of subsidisation, protection and other incentives provided to their producers by the governments in those countries.

Development strategies espousing the benefits of export-led growth are

very much in vogue now and, while I recognise that development of extra-regional export markets should be a critical component of our development strategy, we frequently forget that those countries held up as examples of successful application of the so-called outward-looking strategies (South Korea and Taiwan, to cite only two examples) developed their export markets behind very strong protectionist barriers and, in fact, a large proportion of their productive investments went into import substituting projects. The plain fact is that in nearly all developed countries there is massive governmental intervention both to subsidise agricultural exports and to protect the local market for agricultural production.

The third aspect of marketing - that is, selling non-traditional crops in extra-regional markets - is well recognised to present both opportunities and challenges. One has to be highly competitive in terms of cost of production, quality, delivery on time, meeting phytosanitary regulations and ability to produce in sufficient volume.

It is not possible to look at the question of marketing of agricultural products in the Region without examining the role of the much maligned State Marketing Boards and Corporations. With few exceptions, these institutions have operated at very low levels of efficiency as is reflected in their financial performance. In such instances they represent a significant drain on public funds and, as such, have contributed little to the diversification effort, at least on any sustained basis. Their main function when they were established was to purchase local produce at guaranteed prices. But not only did they lose money in buying and selling on the local market; they in fact purchased very little of the farmers' output except in periods of glut, the farmers preferring in normal times either to sell the produce themselves to middlemen (including hucksters or higglers) or even to the consumer directly. In effect the farmers by-pass the Marketing Boards, regarding them only as a buyer of last resort when the price they can fetch on the private local market is extremely low because of glut. On the other hand, the Marketing Boards tried to guarantee prices to the farmers whether there was a market or not within the country.

The poor performance notwithstanding, Marketing Boards have a vital role to play in the diversification effort if their activities are properly organised and oriented and they abandon their major function of purchasing farmers' output for sale on the local market, whether at guaranteed prices or not. In this context five functions can be identified:

a. Market intelligence and marketing research on non-traditional products for exports to regional and extra-regional markets.

b. Quality control and packaging assistance in the area of regional

and extra-regional trade.

c. Price stabilisation and extra-regional marketing of specific products.
d. Sole importer and distributor for certain staples for achieving economies of bulk- buying and, even more important, to generate income to meet losses in their buying and selling operations.
e. Supermarket type operations for domestically produced and imported items, not necessarily agriculture-based, in order to generate income and to provide competition in the distributive sector.

The first three functions mentioned are vital for the agricultural diversification effort while the last two are important to the Boards themselves for income generation purposes - to support the other functions which are by their very nature unprofitable.

There is a case for Marketing Boards buying local produce at guaranteed prices from the farmers only in respect of crops identified for exports to extra-regional markets and for which the Marketing Board has negotiated prices and quantities. In such circumstances it is necessary that the Board sign contracts with individual farmers, who will have to meet market requirements in terms of price, quality, quantity, packaging and delivery times.

A considerable amount of work needs to be done on the identification of markets abroad for suitable agricultural products and on the provision of the relevant information to farmers and the agricultural extension services. This includes information on prices, volumes, optimum demand periods, packaging requirements, availability of shipping services, phytosanitary requirements, etc. The information collection and dissemination function can be computerised to facilitate timeliness and can be linked to existing data bases, both regionally and extra-regionally. In this context, too, the Marketing Boards will need to develop a close relationship with the research and extension services in the Ministries of Agriculture in order to ensure that the market intelligence gathered is translated into workable technological packages that can be adopted by farmers. The Marketing Boards should also concentrate their export efforts in the non-traditional areas, leaving the marketing of traditional export crops to the existing commodity associations - with these being suitably strengthened where necessary.

There should be nothing to prevent the private sector from also engaging in marketing non-traditional products extra-regionally. And there should be scope for joint regional inter-country marketing efforts whether

undertaken by the public or private sectors or by a mixture of both. Already at the level of the individual countries the public and private sectors often join their efforts in promoting tourism abroad. It should be emphasised that economies of scale in marketing extra-regionally is often greater even than economies of scale in production.

In relation to extra-regional exports, Marketing Boards should also play an active role in quality control both of products sold directly by the Board and those handled by the hucksters or higglers. In the case of hucksters or higglers this could be done by establishing an inspection system at the point of shipment and introducing an aggressive programme aimed at improving the packaging and grading of produce for regional and extra-regional markets. The fierce competition we are likely to face in the extra-regional markets demands that quality control be a prime consideration in our marketing systems.

But in order to perform these functions of market identification, marketing intelligence and information dissemination, the Boards will need financial resources. To avoid them remaining a drain on the public funds, it would be desirable if they could become involved in income-generation activities. This is the essential rationale for suggesting that Marketing Boards could become engaged in sole importation of staples and in supermarket-type activities. The supermarket activities may have advantages over and above the income earning potential for they provide another avenue for the sale of local produce and it can be an effective way of keeping prices reasonable by increasing competition.

Not least, by the attractive presentation and packaging of locally and regionally produced food for sale in their retail outlets, these Boards can effectively contribute to breaking down the all too common resistance of West Indian consumers to the use of locally produced foodstuffs. Indeed there is already a growing tendency among supermarkets in some countries to do precisely this.

vi. Infrastructure

Adequate infrastructure - roads, water, electricity and other social facilities - is an essential prerequisite for high and sustained agricultural productivity. Indeed, there is a direct relationship between the level of investment in agricultural infrastructure and agricultural productivity. But an examination of the situation in the Region reveals that most infrastructure investments are located in the urban areas. The quality of rural life in our countries is thus significantly below that enjoyed by urban residents. Is it, therefore, difficult to understand why we cannot attract young persons into farming?

H. The Regional Dimension

Given the existence of the regional integration movement, we must take into account the regional dimensions of agricultural diversification.

There are six aspects of the regional dimension in agricultural diversification.

The first aspect is the greater scope for free intra-regional trade in Agriculture as a result of the recent abolition of the Agricultural Marketing Protocol accompanied by the decision to remove tariff and non-tariff barriers to intra-regional trade in Agriculture. Such free trade will bring about as its natural consequence some degree of specialisation in particular activities as between the member states - although in many cases countries will no doubt produce the same crops because of the protection vis-a-vis other regional food producers provided by inter-country freight and other handling costs.

We must, however, face up to the fact that, notwithstanding this, there will be some tendency for production of some specific items to be concentrated in the most efficient location. This point has been recognised in the Regional Food Plan which essentially takes into account the natural advantages of countries for producing certain specific commodities.[2/]

Second, to the extent that free intra-regional competition leads to possible over-production of specific commodities in relation to regional demand, the countries adversely affected could be compensated for this through joint regional action to export such surplus production to extra-regional markets, provided of course that such production is competitive in price, quality, standards and of sufficient volume.

Third, certain activities can be carried out on a large scale only in certain countries - particularly Belize and Guyana and to a lesser extent Jamaica and Trinidad and Tobago. Rice is an example where all four countries could undertake primary production reasonably efficiently. On the other hand, prospects appear to be good for corn and soya beans (important ingredients in animal feedingstuffs) only in Belize and Guyana - and possibly in Jamaica. But in several other crops, including rice itself, there is scope for regional integration of production and allocation of activities, e.g. rice could be shipped in bulk from Guyana and packaged in Barbados and Trinidad and Tobago. Also, Jamaica and Trinidad and Tobago could use their milling capacity to process not only their own product but also paddy imported from Belize and Guyana. In future St. Vincent and the Grenadines could use a mill about to be established to process paddy imported from Guyana. There is scope for regional collaboration in fisheries, whether by our countries allowing nationals of other CARICOM states to fish freely in their

territorial waters and their Exclusive Economic Zones or by the formation of intraregional joint-ventures to exploit fishing grounds off Belize and Guyana and to the east of all the Eastern Caribbean islands. Belize and Guyana, and to a lesser extent Jamaica and Trinidad and Tobago, could become major centres for livestock development - dairy in the case of all four and beef as well in the case of Belize and Guyana. Barbados could also concentrate on dairy livestock and, along with the OECS countries, on small stock generally. The OECS countries could also concentrate on oils and fats, fruits and vegetables, ground provisions and peanuts. Such allocation, based on economies of large-scale production and of specialisation could effectively improve the degree of regional self-sufficiency possible in many lines vis-a-vis extra-regional food imports. In this way, food security can be seen to have important regional dimensions.

Fourth, there is a scope for creating regional linkages in production. The growing of the primary crop in one country and its packaging and processing in another country has already been mentioned. Up to recently, large amounts of Belize citrus juice concentrate were imported into Barbados, St. Vincent and the Grenadines and Trinidad and Tobago and other Caribbean countries for further processing. Other raw materials which could be grown in one place and packaged and/or further processed in other countries which may have other inputs required for such processing activity are beef and milk from Belize and Guyana, arrowroot from St. Vincent and the Grenadines, and cocoa and coffee from Grenada, Jamaica and Trinidad and Tobago. There is also scope for the importation by other CARICOM countries of fertilisers produced in Trinidad and Tobago and, for that matter, mixing in a blending plant fertilisers from that source with different types of fertilisers imported from other countries.

Fifth, for reasons of "critical mass", much of our agricultural research must take place at the regional level (with applications being tested in each specific location of production). High-level agricultural research talent is too scarce to permit the Region to indulge in uneconomic duplication of research activities.

Sixth and finally, many of the above-mentioned forms of regional collaboration in Agriculture could be implemented either as national projects forming part of a regional programme or by joint-venture projects between more than one country, including of course purely private sector ventures. In this regard a special device for facilitating such joint ventures (such as the CARICOM Enterprise Regime) would be essential.

In reviewing the possibilities of intra-regional trade, whether in end-products or in inputs, the transportation factor looms large particularly where, as in the case of some of the OECS countries and Belize, volumes exported within the Region may not be very large in absolute terms at this point in time. The consequence is often infrequency and irregularity of service by the West Indies Shipping Corporation (WISCO) to these countries. Nevertheless, WISCO provides an important support and would provide an essential "fall-back" service, even if private sector

initiatives are taken to strengthen the availability and frequency of intra-regional sea transportation for the OECS countries and Belize. A positive step has recently been taken by the CARICOM Standing Committee of Ministers responsible for Transportation in the form of a Decision, based on a proposal by the Prime Minister of Barbados, to study the feasibility of WISCO becoming the regional shippng line for both intra- and extra-regional services.

The Standing Committee of Ministers responsible for Agriculture of the Caribbean Community is due to finalise a medium-term regional agricultural programme next month. This action programme will go a long way towards the accelerated implementation of the Regional Food Plan (now called the Regional Food and Nutrition Strategy). Regional Ministers of Agriculture are also aware of one corollary of this - the need to secure additional resources from external sources for the Caribbean Food Corporation.

I find it necessary before I conclude to make two brief sets of observations on two most important areas allied to food and agriculture - Fisheries and the Environment (particularly Forests).

I. Importance of the Fisheries Sector

It would be remiss of me in a Statement dealing essentially with increasing food production and diver sifying agriculture in the Caribbean if I did not say something on the fisheries sector which, apart from its potential for reducing expenditure on imports and for increasing export earnings (particularly with respect to sea-foods such as shrimp and lobster), can provide a valuable source of nutrition to the people of the Region.

Recent enlargement of the Exclusive Economic Zone (EEZ) has had the effect of increasing national maritime boundaries and hence has increased potential fishing areas. At the same time the sector in the Region is characterised by a relatively large number of small-scale artisanal fishermen and this, coupled with the lack of storage facilities and poor marketing systems, limits the extent to which the increased potential can be exploited. Also of relevance in this context is the underdevelopment of the modern trawler fishing industry in the Region - a matter of some irony in view of the fact that fishing trawlers from many countries of the world operate within our Exclusive Economic Zones. Diversification of the fishing systems in the Region, including where feasible aquaculture (or inland fisheries), is thus an important aspect of strategy designed to increase regional food production and diversify agriculture.

Fisheries development must have, as essential components, the following elements:

a. Increased facilities for storage and distribution of domestic fish supplies;

b. encouragement of joint-venture activities for industrial exploitation of the enlarged resource generated by the Exclusive Economic Zone;

c. efficient pricing policies; and

d. the provision of effective training facilities in both artisanal and trawler fishing techniques and the related activities such as boat building and fish handling and processing.

J. Importance of the Environment (particularly Forests)

One aspect of conditionality that is becoming increasingly important, and one which the Bank must take cognisance of, is the question of environmental impact of investments in development projects. In the context of the agricultural sector this impinges directly on the question of forest utilisation. Over the past twenty years or so the Region has become more profligate in the abuse and underutilisation of its forest resources, to the extent that in a number of the countries the position is approaching crisis point. For example, the widespread practice of burning and shifting cultivation has resulted in the devastation of large areas of forest throughout the Region, seriously impairing the effectiveness of many water catchment areas. Extensive soil erosion, the silting of stream and river beds, regular flooding, declining stream flow and an inexorable decline of soil fertility have collectively resulted in significant declines in agricultural yields that are difficult to reverse.

The CDB, I believe, has no alternative but to examine more carefully the environmental impact of its projects and where necessary include conditions that will minimise the environmental degradation. At the same time Governments must begin to tackle the conservation and development of Forests with a greater sense of urgency.

K. Role of CDB and Other Lending and AID Agencies

From its inception in 1970 the Caribbean Development Bank has been providing financial and technical assistance to the agricultural sector - both directly and indirectly through the nationalDevelopment Banks or Development Finance Corporations (DFCs). At the end of 1986 net direct lending to the agricultural sector (farming, livestock and fisheries) amounted to US$33.6 million and indirect lending through the DFCs to US$50 million. The Bank also lent for agricultural infrastructure (including lending for feeder roads, rural electrification, rural water supplies and main roads into rural areas). The amount lent for feeder

roads alone was US$27.4 million. Some financing of agricultural processing by the Bank also took place. The Bank's Board of Directors decided recently that CDB should also enter into sectoral lending in agriculture and other sectors.

The Bank has also provided considerable technical assistance to borrowing member countries in the identification, preparation, implementation and supervision phases of agricultural projects. Technical cooperation has also taken place between the Bank and other regional institutions involved in agricultural development such as the Caribbean Community Secretariat, the Caribbean Food Corporation, the OECS Secretariat and CARDI.

However, the Bank has been only one provider of assistance to the agricultural and rural development sectors. Many other multilateral financial institutions and bilateral aid agencies have been involved in assistance to the Region in agricultural and rural development.

But the Bank is concerned that what is needed is coordination and rationalisation on the part of the numerous sources of agricultural funding and technical assistance in the Region.

Above all, perhaps even more than funding, the agricultural sector in the Region needs sound and consistent government macro-economic and sectoral and sub-sectoral policies if substantial progress is to be achieved with regard to agricultural diversification and development.

IV. CONCLUDING OBSERVATIONS

Mr. Chairman, Distinguished Governors, Members of the Board of Directors, Your Excellencies, Observers, Guests:

I end my Statement with a few brief concluding observations:

1. An underlying theme of this Statement is that the complexity of the agricultural diversification process demands that we take a holistic view. Attempting to deal with any one factor - credit availability, marketing, technology, land distribution and tenure systems, macro-economic policies or infrastructure - without at the same time dealing with the others is likely to be unsuccessful.

2. The macro-economic framework of the respective countries must be conducive to agricultural investments in the areas we perceive as beneficial. It is important that we recognise the pervasive effect that macro-economic policies have on the agricultural development process and in particular the central role that prices (as well as "good" governmental interventions) play in this process.

3. Inadequacies in agricultural marketing systems and methods act as a serious constraint to the increase of food production for local and regional consumption and exports of non-traditional agricultural products outside the Region.

4. Both regional and national efforts should go hand in hand in the transformation and diversification of our Agriculture. It is encouraging that greater impetus is now being given by governments to the accelerated implementation of the Regional Food Plan (or Food and Nutrition Strategy). A five-year medium-term regional agricultural programme, paying attention not only to production possibilities but also to market access, is to be considered by the CARICOM Standing Committee of Ministers responsible for Agriculture who in turn will submit the programme to the Conference of Heads of Government in early July for its consideration. In this context, it is a matter of great urgency that increased efforts be made by the Governments of the Region to raise additional funds from external sources for the Caribbean Food Corporation (CFC), one of the major instruments of the Regional Food Plan. The CFC has now adopted the policy of emphasising investment and loans in private sector projects or joint government and private sector projects.

5. An all-out effort by regional governments should be made to rationalise and coordinate agricultural research work now being carried out by national bodies and by regional institutions such as CARDI and the Faculty of Agriculture of the University of the West Indies. Both regional institutions are indispensable in the agricultural research process.

6. CDB would wish to continue and, where feasible, intensify its role in lending and providing technical assistance for agricultural diversification; but we believe that it is of great importance to more effectively coordinate and rationalise all the many forms of financial and technical support for this activity being made available by various multilateral and bilateral sources of support.

7. We should recognise that the prospects for a brighter future for Caribbean agriculture depend crucially on the entry of younger and reasonably well educated people into full-time (and to a lesser extent part-time) agricultural activity organised along business lines.

8. Finally, and not least, the West Indian public will have to accept that a greater degree of local and regional import substitution and replacement in food and agriculture will most likely entail in some cases somewhat higher prices for the food they consume, since so much of the food which we import is highly subsidised by the developed country exporters. But this cost is almost certain to be greatly exceeded by the benefits of a stronger and more diversified economy, a long-term structural improvement in the balance of payments and expanded productive employment opportunities.

1/ Canadian International Development Agency, 1987, Review of Agricultural Diversification in the O.E.C.S., Volume 1, Main Report.

2/ More difficult to implement would be a regional programming or "allocation" approach under which certain specific products will be promoted in particular countries or sub-groups - even if the countries concerned may not necessarily be the lowest-cost location for production. This regional programming or "allocation" approach could include the granting of the right to CARICOM countries
to deny Common Market origin to imports from a member country which violates the programming or allocation scheme. This would, to say the least, be extremely difficult to implement, but I have no doubt that the CARICOM Ministers of Agriculture, advised by their technocrats, will come up with a realistic (whether positive or negative) answer at their Meeting in June.

Appendix 1

LIST OF DIVERSIFICATION PRODUCTS OF SUGAR CANE

I. BASED ON SUGAR

A. Traditional Products:

1. Refined sugar products e.g. castor sugar
2. Syrups including invert syrups
3. Non-alcoholic drinks
4. Alcoholic drinks
5. Bakery Products
6. Confectionery
7. Powdered drink mixes
8. Food Products

B. Non-Traditional Products:

1. Fermentation Products including organic acids, xanthan gums, antibiotics, dextrans, and gluconates
2. Sucrochemicals e.g. sucrodetergents
3. Sucroesters, sorbital (thence to vitamin C)
4. Alcoholic beverages
5. Animal feeds - for non-ruminants
6. Sugar charcoalCaramel

C. BASED ON MOLASSES

1. Alcoholic drinks
2. Other fermentation products e.g. organic acids, bakers yeast, single cell protein
3. Invert syrups
4. Animal feeds for ruminants and non-ruminants

D. BASED ON BAGASSE

1. Fuel
2. Pulp and Paper
3. Cellulose
4. Board and building materials
5. Animal feeds

E. BASED ON FILTER PRESS MUD

1. Fertilisers and soil conditioners
2. Waxes
3. Building materials extenders
4. Animal feeds

F. BASED ON FLY ASH

1. Building materials

G. BASED ON CANE JUICE

1. Fermentation products e.g. alcohol, vinegar, dextrans, flavour enhancers
2. Alcoholic and non-alcoholic drinks

H. BASED ON THE SUGAR CANE PLANT

1. Animal feeds for ruminants

2. Board and building materials1/

1/ It should be noted that a by-product of great promise - ethanol - is not included in this list.

Appendix 2

USE OF SUGAR-CANE AS LIVESTOCK FEED

The sugar-cane plant can be used for feeding ruminants in two ways - as sugarfith, the name given to the product after a sugar-cane stalk is passed through a machine that removes the hard outer rind; and chopped cane, in which the whole sugar-cane plant (including the cane tops) is chopped, utilising conventional forage chopping equipment. Existing research has not demonstrated any significant difference between sugar-fith and chopped cane in terms of animal performance. This, together with the fact that the derinding technology is still in its developmental stage, suggests that chopping is the process more likely to find commercial application at least in the near term.

The advantage of sugar-cane as an animal feed stems from the plant's very efficient photosynthetic ability, resulting in very high yields of convertible energy per hectare and the fact that such energy is available during the dry season when production of traditional forages tends to be low or nonexistent. This means that a livestock enterprise based on sugar-cane could afford much higher stocking densities than that permitted with common pasture grasses - available data suggesting stocking rates of 8-10 animal units per hectare compared to 2-3 on improved pasture. Sugar- cane also ensiles well, indicating that the crop can be harvested during the period of its highest nutritive value and conserved for year-round use. Interestingly too, the acceptability of the sugar-cane ration to ruminants is increased when molasses is added as a supplement. Sugar-cane as a major ingredient of animal ration is thus also significant from the perspective of the linkages it creates within the agricultural sector itself.