THE CURRENT STATE AND FUTURE OF CARIBBEAN AGRICULTURE

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ABSTRACT

The paper evaluates the performance of export agriculture during 1980 to 2004 for the borrowing member countries of the Caribbean Development Bank, excluding the United Kingdom dependent territories, and critically assesses the issue of food dependence and security. It sketches the broad outlines of a new agriculture policy for the Caribbean region, taking into consideration the new challenges (trade liberalisation, increased use of sanitary and phyto-sanitary barriers, etc.), concerns (food safety, quality, security) and opportunities (rising food prices as a result of increased demand related to global population and income growth, possible diversification into high value products, expansion of niche markets, such as for organic and fair trade products, etc.) presented by the current international environment.

Key Words: Caribbean agriculture, competitive import replacement, organic agriculture, policy options, trade liberalisation.

INTRODUCTION

Caribbean agriculture is currently facing substantial challenges because of the diminution and elimination of European Union (EU) preferences for major agricultural exports together with the general impact of trade liberalisation. This is reflected in the substantial declines in major agricultural exports (Report of the Caribbean Trade and Adjustment Group, 2001) and in the overall lackluster performance of the agriculture sector in recent years (see Table 1 in the Appendix). Generally, throughout the Region (excluding Haiti), the rural sector accounts for the largest proportion of the poor who average approximately 25% of the population. In Haiti, the poor are estimated at 76% of the population. Thus, the crisis in Caribbean agriculture is both economic and social. The sustainability and expansion of agriculture output, which has been a key contributor to poverty reduction worldwide (World Bank, 2008), is therefore a critical issue, and central to the discussion below. Additionally, rising concerns about food security in the context of high import food prices and recent external supply shocks; expectations of increased volatility of global food supplies because of climate change; and growing concerns about the negative externalities of conventional production, all point to the need for expanded but sustainable agriculture (Niggli et al, 2007; IAASTD, 2008; World Bank, 2008).

The paper reviews the performance of the agriculture sector over the period 1980 to 2004, with specific focus on export agriculture, food imports, food dependence, and security. Food security is defined as physical and commercial access by all citizens to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life. (www.fao.org.spfs). Note that the issues of food safety and food quality are subsumed under the

concept of food security.

The decision to focus on export agriculture in the discussion is because during most of the period under review (1980-2004), export agriculture dominated the sector. Also, the paucity of data on agriculture production for domestic consumption has been a significant constraint to a more comprehensive analysis. However, as noted in the discussion below in Section C, agriculture production for domestic consumption in many regional economies is relatively small.

The first section of the paper reviews the contribution historically and globally of export agriculture to economic development, while the second briefly explores the performance of Caribbean export agriculture. The third section analyses the issue of food imports, dependence and security. The fourth section explores the policy options, while the fifth compares the proposed with previous strategies.

Data were obtained from the Food and Agricultural Organisation (FAO) online database, the World Bank's World Development Indicators and the Caribbean Development Bank (CDB). The study includes Antigua and Barbuda; The Bahamas; Barbados; Belize; Dominica; Grenada; Guyana; Haiti; Jamaica; St. Kitts and Nevis; St. Lucia; St. Vincent and the Grenadines; Suriname; Trinidad and Tobago. Table 1 in the Appendix presents some general indicators on the countries.

A. Export Agriculture as a Strategy for Economic Development

In theory, export agriculture contributes to economic development in several ways:

(i) higher rates of Gross Domestic Product (GDP) growth;

(ii) increased access to foreign exchange;

(iii) enhanced productivity forced by competitive pressures; and

(iv) increased employment and poverty reduction [United Nations Conference on Trade and Development (UNCTAD) 2008].

The current era of export agriculture dates from the1980s as a reaction to the failed import substitution initiatives of the previous decades, characterised by high protectionism (tariff and non-tariff barriers); widespread production inefficiency; substantial state intervention in the agriculture sector; over-valued exchange rates and increased scarcity and rationing of foreign exchange.

The failure of import substitution agriculture (and indeed of import substitution manufacture) in many developing countries led to new policy prescriptions by the international financial institutions (IFIs) in the form of market/trade liberalisation initiatives (exchange rate liberalisation, removal of tariff and non-tariff barriers, the removal of state institutions such as marketing boards etc.). The 1995 Agreement on Agriculture (AoA) of the Uruguay Round of trade multilateral trade negotiations, with its emphasis on liberalisation and increased market access; on tariffication of non-tariff

barriers; on binding and reduction of tariffs, and on lowering subsidies and other ineligible trade distorting domestic support to agriculture, further advanced the process of liberalisation of the agriculture sector (UNCTAD,2008).

However, even in the case of those countries (for example, Brazil, Chile, Thailand) and regions (Latin America, East and South East Asia) deemed successful in this period of trade liberalsation, from a development perspective, success has not been unqualified. In many cases, the gains from increased trade have not been equally shared. Major beneficiaries have been large producers/commercial farms; traders and middlemen; large companies and multi-national firms. Small farmers have often not benefitted from trade liberalisation gains, and rates of unemployment and poverty have increased (for example, banana farmers in the Caribbean). Also, the sustainability of export agriculture in many cases is being questioned in the face of soil and environmental degradation (from overuse of chemical fertilizers and pesticides) and inefficient use of scarce water resources. Additionally, in the face of increased dependence on food imports for both successful and unsuccessful exporters, concerns about food security have grown (Kwa and Bassoume, 2007).

The foregoing points to several conclusions. While export agriculture potentially can make a significant contribution to economic development in the Caribbean (and elsewhere), there is need for considerable re-thinking of the current model. The criteria for defining success in export agriculture's contribution to economic development is no longer focused on the generation of foreign exchange and economic growth. Additional areas of emphasis now include positive contributions to employment; to a more equitable distribution of income; poverty reduction;

enhanced food security; production and environmental sustainability. In pursuit of these objectives, organic agriculture is increasingly being seen as a credible alternative to conventional agriculture production and export (Hallberg et al eds., 2006).

B. Evaluation of the Performance of the Caribbean Export Strategy

Export agriculture, even with preferential market access, in recent years has been for the Caribbean at best a sputtering engine of economic growth. While there has been some variation in the sector performance of individual countries, for the group of countries as a whole, the ratio of agriculture export earnings to GDP fell from 9% in 1980 to 3.5% in 2004, reflecting substantial contraction in export volume and price declines. Between 1994 to 2004, Caribbean export revenues in real terms averaged an annual decline of 2.5%. The widespread decline in the role of agricultural exports in the Region is also reflected in the ratio of the sector's foreign exchange earnings relative to earnings by the export sector as a whole (goods and non-factor services). The ratio declined from 9.7% in 1980 to 4.3% in 2004.

The foregoing indicators point to the conclusion that for many countries in the Caribbean, export agriculture has ceased being an engine of economic growth and development. On a more optimistic note, the data points to the conclusion that non-agriculture exports have turned in an increasingly better performance, and have become significant, if not dominant, sectors of activity in most economies. Hence, an important transformation of the export sector has taken place. Unfortunately, the declining performance of the agriculture export sector is leading also to

reduced employment, a decline in real incomes and increasing impoverishment of rural communities in many countries.

C. Food Dependence and Security

Food import dependence has been a logical corollary of the Region's focus on export agriculture. A useful indicator of food dependence is the ratio of food imports to GDP. While in nominal terms expenditure on food imports increased steadily during 1980-2004 for all countries, food imports as a percentage of GDP for the group as a whole declined from 13.6% in 1980 to 8.6% in 2004. The ratio of expenditure on food imports to total foreign exchange earnings fell from 15% in 1980 to 9.7% in 2004, and the ratio to total imports fell from 15.5% to 8.7%. It is likely that the latter ratios deteriorated somewhat recently with the rise in food prices. Nevertheless, indications are that the Region's food security, as defined by commercial access to external markets, was not substantially compromised. Of greater concern has been the deteriorating food security of the Region's poor.

The weighted food import dependency ratio (WIDR), which is the ratio of imports to consumption in volume terms, focuses on the physical access to food which, particularly in the case of external supply shocks, will be of much greater concern than the ability to purchase. The appropriateness of this indicator of food dependence is seen, for example, in the recent withholding of food exports from international markets by some suppliers.

For ease of analysis, the level of food dependence as defined by the average WIDR for the period 1990 to 2000, can be placed into three categories: low [WIDR < 30%] ; (ii) medium [30% >WIDR < 50%] and high [WIDR > 50%]. Haiti, Dominica, Guyana, Suriname, and Belize are in the first category. With respect to Belize, the WIDR reached below 15% in 1999, making Belize one of the most self-sufficient countries in the Region. In the second category are St. Lucia, and Jamaica. In the third category are Antigua, The Bahamas, Barbados, Grenada, St. Kitts and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago. In the case of some of the latter countries, the level of import dependence is remarkably high (The Bahamas, Barbados, St. Vincent, St. Kitts and Nevis, Trinidad and Tobago) reaching close to or surpassing 80%. Only a handful of countries (Guyana, Jamaica, Suriname, and Belize) have been able to stabilise or even reverse the upward trend of the WIDR. These are all among the larger countries in the group, with relatively greater amounts of land and a vibrant agriculture subsector geared towards the domestic market.

D. Policy Options

The foregoing analysis points to a significant decline in export performance of the agriculture sector, and one that is likely to deteriorate as preferences for major agriculture exports are substantially diluted or removed. The already substantial and increasing levels of unemployment, under-employment and poverty in the rural sector that this implies, present a serious social and economic challenge to many countries in the Caribbean. There is clearly need

for an urgent re-evaluation of policy in some cases, both within and outside the agriculture sector, as noted below. The policy options chosen will all have implications for national and regional food security. These implications form part of the following discussion.

(i) Expansion of Non-agricultural Exports

For some countries in the Region, focus on import substitution in agriculture may not be a desirable option, given their resource endowment and their demonstrated areas of comparative advantage in non-agricultural exports. Among these are the Bahamas, Barbados, Trinidad and Tobago (with St. Kitts and Nevis, Grenada, Antigua and Barbuda, and St. Vincent and the Grenadines tending in this direction). For these countries, import dependence as measured by the WIDR, is already very high. However, these are countries with strong or fairly strong export sectors outside of agriculture. In the case of both Barbados, and The Bahamas, agriculture activity has largely given way to export services (tourism, offshore finance). In Trinidad, the oil sector dominates. St. Kitts and Nevis has wound down its operations in sugar, and is expanding substantially its tourism sector. St. Vincent, in recent years, has achieved a rapid expansion in service exports, particularly tourism, while agricultural exports, mainly bananas, have struggled in the face of international competition. For these countries, non-agriculture exports are already the dominant source of foreign exchange earnings, employment, and real income growth.

As indicated previously, these countries are also very dependent on food imports. Food import dependence implies vulnerability to external food supply shocks which are likely to increase because of rising volatility in food markets, related to climate change, growing resource

scarcity (land, water etc), rising prices for energy and agro-chemicals, increased demand for biofuels and population growth (World Bank, 2008). However, in addition to an expansion in commercial capacity implied by higher foreign exchange earnings, further enhanced food security in the case of these countries may lie in part in development of food reserves, rather than a focus on agriculture development *per se*. According to the International Assessment of Agricultural Knowledge, Science and Technology for Development [(IAAST) 2008], food security strategies may include the development of food stock management, effective market intelligence and early warning, monitoring and distribution systems. Food reserves can be established on a national, sub-regional (involving basically those countries that have chosen this type of growth strategy) or regional basis. Those countries in the Region with a relatively strong agriculture sector capability (Jamaica, Guyana, Belize, Suriname), for example, can be used as part suppliers of food stocks for the countries discussed here, or for the Region as a whole.

Two very important conclusions are being made here. First, the issue of food security, especially for these countries, in part should be looked at from a regional, rather than a purely national perspective. Secondly, addressing food dependence and security should not be taken in isolation from overall macroeconomic strategy and issues of efficient resource allocation. In this wider context, it is then seen not necessarily as a cause for alarm, but rather as an accepted risk attendant upon the pursuit of a superior economic strategy. Hence, the question arises as to the best and most efficient way to mitigate that risk, rather than pursue an all out strategy of import replacement which may have substantial opportunity costs in terms of growth, employment and foreign exchange earnings foregone. However, as noted below, this does not imply complete abandonment of agriculture.

The foregoing strategy is consistent with that of Sen (1987, 1990) who views food security not within the narrow confines of self-reliance and import substitution, but rather within the wider context of overall economic strategy. According to Sen, this approach would suggest a move in the direction of diversification of production and of sources of income, rather than concentrating exclusively on the expansion of food output irrespective of costs and risks (Sen, 1987).

(ii) Competitive Import Replacement

The regional import food market is large and growing, propelled by growth in population, expansion in real incomes and in tourism activity. Regional food imports were estimated at US$2.2 billion (bn) in 2004 (FAO online Database). During 1994 to 2004, regional food imports grew in real terms at the rate of 2.4% per annum compared with annual real growth of -2.5% per annum for regional food exports. In 2004, the Region's agriculture export revenues were 41.9% of regional food import expenditure and declining.

It is ironic that the Caribbean struggles to export to sluggish markets abroad to the neglect of a steadily expanding domestic market. Given the dynamism of domestic food markets, all Caribbean countries should, to the extent possible, engage in some level of competitive import replacement as a means of enhancing food security, increasing incomes, and reducing poverty. (The term competitive import replacement (CIR) is used here in preference to import substitution to emphasise the need for competitiveness in the context of a liberalised trade environment). In

fact, Kwa and Bassoume (2007) argue that because of increasing use of sanitary and phyto-sanitary barriers and low export prices for some commodities, agriculture production for domestic markets is a more effective strategy for increasing the incomes of small farmers and reducing poverty than export agriculture. While the Caribbean, because of resource constraints and current tastes, will not necessarily be able to achieve a substantial level of CIR, even a relatively small level of CIR, given the size and dynamism of the import market, can make a significant difference in terms of the contribution to economic growth, foreign exchange savings and employment. There is the additional competitive advantage, particularly given high fuel costs, that transportation costs will be less of a constraint in the pursuit of such a strategy, as compared with exports. Tables 2 and 3 in the Appendix show the structure and distribution of demand for Caribbean food imports during 1994 to 2004.

In the pursuit of CIR, ideally the emphasis should be on those commodities which account for a substantial portion of food imports for example, cereals, oils (soya, corn oil etc.), meat (beef, poultry etc.) and meat products, milk and milk products (cheese, yogurt, butter etc.), beverages, (tea, coffee, cocoa]; those which provide significant opportunity for the development of intra-industry linkages (for example, milk and milk products); those which have exhibited fairly dynamic import growth (for example, whole milk, oils, beverages with estimated income elasticities of 0.84, 0.79 and 0.99, respectively for the period 1961 to 2004) and are likely to continue to do so, given the evolving structure of food demand in most developing countries. Also, CIR in all cases at a minimum, should yield foreign exchange savings rather than be pursued solely or mainly for the purposes of self reliance.

The purpose of the paper at this point, however, is not to identify specific commodities for CIR, an exercise which will require individual analysis of potential candidates. Rather, the purpose is to identify additional basic principles for successful and sustainable CIR in Caribbean agriculture. Ideally, the objective of CIR should be provision of **a quality, safe, healthy, socially, economically, environmentally sustainable food supply at minimum social cost.** Issues of quality, safety and health are minimum requirements of any food supply, and increasingly, consumers are insisting on these attributes particularly with the spread of information about food and nutrition. These requirements imply the need for the Caribbean to put in place, at national and regional levels, the necessary institutional infrastructure for food analysis and monitoring to safeguard and promote public health. The latter requirements are also very important in the context of an increased emphasis internationally on technical standards, and the prevalence of sanitary and phyto-sanitary barriers.

The emphasis on social and economic sustainability is very important in the Caribbean context of substantial poverty in the rural sector, and the prospect of further economic and social deterioration, given current export market trends for major Caribbean agriculture exports. In the pursuit of economic sustainability, substantial and continuous attention will have to be paid to initiatives to enhance productivity (improved seeds, more productive plant stock, irrigation, improved farm management, improved livestock, farmer training etc.) and thereby provide a satisfactory and sustainable level of income to the farming community. Additionally, governments' attention will have to focus on amelioration of social conditions in the rural sector – improved working conditions, enhanced access to education, health services, housing, etc. The objective must be to ensure that an increase in domestic supply of food is not achieved at the

expense of the rural poor. Also, enhanced social service delivery is an important determinant of increased worker productivity.

Attention to the impact on the environment is very important, given the very valid concern about production sustainability, and maintaining quality in the inter-generational transfer of land and other resources. It is recognised, for example, that conventional agriculture (agrochemical-based agriculture) generates substantial negative externalities. Commonly mentioned are the negative impacts on soil quality and productivity, on the environment (ground water pollution, loss of wetlands, and wildlife habitat), on food safety and on public health due to the excessive use of herbicides, pesticides and fertilizers (IAASTD, 2008). For an interesting discussion of the negative externalities related to the pursuit of conventional agriculture in the Caribbean with its substantial use of synthetic-based agrochemicals, see (Smith,1991). In part, the competitiveness of conventional agriculture is due to the externalisation of social costs.

Concerns about the foregoing externalities have led to a re-assessment of conventional agriculture, and increasing advocacy of more socially efficient production systems. Hence, for example, the strong international support for sustainable production articulated in Chapter 14 of Agenda 21, an international agreement formulated by members of the United Nations Conference on the Environment and Development (UNCED), in Rio de Janeiro in June 1992. It outlines a series of principles, policies and strategies for achieving sustainable development.

The foregoing proposed principles for CIR, together with recent market developments and future prospects, suggest the need to re-orient regional agriculture towards sustainable

technologies, and in particular, towards organic production. Organic products can be defined simply as those commodities produced with limited use of, or without synthetic-based agro-chemicals (pesticides, herbicides, fertilizers, fungicides, veterinary drugs, etc.) [International Network for the Improvement of Banana and Plantain (INIBAP, 1999)]. However, more rigorous definitions include not only the absence of such inputs or limits on their use, but also agricultural practices (for example, crop rotation and land conservation) and precautionary measures (for example, three-year transition period from conventional to organic agriculture) as specified by a certification system. In fact, in the market place, it is the certification system that ultimately decides which products are deemed organic. While certification costs present a barrier to organic production, strategies such as group certification, which substantially reduces the cost per farmer; the assumption of certification costs by exporting companies; and donor financial support, have successfully addressed this issue and facilitated in many developing countries steady growth in production and exports. For a very comprehensive discussion of organic agriculture, its contribution to sustainable production, enhanced productivity, increased rural incomes and food security, and its substantial development worldwide, see Scialabba (2000); Pretty et al (2000, 2003). For a comprehensive and very useful discussion on the contribution of organic products to food safety and quality, see the report of the Twenty-Second FAO Regional Conference (2000).

Organic agriculture technologies (crop rotations, crop residues, animal manures, green manures, off-farm organic wastes, water harvesting, natural and biological controls for pests and weeds, land conservation practices, etc.) lead to enhanced biodiversity; reduced petrochemical use and environmental damage; a decline in soil erosion, land and water degradation; in pesticide

pollution, and poisoning. Organic agriculture has also demonstrated its ability, even in the absence of substantial research to date, to increase food supply, incomes and food security in poor rural communities (Pretty, 2003; Halberg et al (eds.), 2006). Some of the most successful organic projects have been implemented among the very poor in China, India and Latin America [International Fund for Agricultural Development (IFAD) 2003, 2005]. Improved yields, reduced input unit costs, together with price premia in some instances, have led to substantial increases in income, thereby contributing to economic and social sustainability in impoverished rural areas.

While in many less developed countries the emphasis has been on external markets mainly because of price premia and the need to earn foreign exchange, increasingly attention is focusing on dynamic domestic markets, particularly in high income urban areas. The domestic market for organics has been growing in many Latin American and Caribbean economies, and governments are being encouraged to promote its development through consumer education. The development of domestic markets is increasingly being advocated and nurtured as a training ground for export markets. El Salvador is a notable success story in this regard, having been able to achieve substantial self sufficiency in the replacement of imported vegetables with domestically produced high quality organics.

A more outstanding success story is that of Cuban agriculture which, after the collapse in 1989 of the Soviet Union on which it was almost exclusively dependent for the supply of agrochemical inputs (pesticides, herbicides, fertilizers), was forced to change completely its method of agriculture production. The result was the extensive development of bio-pesticides and bio-fertilizers (crop residues, green manures) which, together with the reorganisation of the

agriculture sector with greater dependence on private farming, led by mid-1995 to the elimination of food shortages (Pretty and Hine, 2001).

Several developed (US, EU, Australia) and developing countries (India, China, Indonesia, Argentina, Mexico, Costa Rica, El Salvador) have already begun re-orienting the agriculture sector towards use of more sustainable technologies, and specifically towards use of organic technologies. For example, in 1985, organic agriculture accounted for approximately 100,000 hectares or 0.1% of useable agriculture land in the EU. By the end of 2002, organic agriculture accounted for 4.4 million hectares or 3.3%. Germany and Denmark have set targets of 20% of agriculture land for organic agriculture with other EU countries setting somewhat lower targets (European Commission, 2004). In 2003, Austria had 9.7% of useable agriculture land under organic agriculture with Italy and Sweden 8.1% and 7.2%, respectively.

The Caribbean is said to be lagging substantially behind the trend towards increased production of organics. While there is some skepticism in the Region with respect to the pursuit of such a strategy, because of various constraints (advanced age of farming population, in the case of the Windwards sloping terrain, inadequate knowledge of production methods etc), it is estimated that currently more than 100 countries are successfully engaged in the production and export of a wide range of organic food exports, most often in small farming communities of the sort quite prevalent in the Caribbean. Success has been achieved in very diverse and challenging socioeconomic and agro-ecological environments.

The FAO, IFAD, the World Bank, the International Development Bank (IDB), Non-Governmental Organisations (NGOs) and private sector companies through various projects have given support to this rapidly expanding initiative. Ideally, the Caribbean should engage the FAO, in particular, in the expansion of organic farming, given its considerable experience in this and other forms of sustainable agriculture in Asia and in the Pacific Islands. IFAD also has been engaged in the development of organic farming in Latin America and the Caribbean, and is likely to expand its involvement as part of its strategy to reduce rural poverty.

An important point in all of the foregoing is the fact that the Caribbean needs to view international competitiveness in the agricultural sector in a new light. While it is true that in many cases, agriculture in Caribbean economies because of low productivity, lack of scale economies, and subsidised production abroad will not be as cost competitive as foreign imports, regional agricultural producers in the context of increasing environmental consciousness and rising concerns about food quality and food safety issues may find their competitiveness enhanced both domestically and externally by embarking on organic production. Also, given the fact that most food imports into the Caribbean are non-organic, promotion of a change in Regional tastes can lead eventually to increased domestic demand and production, reduced food dependence, enhanced food security, and a decline in rural poverty. In the attainment of this objective, promotion in the national and regional markets through the provision of information (through radio, television, internet) to both consumers and producers has a key role to play.

(iii)Agriculture Export Diversification

In the context of increasing global population and income, together with the projected rise in food demand and prices, for those Caribbean countries with the appropriate resource endowments, and also past experience in the export sector, stimulation of agriculture exports is a viable agricultural strategy for the foreseeable future. Among these would be Guyana, Belize, and Jamaica, the three largest countries in CARICOM. Also included would be Suriname, and the Windward islands.

However, given the performance of traditional agriculture exports so far, and current prospects amidst the collapse of preferences, continuation of the process of rationalisation of traditional agricultural exports remains a priority. This will require the closure of uncompetitive producer units or industries as, for example, sugar in St. Kitts, and several banana farms in the Windwards. Substantial resources will also have to be used to enhance the productivity of firms remaining in these traditional industries. Countries engaged in such industries will likely witness, at least in the short to medium term, a reduced, but more efficient export capability.

It needs to be noted, however, that prices of traditional agriculture exports have been deteriorating. As indicated, for example, by the recent EU initiative to lower sugar prices, and the current trend in banana prices, it is highly likely that prices will deteriorate even further, perhaps dramatically, impacting negatively on growth in foreign exchange earnings, employment and real income growth. One strategy to stem the decline in prices in traditional exports would be to redirect the remaining firms towards organic production so as to take advantage of price premia

in these markets. This is a strategy that has been used very effectively, for example, by small coffee growers in Nicaragua in the face of substantial price reduction of coffee exports (Bacon, 2005). Organic rice, sugar, and bananas are already being produced and/or exported by several countries [Dominican Republic (bananas), Argentina (sugar), India (sugar, rice, bananas), China (rice), Costa Rica (bananas)].

The foregoing initiative should be supplemented by increased export of other agricultural commodities, which have proved their competitiveness, being currently exported outside of preferential arrangements. Caribbean economies already produce and export various non-traditional commodity exports (fruits, vegetables, ground provisions) to regional and extra-regional markets. However, for various reasons (inadequacies in extension services, human capital constraints, ineffective marketing, transportation difficulties, inadequate irrigation, skewed distribution of land resources, and the presence of trade barriers etc.) including current preferential arrangements, these exports generally are only a small portion of the Region's agricultural exports. The challenge is to remove or reduce these barriers to growth so that non-traditional exports, which have already demonstrated their competitiveness, and therefore have a relatively good chance of sustained expansion, can be allowed to do so.

An important consideration in the trade of non-traditionals also, will be changing consumer tastes in extra-regional markets which are now trending towards organic products, a niche market that is showing considerable dynamism, and is set to do so for the foreseeable future. Driven by increased income and rising concerns about food safety, health and the environment, markets for organically produced commodities, including a wide range of fruits and

vegetables, have grown rapidly in recent years and by most estimates will continue to do so in the foreseeable future. Global sales of organics in 2005 were estimated at approximately US$30 bn, and are expected for some time to experience double-digit growth (IFAD, 2005).

In organic markets, there is also the advantage of price premia from which the Region can benefit together, in some cases, with relatively stable prices, important considerations in the context of declining prices for major agriculture exports. According to IFAD (2005), most price premia have ranged between 20% and 50% with a mean of between 20% and 30%, more than compensating for any drop in yields that may occur because of the switch from the use of petrochemical inputs. Latin American and Caribbean producers have also benefited from price premia in the fair trade market which is showing increasing interest in organics. There are concerns that price premia will decline or even disappear with the entry of large firms into the organics market, or alternatively stated, the conventionalisation of organic production (Guthman, 2004; Pollan, 2001). However, small producers can continue to remain profitable and competitive through strict adherence to organic principles and use of productivity enhancement strategies (improved agro-ecological technology; training in organic methods/dissemination of best practices; improved seeds and varieties of plant and animal breeding; more effective farm management, etc) which are critical to retaining competitiveness in a liberalised market. There is reason to believe that the market will continue to recognise, through price premia, the difference between organic and non-organic commodities once the distinctions are faithfully maintained.

Given the evolving international trading regime, it is likely that Caribbean agricultural exports will not be very concentrated. In the long run, those countries continuing pursuit of an

agricultural export strategy will have a more diversified agricultural sector comprised of a variety of fruits and vegetables, processed or unprocessed, targeted at various regional and extra-regional markets. The success of this approach will likely require cooperation at the regional level in order to reap the benefits of scale economies, especially as regards marketing and transportation. Arguably also, this strategy can lead to more stable and sustainable growth in agricultural exports through the diversification of risks across a wider range of commodities and markets.

TABLE 1 : POLICY MATRIX

Country	Expansion of Non-Agricultural Exports	Competitive Import Replacement (I)	Competitive Import Replacement (II)	Agriculture Export Diversification
Antigua	X	X		
The Bahamas	X	X		
Barbados	X	X		X
Belize	X		X	X
Dominica	X		X	X
Grenada	X	X		X
Guyana	X		X	X
Haiti	X		X	X
Jamaica	X		X	X
St. Kitts	X	X		
St. Lucia	X	X		X
St. Vincent and the Grenadines	X	X		X
Suriname	X		X	X
Trinidad and Tobago	X		X	X

Moreover, this approach to agriculture development enhances food security, as defined by the FAO, as compared with monoculture production, that so far has dominated export agriculture. It provides an expanded range of nutritious food supply that can be redirected to domestic use in the case of external supply shocks. It will also likely lead to improved product quality and safety

in response to the increasingly rigorous demands of international markets, thus enhancing regional food security.

Table 1 is the policy matrix based on the foregoing policy discussion. The policy matrix indicates that all countries will have to continue pursuit of the expansion of non-agricultural products as part of their strategy of economic development and food security (expansion of commercial capacity). As regards import replacement, clearly there are limits to what each country can achieve. It depends, for example, on the land available, the supply of labour in the rural areas, the substitutability of domestic production for imports, the competitiveness of domestic production etc. As regards competitive import replacement, the countries are divided into two groups, those with WIDR <50% (Group II) and those with WIDR>50% (Group I). The WIDR can be interpreted as an indicator of demonstrated comparative advantage. Indications are that the Group II countries will be able to pursue competitive import replacement more aggressively than the Group I countries. As regards the third policy recommendation, agriculture export diversification, it is particularly for those countries that are currently at risk because of the diminution or elimination of preferences in their main export markets.

D. Comparison with Previous Agricultural Strategies

The proposed strategies, while similar in some ways to previous regional strategies, make some important departures, reflective of the evolution of regional economies themselves and of the changing international economic environment. While previous strategies such as Brewster

and Thomas (1967) and more recently, the CARICOM Regional Food and Nutrition Strategy (1982) and Axline (1986) saw agriculture as continuing to play a significant, if not dominant role, in regional economies, the current study concedes that agriculture, for the foreseeable future, in some economies will likely continue to play a secondary role. In most economies of the Region, the sector's contribution to GDP is already below 10.0%. Secondly, the emphasis initially placed on regional import substitution has given way to more nationally tailored strategies in recognition of the substantial differences in the agriculture sector and also in the availability of other developmental strategies. This more country-based approach does not reject completely regional collaboration, but rather, relegates it to a secondary position to areas such as collaboration in the development of strategic food reserves, and the development of common infrastructure such as transportation, and marketing of agricultural exports, minimising the contentiousness over the distribution of benefits that plagued past regional collaboration efforts in agriculture (Axline,1986). Thirdly, competitiveness, in addition to receiving greater emphasis, has been more broadly defined, offering a somewhat more complicated but also more relevant paradigm for the Caribbean within the context of trade liberalisation and evolving views internationally about the food industry as consumer education improves and consumer tastes change. Fourthly, the new strategy inverts the approach of earlier strategies in that the CIR strategy ideally can be the basis for the regeneration of the export agriculture sector in those regional economies that so choose. A substantial and growing domestic demand can be used as a launch pad into a dynamic niche of the international market rather than a purely defensive economic strategy. Additionally, a dynamic domestic market provides a safeguard against the vagaries of the international market, while also increasing food security, quality and environmental sustainability, and contributing to

political and social stability in rural communities currently trapped in poverty because of an undynamic agriculture sector.

E. Conclusion

In the Caribbean there is clearly need for a transformation of the agriculture sector that will have to include technological enhancements, both human and material; diversification into dynamic, high value and processed export products which account globally for more than 50% of agriculture exports (WTO, 2000); the creation of a product mix that enhances the incomes and life chances of the rural poor; and an export regime that continues to earn foreign exchange but pays much greater attention to issues of food security, production and environmental sustainability.

BIBLIOGRAPHY

Axline, A.W. 1986. *Agricultural Policy and Collective Self-Reliance in the Caribbean.* Westview Special Studies on Latin America and the Caribbean, Westview Press, Colorado.

Bacon, C. 2005. *Confronting the Coffee Crisis: Can Fair Trade, Organic and Specialty Coffees Replace Small-Scale Farmer Vulnerability in Northern Nicaragua.* World Development,33(3) : 497-511.

Brewster, H., & C.Y.Thomas.1967.*The Dynamics of West Indian Integration.* Institute of Social and Economic Research, University of the West Indies, Jamaica.

Caribbean Trade and Adjustment Group (CTAG). *Transforming the Caribbean Economy.* 2001, mimeo.

CARICOM Community.1982. *Regional Food and Nutrition Strategy, Vols. 1 to 5.* Letchworth Press Ltd., Barbados.

De Haen, H. 1999. Producing and Marketing Quality Organic Products: Opportunities and Challenges. *Sixth International Federation of Organic Agriculture Movements (IFOAM)Trade Conference: Quality and Communication for the Organic Market, October*, Florence,Italy.

European Commission.2004. *European Action Plan for Organic Food and Farming*. Brussels.

FAO. 2000., Food Safety and Quality as affected by Organic Farming. *Twenty-Second Regional Conference for Europe* (www.fao.org/docrep/meeting/X4983e.htm).

FAO.2001. *The State of Food Insecurity in the World.* Rome, Italy.

Guthman, J. 2004. *The Trouble with 'Organic Lite' in California: A Rejoinder to the 'Conventionalisation' Debate.* Sociologia Ruralis, 44 (3):.301-316.

Halberg, N., Alroe, H.F., Knudsen, M.T., and Kristensen, E.S.(eds.) 2006. *Global Development of Organic Agriculture, Challenges and Prospects.* CABI Publishing, Denmark.

International Fund for Agricultural Development (IFAD).2003. *The Adoption of Organic Agriculture Among Small Farmers in Latin America and the Caribbean: Thematic Evaluation.* Rome, Italy.

IFAD, 2005.*Organic Agriculture and Poverty Reduction in Asia, China and India: Thematic Evaluation.* Rome, Italy.

International Assessment of Agricultural Knowledge, Science and Technology for Development (IAAST). 2008.

Kwa, A. & S. Bassoume. 2007. *Exploring the Linkages between Agricultural Exports and Sustainable Development.* Ecofair Trade Dialogue, Discussion Paper, No.8.

Ministry of Agriculture and Central Statistical Office. 1995. *Dominica Agricultural Census, Final Results.* Dominica.

Niggli, O., Earley, J. & K. Ogorzalek, K. 2007. *Issues Paper: Organic Agriculture and Environmental Stability of the Food Supply,* International Conference on Organic Agriculture and Food Security, FAO, Italy.

Pollan, M., 2001. *Behind the Organic-Industrial Complex*, New York Times, May 13.

Pretty, J. and R. Hine. 2001. *Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence.* Centre for Environment and Society, University of Essex.

Pretty, J. 2003. *Agroecology in Developing Countries: The Promise of a Sustainable Harvest*. 45(9) : 8-20.

Pretty, J., Noble, A., Bossio, D., Dixon, J., Hine, R., Penning De Vries, F. & J. Morison. 2000**).** *Resource-Conserving Agriculture Increases Yields in Developing Countries*. Environmental Science and Technology. 20(20):1114-1119.

Scialabba, N. 2000. Factors Influencing Organic Agriculture Policies with a Focus on Developing Countries. *IFOAM 2000 Scientific Conference*, August 28-31, Basel, Switzerland.

Sen, A. 1987. *Hunger and Entitlements.* World Institute for Development, Economics Research, United Nations University.

Sen, A. 1990. *Public Action to Remedy Hunger.* The Fourth Annual Arturo Tango Memorial Lecture, Queen Elizabeth II Conference Centre, London.

Smith, W. C. 1991. *Towards An Appropriate Strategy For Agriculture Development Within the CARICOM Region.* Nova Printery, Manhattan, New York.

United Nations Conference on Environment and Development (UNCED). 1992. *Agenda 21 - Rio Declaration on Environment and Development.* Rio de Janeiro, Brazil.

United Nations Conference on Trade and Development. *Economic Development in Africa* 2008.

World Bank.2008.*Agriculture for Development*, World Development Report, Washington, D.C.

World Trade Organisation, *Special Studies, No. 6, Market Access: Unfinished Business, Post- Uruguay Round Inventory and Issues*, 2000.

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APPENDIX

DATA MATRIX FOR COUNTRIES, 1980-2004

Country	Real GDP Growth (%)	Agriculture Growth (%)	Food Imports/ Total Imports (%)	FDI/GDP (%)	Per Capita Income*
Antigua and Barbuda	4.8	0.5	22.5	9.4	7086.0
The Bahamas	2.4	na	9.8	1.5	15331.0
Barbados	1.3	-1.7	17.9	0.6	7873.0
Belize	6.0	6.0	20.5	3.1	2623.0
Dominica	4.3	1.0	25.6	7.6	3083.0
Grenada	3.6	0.3	24.9	7.7	2974.1
Guyana	1.0	2.4	13.7	6.2	802.0
Haiti	-0.5	0.5	26.1	0.3	564.0
Jamaica	1.9	0.5	16.8	2.8	2828.0
St. Kitts and Nevis	4.7	0.0	20.4	13.9	5503.0
St. Lucia	4.8	0.5	24.3	10.2	3352.0
St Vincent and the Grenadines	4.4	3.4	24.8	9.5	2265.0
Suriname	0.7	0.8	13.7	na	2161.0
Trinidad and Tobago	2.3	2.1	14.8	5.5	5908.0

Source: World Bank, World Development Indicators *In US$2000 prices

TABLE 2 : CARIBBEAN FOOD IMPORT EXPENDITURE (%)				
Country	**1994**	**1999**	**2004**	**Average 1994-04**
Cereals & Cereals-based Products	32.7	28.3	30.8	30.1
Oils	12.9	11.4	14.3	11.9
Sugar & Sugar Products	5.6	6.0	5.9	6.8
Vegetables	3.8	3.6	3.0	3.7
Fruits	1.5	2.1	2.1	1.8
Beverages	9.1	9.2	10.9	9.5
Milk & Milk Products	9.2	9.2	9.7	9.3
Meat and Meat Products	19.5	18.8	16.5	17.8
Miscellaneous	5.7	11.5	6.7	9.1
Total	**100.0**	**100.0**	**100.0**	**100.0**

Source: FAO Database

TABLE 3: FOOD IMPORT EXPENDITURE BY COUNTRY (%)				
Country	**1994**	**1999**	**2004**	**Average 1994-04**
Antigua	2.4	1.5	1.3	1.6
The Bahamas	15.0	13.6	11.1	13.6
Barbados	8.9	7.9	6.3	7.5
Belize	3.6	2.2	3.5	3.1
Dominica	2.0	1.5	1.4	1.6
Grenada	2.4	1.7	1.2	1.8
Guyana	3.2	5.9	4.0	4.1
Haiti	14.9	18.3	21.2	18.4
Jamaica	19.0	20.6	19.8	20.2
St. Kitts and Nevis	1.4	1.2	2.6	1.5
St. Lucia	5.3	3.7	2.3	3.8
St. Vincent and the Grenadines	2.2	1.6	1.6	1.8
Suriname	4.2	5.3	4.8	5.4
Trinidad	15.7	14.9	18.9	15.7
Total	**100.0**	**100.0**	**100.0**	**100.0**

Source: FAO Database