

Rethinking Agricultural Development: The Caribbean Challenge¹

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Abstract

The last half-century has witnessed a mix of optimism and pessimism regarding the prospects for agricultural development to promote economic transformation in developing countries. The Green Revolution in Latin America and much of Asia doubled the amount of food produced and saved millions of lives, raising hope that the Malthusian threat could be averted. But the recent food price crisis has increased concern about food security, inflation, fiscal deficits and adverse balance of payments, reflecting the importance of food supplies in sustaining economic growth – a central, but often overlooked, plank in Arthur Lewis's theory of economic development. At the same time, the impacts on the agricultural sector of globalisation, trade liberalisation, erosion of preferential trade arrangements and climate change are contributing to doubts about the prospects for agricultural development and whether it can lead to economic development.

This paper traces the evolution of agricultural development thinking and reviews agricultural development strategies in the Caribbean from colonial period to the present. With so many forces reshaping agriculture and with continuing dependence on food imports, a rethink of agricultural development approaches in the Caribbean is indeed necessary. The challenge facing policy makers is to craft new agricultural development strategies to improve agricultural productivity, boost domestic food production and enhance overall economic welfare. These desirable outcomes will, however, only be achieved if there are improvements in agricultural and trade policies, infrastructure, transport, land tenure and land management practices, irrigation, research and extension, distribution of inputs and the promotion of producer and marketing organisations that link small

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farmers to new market chains. The paper sketches how the Commonwealth Secretariat can assist member countries in the Caribbean to improve agricultural development in the short and long term and concludes with lessons from the work of Arthur Lewis.

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1. Introduction

Intellectual discourse on development over the past 60 years has been characterised by divergent views. A 1947 United Nations report stated that 'economic development has to be thought of largely in terms of industrialisation'. But early development economists, of whom Sir Arthur Lewis was the leading pioneer, saw agricultural development as an essential component and even a precondition for growth in the rest of the economy. The twists and turns in development thinking have had profound implications for development policy. Not surprisingly, the dominant development model at any point in time determined the policy prescriptions and the direction taken toward economic development and transformation. Development strategies initially pursued in the Caribbean after independence favoured import substitution industrialisation (ISI) and, subsequently, export-oriented agriculture focusing mainly on sugar and banana. However, with failure of ISI policy, decline in export-oriented agriculture due to erosion of preferential access to European Union (EU) market, mounting food import bill, fiscal deficits and adverse balance of payments, agricultural development is being rediscovered as an essential element of economic growth. This recognition has been slow in coming and has not been matched with concerted action and investment needed to develop a modern, diversified and competitive agricultural sector. The present surge in food and agricultural input prices and the likely impacts of climate change on agriculture have added a new urgency to the need for a rethink of agricultural development in the Caribbean. Sir Arthur Lewis's

thoughts on agricultural development are today more relevant than ever.

This paper reviews the changes in development thinking and the corresponding agricultural development strategies in the Caribbean from colonial period to the present. The review is undertaken in the spirit that an understanding of previous thinking and development approaches may help to identify lessons of experience to guide future decisions. The rest of the paper is organised as follows. Section 2 begins with a discussion of Lewis's writings on agricultural development, as much of what he had to say is still relevant today, but also reviews the shifts in development thinking. Section 3 summarises agricultural development strategies pursued from the past to the present, including the Jagdeo Initiative. Section 4 discusses lessons of experience. Section 5 asks the question: is a rethink of Caribbean agricultural development necessary? Section 6 discusses the role that Commonwealth Secretariat, as a development partner, can play in assisting Caribbean countries to improve agricultural development, while Section 7 concludes the paper.

2. Review of the literature on development

Classical theorists have long held that agricultural growth is a critical step toward economic development and societal transformation. But in the late 1940s and early 1950s, as former colonies began to gain independence, the roles of industry and agriculture in development were hotly debated. A United Nations report stated that 'economic development has to be thought of largely in terms of industrialisation.... [Though] due importance should be attached to agriculture in national development, it is nevertheless true that industrialisation forms the decisive element of economic development' (United Nations, 1947). Chenery

(1955:40) opened an article on development with the sentence 'industrialisation is the main hope of most poor countries trying to increase their levels of income'. The proposition on industrialisation was essentially an extrapolation of the historical experience in the richer nations given prominence by the work of Clark (1951) and others before him who had established an empirical link between economic growth and the shift from primary to secondary production.

Arthur Lewis (1950) joined this debate with his article on 'The Industrialisation of the British West Indies' where he put forward the argument that the experiences of richer nations will be less relevant in the Caribbean. 'In the West Indian islands, there is no choice to be made between industry and agriculture..... It is not the case that agriculture cannot continue to develop if industry is developed' (Lewis, 1950: 9). He was even more emphatic later on in the article when he wrote 'the agricultural and the industrial revolutions reinforce each other, and neither can go very far unless the other is occurring at the same time (*ibid.*:16). Thus, Lewis saw agricultural growth as necessary for the development and transformation of the West Indies. Although not espoused in his 1950 article, the strategy by which agricultural growth was to be promoted was described in his 1949 paper on 'Developing Colonial Agriculture' cited in Ingham (1991). His strategy then, which remains relevant today, called for increased expenditure on rural water supplies (for irrigation), provision of village-level insurance and savings institutions, a strong emphasis on farmers' education and improved implements and fertilisers.

As the 'patriarch' of the discipline of development economics, Sir Arthur Lewis is best known for his 1954 Manchester School article on 'Economic Development With Unlimited Supplies of Labour' which provided an insight into the role of dualism in the

process of economic transformation. In this seminal contribution, he presented a two-sector model in which a reservoir of underemployed labour in a large non-capitalist sector could be mobilised for expansion of the capitalist sector. He posited that growth would result when low productivity workers in the non-capitalist sector are reallocated to higher productivity jobs in the capitalist sector. This emphasis on organisational dualism, which in the course of working itself out, can contribute to growth and transformation of an economy, was the basic message of the Lewis model. It has been followed, as noted by Ranis (1984), by a 'veritable explosion of literature, extensions, interpretations, and, of course, misinterpretations. Several of these extensions considered Lewis's organisational dualism in terms of a dual economy model in which agriculture is depicted as the non capitalist sector and industry as the capitalist sector. These representations of the Lewis model were employed to support the industrialisation strategies adopted by many developing, including Caribbean, countries between the 1950s and 1970s. The logic was that labour productivity is lower in agriculture than in industry and hence development requires the movement of labour and savings from the agricultural sector to satisfy labour demand and finance capital investment in industry. Thus, governments of many of these countries tried to accelerate the industrialisation process by heavily taxing agriculture both directly and indirectly and subsidising the industrial sector until the 1980s (Schiff and Valdez, 1992). During this period, industrialisation was a synonym for 'growth' and agriculture was reduced to the status of a declining and passive sector – a role that discouraged agricultural development.

In reality, the Lewis model did not imply or suggest the neglect of agriculture. Indeed, in explaining one of the economic reasons

that may stop the process of capital accumulation that is so critical to his model, he wrote: 'Now if the capitalist sector produces no food, its expansion increases the demand for food, raises the price of food in terms of capitalist products, and so reduces profits. This is one of the senses in which industrialisation is dependent upon agricultural improvement; it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together and why economies in which agriculture is stagnant do not show industrial development' (Lewis, 1954: 173). This explanation emphasises the importance of food supplies in sustaining economic growth and reinforces the point he made in some of his earlier writings referred to above. Hayami (2001: 84) referring to classical economists, including Lewis, opined that these theorists understood that 'successful industrialisation cannot be expected without parallel effort of increasing food production to avoid the danger of being caught in the Ricardian trap'.

Although the industrialisation thesis largely dominated development thinking from the 1950s to the 1970s, a growing number of agricultural and development economists (Johnston and Mellor, 1961; Jorgenson, 1961; Fei and Ranis, 1961; Mellor 1976) began to challenge this orthodoxy and demonstrated that the one-way path leading resources out of agriculture ignored the full growth potential of the sector. They highlighted the interdependence between agricultural and industrial development and the potential for agriculture to stimulate economic growth. Johnston and Mellor (*ibid.*) in particular emphasised the existence of production and consumption linkages both within agriculture as well as between agricultural and non-agricultural sectors. Agricultural production generates forward production linkages when agricultural outputs are supplied as inputs to non-

agricultural production. Agricultural growth can, therefore, contribute to expanding agro-industry, which provides new engines of growth and opportunities to substitute for imports. Agriculture creates backward production linkages through its demand for intermediate inputs such as fertilisers, marketing and transport services. Hazell and Roell (1983) showed that consumption linkages generated by rural households, especially during the early stages of development, provide an important market for domestically produced manufactures and services. This market provides an ideal opportunity for the manufacturing sector to improve the quality of its products before looking outward. Consumption linkages assume greater importance with increased rural incomes and as Thirtle et al., (2003) showed, it is the strongest linkage of agriculture in the development process.

Development economists have also pointed out that in an open economy, sectoral linkages are influenced by foreign trade (Fei and Ranis, 1961). Export-oriented agriculture can undermine forward linkages and can generally dampen the overall linkage of agriculture, especially in smaller, more open economies (Diao et al., 2007). This conclusion holds important implications for Caribbean countries and is discussed below in Section 5 in the context of what the services sector can do to offset the repercussions of weak forward linkages.

The Green Revolution in Asia during the late 1960s and early 1970s and its transformation of traditional agriculture into a modern sector revealed the growth potential of the agricultural sector. The changes the revolution brought about in terms of food security and strong linkages to the rest of the economy served to sweep aside the view that agriculture plays only a passive role in development (Diao et al., *ibid.*).

In more recent times, arguments in favour of agricultural development's potential to contribute to economic growth have been strengthened by studies that have shown at least three additional roles for agriculture, beyond the linkages described above, during the development process. First, a number of studies (Bliss and Stern, 1978; Strauss, 1986; Williamson, 1993) have shown a positive link between nutrition and economic growth. They demonstrated that inadequate and irregular access to food increases malnutrition, reduces labour productivity and is equivalent to a disinvestment in human capital. Second, agriculture affects economic growth through its potential to stabilise domestic food production and enhance food security. Periodic food crises undermine both political and economic stability thereby reducing the level and efficiency of investment (Timmer, 1989 and 1996; Alesina and Perotti, 1993). Although food imports may alleviate such crises temporarily, they are not a viable solution for ensuring long-term food security given the huge fiscal deficits and balance of payments constraints facing many countries. The recent riots in Haiti caused by the hike in food prices and the huge food import bill of many Caribbean countries attest to this point about agriculture and political and economic stability. Third, agricultural growth has a significant impact on poverty reduction. As Mellor (1966, 1976) has explained, agricultural growth, as opposed to growth in general, is typically the primary source of poverty reduction. The reason is that resources used for agricultural growth are only marginally competitive with those of other sectors, and fast growth tends to be additive to growth in other sectors. Therefore, not only does agricultural growth favour the poor, but it also strongly reinforces the poverty-reducing effects of other sectors. Ravallion and Datt (1996) using panel data from India for 1951-1990 found strong evidence to support Mellor's theoretical

postulation. They found that the urban-rural composition of growth matters to poverty reduction. While urban growth reduced urban poverty, its effect was not significantly different from zero in explaining the rate of poverty reduction nationally. On the other hand, rural growth reduced poverty in rural and urban areas and hence had a significant, positive effect on national poverty reduction.

Despite the theories described above and the empirical studies that support them, there is still doubt among some development scholars about whether agriculture can successfully generate growth in developing countries, including the Caribbean. This scepticism is based mainly on the recognition of changed local and international conditions caused by trade liberalisation and globalisation. Ashley and Maxwell (2001), Ellis and Harris (2004) have advocated 'rethinking rural development'. They argued that rural areas are highly heterogeneous in size and capability of their populations, patterns of economic activity and degree of integration with national and international economies. Moreover, Ashley and Maxwell (*ibid.*) noted that the expectation of equitable growth through agriculture depends on the success of small farms. Yet the rise in supermarkets, the growing importance of quality and food safety standards and poor access to markets increasingly threaten the ability of smallholder farmers to compete with large-scale commercial farmers. Thus, they question the ability of agriculture to serve as the engine of growth and suggest instead promoting poverty reduction through a rural livelihoods framework. Ellis and Harris (*ibid.*) went further to suggest that public investment should go toward facilitating migration to cities where growth is assumed to be taking place. Migration and remittances then provide an opportunity for benefits of growth to

trickle down to rural households where agriculture based incomes remain stagnant.

Diao et al. (2007) critiqued this school of thought and argued that the proponents have provided few viable alternatives to the primary growth role of agriculture in the early stages of development or explain how growth will occur in urban areas, where high unemployment and informal economies often dominate.

In summary, this review has traced the evolution of development thinking and revealed that agriculture and industry have a synergistic relationship because the success of industrialisation depends on a prosperous agriculture. The bottom line is that agricultural development cannot be neglected and needs to be promoted in order to achieve food security, sustainable economic growth and poverty reduction.

We now turn to consider the agricultural development strategies that have been pursued in the Caribbean with a view to determining how well they have promoted agriculture and to draw lessons of experience for improved future strategies.

3. Caribbean agricultural development strategies

Agricultural development strategies during four periods over the last 60 years will be considered. The periods reviewed are the colonial, immediate post independence, structural adjustment programme and post structural adjustment programme years.

Colonial period (circa 1945 - 1960s)

The main ideas that shaped the colonial administration's agricultural development strategy in the Caribbean were contained in the report of the Moyne Commission that was appointed by the British Government in 1938. The main focus of the strategy was the promotion of export-oriented agriculture on large-scale

plantations as this was thought to be consistent with the comparative advantage of the region. Sugar, which had already been introduced and cultivated in the region since the 17th Century, was the main crop, though other crops such as cocoa, coffee and banana, particularly in the Windward Islands, were also promoted as export crops. Under this strategy, agriculture was viewed as a source of raw materials for the industrial sector in the metropolis as sugar, cocoa and coffee were exported in raw form for processing in Britain.

This colonial agrarian strategy created a dual structure with the large scale, export crop plantations existing side by side with a large number of smallholding cultivators growing 'other crops' (mainly domestic food crops) on the remaining land. To overcome the dual structure and other problems envisaged, the Moyne Commission had also recommended a programme of agricultural diversification based on mixed farming and an end to the domination of agriculture by the sugar monoculture. In response, the colonial administration introduced land settlement schemes which, by one account, were 'hastily conceived and badly administered' (Demas, 2005:90). With regard to diversification, rice cultivation, for example, was widely encouraged in Guyana in a way that allowed it not to compete with sugar for scarce resources (Canterbury, 2007). Colonial authorities also established marketing boards to stabilise farm income and prices and provided extension services to farmers on land preparation, seed treatment and use of fertiliser. In some cases, credit and subsidy schemes were also provided to farmers.

In summary, development strategies pursued during this period perceived agriculture as a source of cheap labour for the plantations and the plantations, in turn, as a source of raw materials for the processing factories in the metropolis. Colonial

state intervention in the form of marketing boards and provision of extension services was meant to reduce the inequity inherent in the dual agrarian structure. Nonetheless the dual structure persisted and did not provide the type of foundation needed for a more dynamic agricultural sector geared to meeting the real development priorities of the region.

Immediate post-independence period (circa mid-1960s - 1980)

This period witnessed the introduction of strategies aimed at promoting national self-sufficiency in food and import substitution – to replace imported meat (beef, pork and poultry) and milk products with locally produced substitutes. Strategies aimed at linking agriculture more closely to domestic agro-processing industry were also pursued. Some of the policy instruments used included banning of a wide range of imported food items, price controls and guaranteed prices. Concurrently, the emphasis on export of traditional crops such as sugar, cocoa, coffee and banana continued with extension services and various incentive schemes supplied to raise productivity.

Macroeconomic and fiscal policies that favoured ISI and the services sector were fervently pursued during this period. Tariff protection, tax holidays and credit schemes as well as industrial estates and industrial development corporations were established to facilitate industrial development.

It was during this period in 1973 that the Treaty of Chaguaramas that established the Caribbean Community (CARICOM) was signed. In its early years, CARICOM did not influence agricultural development strategy in the region in any significant way but this was to change later as will be discussed below.

The oil shocks of the 1970s and 1980s, the post-1973 deceleration in growth of world trade and appreciating real exchange rates all began to ring economic alarm bells. At the same time, there were changes in the preferential trade arrangements accorded Caribbean countries. Together, all these events led to adverse terms of trade and balance of payments problems. Efforts

to address these problems resulted in external borrowing which exacerbated the debt situation.

In summary, overall development strategy during this period favoured ISI over agriculture, reflecting the dominant development thinking at this time. More importantly, macroeconomic policies and protection erected around industry acted as an indirect tax on agriculture. Although efforts were made to improve domestic food production, this was done using policy instruments that were unlikely to guarantee long-term sustainable development of the agricultural sector.

Structural adjustment programme period (1980 - early 1990s)

With unsustainable budget deficits and foreign exchange shortages created by policies pursued in the preceding two decades, many Caribbean countries in the 1980s and early 1990s had to turn to the World Bank for structural adjustment loans. As part of the conditions attached to the loans, recipient countries had to liberalise trade, implement fiscal austerity measures and reduce the role of the state in direct industrial production as well as agricultural production, marketing, storage and provision of extension services. The assumption was that these measures would restore macroeconomic balance, improve resource allocation and through the workings of the market lead to alternative production and trade activities that are more competitive and economically sustainable. However, trade liberalisation opened up the economies to more imports and the withdrawal of state services hampered agricultural production and hurt most the smallholder farmers who rely on these services. The measures also created social hardship as services in other sectors (e.g. health) were curtailed. Delgado (1995) commenting on the implementation of a similar structural

adjustment programme in Africa made the point that although no one would question the need for macroeconomic change to bring about successful agricultural development, structural adjustment as an agricultural paradigm was essentially passive: it prescribed what not to do, but the proactive policy content primarily concerned matters outside the agricultural sector per se and it only peripherally addressed non price policy issues (infrastructure, transport, irrigation etc) within agriculture. This conclusion, viewed in terms of what structural adjustment failed to do for agriculture in Africa, is equally valid for the Caribbean (see Canterbury, 2007).

In summary, the crisis that led to the introduction of structural adjustment in the Caribbean was largely due to external shocks in the 1970s and 1980s and partly as a result of past industrial development. But when the programme was implemented, it had economy-wide coverage and did not improve but rather stalled agricultural development in many countries of the region.

Post structural adjustment programme period (mid-1990s – till present)

Agricultural development issues came to the fore during this period partly in recognition of changes in the global trading environment and partly as a result of national and regional initiatives.

With respect to the global environment, Caribbean countries participated in the Uruguay Round negotiations and joined the World Trade Organisation (WTO) at its inception in 1994 committing themselves to a multilateral trade policy that mandated reduction of non-tariff barriers and lowering of tariffs on all traded commodities, including agricultural products. With their agricultural sectors exposed to increasing trade liberalisation and continuing erosion of preferential trade concessions, Caribbean countries had to take action at the national and regional levels to enhance the competitiveness of agriculture. In this regard, in 1996, Heads of Government agreed to an initiative, the Regional Transformation Programme for Agriculture (RTP), which covers four thematic areas: 1) enabling environment – which embodies policy, legislative and related issues as well as reform and strengthening of organisations and institutions required to support agriculture; 2) enterprise development and trade facilitation; 3) technology development and transfer; 4) food security and sustainable development.

At the national level, agricultural development plans and strategies were developed which now see agriculture as ‘being of great economic and social importance’ (Barbados), ‘as a vibrant and dynamic sector’ (Antigua and Barbuda) or set out to ‘halt the decline of the sector’ (Jamaica). In addition, these strategies and plans aimed to diversify and improve the competitiveness of agriculture, promote expansion of products with viable markets,

achieve an acceptable balance between food imports and domestic production, assure food security, promote agro-industries driven by small and medium-scaled commercially oriented agro enterprises and provide meaningful livelihoods, especially for young people in rural areas.

In spite of these efforts at national and regional levels, as several studies have shown (FAO, 2005; Conforti and Deep Ford, 2007; Preville, 2007; Raimondi et al., 2007), overall agricultural production as well as individual commodity output declined over the last decade. Deep Ford and Rawlins (2007) attributed this failure to lack of: 1) clear and precise priority areas and associated actions to tackle constraints and access opportunities; 2) adequate financial and technical resources to support the strategies and sub programmes of the RTP; 3) awareness by producers and traders of potential opportunities; 4) a truly integrated approach that effectively links resources and opportunities at the national, regional and international levels; 5) certainty in the global trade policy environment.

Due to the slow progress in transforming Caribbean agriculture, another regional initiative, 'Strengthening Agriculture for Sustainable Development' otherwise known as the Jagdeo Initiative (JI) was approved by the Heads of Government in 2005. JI was not meant to replace the RTP, but to complement it and give a sharper focus to its thematic areas.

The JI identifies ten key binding constraints facing the agricultural sector and suggested interventions to alleviate them. The key constraints identified were:

- Limited financing and inadequate new investments
- Deficient and uncoordinated risk management measures, including praedial larceny

- Fragmented and unorganised private sector
- Inadequate research and development
- Outdated and inefficient agriculture, health and food safety systems
- Inefficient land and water distribution and management systems
- Inadequate transportation systems, particularly for perishables
- Weak and non-integrated information and intelligence systems and services
- Weak marketing systems, linkages and participation in growth markets
- Lack of skilled (quantity and quality) human resources.

While the constraints are well known, the distinctive feature of the JI lies in the overarching framework and some of the innovative interventions suggested for easing the binding constraints. For instance, the framework argues for a) redefinition of the agricultural sector to include the entire agri-product value chain and the linkages with tourism and other economic incentives; b) agriculture in the region to be strategically repositioned to rest on the twin pillars of global competitiveness of agri-products and balanced development of rural areas and communities; and c) sustainable management of the region's natural biodiversity. To ease the first two binding constraints listed above, it suggested the establishment of an Agricultural Modernisation Fund (AMF) and operation of a disaster management fund within the AMF.

In summary, this period witnessed the most credible and serious attempt to redress the long neglect of the agricultural sector and to find ways to put the sector on a sound footing. As some of the programmes and projects envisaged under the JI are yet to be implemented, it is still too early to judge the success of the

initiative. But if fully funded and implemented, it will assist Caribbean agriculture to begin to realise its potential and contribute to economic growth and poverty reduction.

4. Lessons of experience

What have we learned from the review of development thinking and agricultural development strategies discussed in the preceding sections? In answering this question, it is, perhaps, instructive to start by considering quotes attributed to Arthur Lewis by Professor Gerald Meier when he delivered the VII Sir Arthur Lewis Memorial Lecture in Kingstown, St Vincent and the Grenadines in 2002. Meier reported that Lewis in the 1980s listed four 'principal errors of omission and commission that have prevented the developing countries from fully exploiting their potential'. Two of those errors are relevant to the question posed above.

First error, governments have failed to get the balance between industry and agriculture right. 'The agricultural deficit has meant that large sections of the population do not get enough food, or the importation of food puts a strain on the balance of payments. Moreover, food prices rise. And the farmer's marketable surplus provides too small a market for industrialisation, so LDC industry is forced into dependence on exporting manufactures to the developed countries, where they are not welcome'.

Second error, 'we failed to do enough to improve the condition of the poor. We know pretty well but not completely what needs to be done to eliminate absolute poverty. The diet is a mixture of land, jobs and social services....What lacks is the will of governments to proceed, rather than a programme'.

In addition to these two lessons, two others are worth mentioning. The third lesson is that agriculture and industry have a symbiotic relationship and one cannot succeed without the other.

As Timmer (1988 and 2005) observed, history has shown that no modern industrial nation coexists with a backward agriculture and no country has been able to sustain a rapid transition out of poverty without raising productivity in its agricultural sector.

The fourth lesson is that in order to promote agricultural development, it is important to understand the roles of the state and the market. Excessive state intervention in the economy and in the agricultural sector in the 1960s – 1970s led to the imposition of the conditions attached to the structural adjustment loans in the 1980s that stipulated state withdrawal from provision of services. Thus, while state intervention characterised the 1960s and 1970s, minimalist government was the order of the day in the 1980s. The consensus now is that government has an important role to play to complement market forces. Government has to put in place complementary institutions and policies to ensure that market forces are aligned in support of development efforts.

5. Preparing for the future

A pertinent question to ask at this point is this: Is a rethink of agricultural development in the Caribbean necessary? The answer, we believe, is yes and the RTP and JI described in Section 3 above affirm this. The JI in particular is comprehensive and takes cognisance of the lessons of experience summarised above. What is required to make the initiative work is greater political commitment, adequate investment as well as monitoring and evaluation which will permit a quicker resolution of problems and ensure that progress does not slacken.

Nonetheless, there a number of emerging issues pertaining to details of Economic Partnership Agreement (EPA), climate change, worldwide growth in services, biofuels and the recent surge in food and oil prices that will have to be considered to

ensure, first, that the new direction for agricultural development set out in the RTP and JI is not derailed and, secondly, to capitalise on the positive aspects of these phenomena. Since the EPA was envisaged and taken into account when the JI was being developed, we will not deal with that issue here, but will instead focus on the likely impacts of the other four.

Climate change

The Inter-Governmental Panel on Climate Change (IPCC) released its 4th Assessment Report in 2007. The report predicted that during the next decades, Small Island Developing States (SIDS) will experience the following impacts of climate change:

- Agricultural land and thus food security will be affected by sea-level rise, inundation, soil salinisation, seawater intrusion into freshwater lenses and decline in freshwater supply.
- Agricultural production will be affected overall by extreme events
- Fisheries will be affected by increasing sea surface temperatures, rising sea level and damage from tropical cyclones. Degradation of coral reefs and bleaching will impact fishing incomes
- Forests affected by extreme events will be slow to regenerate. Forest cover may increase on some high latitude islands
- Habitability and thus sovereignty of some states will be threatened due to reduction in island size or complete inundation.

Although people whose livelihoods depend on agriculture have historically developed autonomous ways to cope with climate variability, the predicted climate change is expected to modify

known variability patterns to the extent that people will be confronted with situations they are not equipped to handle. Thus, anticipatory and planned adaptation will be necessary.

The first step, however, will be to refine the broad predictions shown above by conducting national and sub-national assessments of climate change impacts on agriculture and food security to support national decision making on adaptation. The Commonwealth Secretariat is already supporting such efforts through its work with the Caribbean Community Climate Change Centre in organising training workshops for regional professionals on climate change impacts on agriculture and food security.

Secondly, since agriculture is a contributor to the Green House Gases (GHG) responsible for climate change, a strategy for responding to threats and opportunities presented by moves toward a low carbon economy and reducing emission of GHG will be vital. While recognising that the Caribbean region is not a big emitter of GHG and the presence in the region of the Iwokrama rainforest in Guyana which can act as a sink for carbon, there is nonetheless a need for awareness of climate change mitigation options. Extension services to train and impart new management skills to farmers will be required. Caribbean countries will need to seek financial and technical assistance from the donor community to tackle the problem of climate change. They will also need to press hard to ensure that their views are taken into consideration in a future international agreement on climate change.

Services Sector

In today's service-oriented world, no country or region can afford to neglect the services sector. The services sector offers opportunities for economy-wide growth and transformation of agricultural sector and rural areas. Services cover a variety of sub-

sectors such as business, communication, distribution, environmental, financial, tourism, recreational, cultural and sporting and transport services. Services such as finance, communication and transport are the backbone of any modern economy and are similarly vital to the development of the agricultural sector. Apart from creation of new jobs and foreign exchange earnings, a well-functioning services sector can contribute to the efficiency of the agricultural system in many ways. For instance, good transport, wholesale and retail services contribute to the efficient distribution of food and agricultural products within a country, region and in overseas markets. Business services such as legal advice and market analysis can reduce costs of accessing new agricultural markets. An efficient financial sector helps deploy financial resources in accessible ways to the agricultural sector. However, not much has been done in linking the totality of the services sector to the agricultural sector. To be fair, attempts to intensify linkages between agriculture and tourism have received attention in many Caribbean countries and are highlighted in the JI. The Inter-American Institute for Cooperation in Agriculture (IICA) is working with several Caribbean countries to 'develop and market a unique Caribbean package' that integrates indigenous foods, culture and the environment in a sustainable manner (IICA, 2008:18). These efforts need to be speeded up and implemented. But in addition, linkages between other services sub-sectors and agriculture needs to be intensified. Moreover, services sector operations can be sited in rural areas to bring about rural regeneration through creation of new jobs and consumption linkages. For this to happen, good rural infrastructure including social and recreational facilities will have to be provided.

In summary the Caribbean region needs to develop policies to promote the development of the services sector in a way that integrates it with the agricultural sector and allows it to be an engine of growth for the whole economy. Adequately resourced and properly managed, the services sector can spur economic growth and at the same time improve the efficiency of agricultural production, processing and distribution and contribute to rural area regeneration.

Biofuels

Given the history of sugarcane production in the region, biofuels (bioethanol and biodiesel) offer some genuine development opportunities. Jamaica already has an on-going biofuels programme producing ethanol from sugarcane. Under the Caribbean Basin Initiative, limited exports of ethanol from Caribbean countries are permitted duty-free access to the US. However, before embarking on biofuels production, it is important that countries develop biofuel strategies that are well integrated with other relevant policies including agricultural development, food security and poverty reduction strategies. A thorough economic cost-benefit analysis complemented with environmental and social risks evaluation will also be appropriate. Benefits will outweigh costs if countries invest in biofuel feedstocks that result in less land competition with staples, in those that can be cultivated on marginal lands and those that generate growth linkages in the wider economy.

Vulnerability to high food and oil prices

Caribbean countries are particularly vulnerable to the recent price surges because they are mostly net importers of both food grains and petroleum products. Caribbean people obtain about a

third of their calorie intake from cereals that are mostly imported (Table 1). In all countries, except the oil producing state of Trinidad and Tobago and to a lesser extent Belize, all petroleum products utilized domestically are entirely imported. The rising import bill relative to foreign exchange reserves threatens macroeconomic stability and overall economic growth. In addition, in many of these states inflation has increased. Even though the proportion of undernourished people in the population of the Caribbean is low, the relatively large share of household budget spent on food (40-60%) suggests that more people are likely to become undernourished and may slip into poverty as a result of the price increases.

There is, however, a silver lining in that many of the factors driving up the price of cereals are driving up prices of cocoa, coffee and sugar. Furthermore, the high prices of wheat and rice may force households to consume more local staples (dasheen, sweet potatoes, yam and cassava). The rise in demand for these staples will raise their prices and benefit producers but will add extra cost to the household budget of net food buyers. Herein lays the challenge facing policy makers: how to protect poor consumers from rising prices while permitting higher prices to be transmitted to farmers to spur increases in food supply and agricultural productivity.

In summary, the issues discussed above and others that will arise from time to time make it compelling that the business of agricultural development in the Caribbean cannot be handled in a business as usual manner. Periodic reassessments of plans and strategies will ensure that agricultural development remains on course to fulfil its expected role.

6. What can the Commonwealth Secretariat do to help?

The Commonwealth Secretariat, through the Commonwealth Fund for Technical Cooperation (CFTC), has been involved in providing technical assistance to member countries on many issues covered in this paper. This include technical assistance on agricultural policy and strategy formulation, agribusiness development, micro, small and medium enterprise (MSME) strategy development, national export competitiveness assessment and trade facilitation, agro-tourism development, capacity building for farmers to meet food quality and safety standards and training to strengthen business planning and management skills of MSME operators and business services providers that support them. We are currently working with the Secretariat of the Organization of Eastern Caribbean States (OECS) on agribusiness development and food quality and safety standards for non-traditional crops in Dominica, St Lucia, St Kitts and Nevis and St Vincent and the Grenadines.

The Commonwealth Secretariat has also worked with the Caribbean Community Climate Change Centre to train a cadre of regional professionals to gather data and conduct studies on the impacts of climate change on the agricultural sector. Thus, if one considers the ten binding constraints listed in the JI, the Commonwealth Secretariat has provided or can provide assistance to ease at least four of these constraints viz: 1) fragmented and unorganised private sector; 2) outdated and inefficient agriculture, health and food safety systems; 3) weak marketing systems, linkages and participation in growth markets; and 4) lack of skilled (quantum and quality) human resources. Assistance in all these areas will continue to be provided in future.

Conclusions

Sir Arthur Lewis was a man of broad vision and ideas. Although he was best known for his work on economic development rather than agricultural development per se, nevertheless his thoughts and ideas on agricultural development and his concern for real world problem-solving continue to yield valuable lessons for today's decision makers. One important lesson from his ideas that this paper has demonstrated is that agricultural development is a *sine qua non* for economic growth. Caribbean countries can no longer afford to neglect agriculture.

Agricultural development strategies designed to realise the links between increasing agricultural productivity and growth in the wider economy are urgently. Such strategies will aim to overcome the most binding constraints to increased agricultural productivity and will focus on demand and market opportunities, while promoting the inclusion of smallholder farmers in new food markets. The existing initiatives in the Caribbean, i.e. the RTP and JI, embody some of these strategies. With greater political commitment, monitoring and evaluation of programme implementation and due cognisance of emerging issues, agriculture in the Caribbean can be turned in the foreseeable future into a dynamic engine of growth that will also contribute to food security and poverty reduction.

Table 1: Vulnerability Indicators

Country	Proportion of calories obtained from cereals (%)	Dependence on cereal imports (%)	Gross Reserves (2008, in months of imports)	Fiscal vulnerability index 1=Higher vulnerability	Average annual rate of inflation 2008 (%)	Food expenditure (% total)	% undernourished
Antigua & Barbuda	28	100			3.0		
Bahamas	27	100	2.5		2.4		7
Barbados	29	100	3.7		3.6		< 2.5
Belize	35	35	4.0	1	2.8	59.3	5
Dominica	24	100	4.0	2	2.2	57.2	8
Grenada			3.8	1	5.0	56.9	
Guyana	46	18	2.8	3	6.2	65.8	9
Jamaica	34	100	4.1	1	19.0	42.2	10
St Kitts & Nevis	24	100			2.5		11
St Lucia	28	100			3.4		5
St Vincent & Grenadines	38	97			4.1		12
Trinidad & Tobago	36	98	9.6		7.3		11

Sources and Notes

- 1) Proportion of calories obtained from cereals: FAO Statistical Yearbook 2005/06. Data refer to 2001-2003
- 2) Dependence on imports: Computed as the ration of imports of cereals to the sum of domestic cereal production and imports. FAO Statistical Yearbook 2005/06. Data refer to 2001-2003
- 3) Gross official reserves in months of imports of goods and services: IMF Country Reports
- 4) Fiscal Vulnerability Index: Based on World Bank Country Policy and Institutional Assessments (CPIA)
- 5) Inflation, projected average annual change in consumer prices. IMF World Economic Outlook Database.
- 6) Food expenditure share: Headey and Fan (2008)
- 7) Percent undernourished: FAO Statistical Yearbook 2005/06. Data refer to 2001-2003

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Developing the link between agriculture and tourism could be a significant opportunity for small island developing states. Already an expanding sector in several Pacific and Caribbean islands, agritourism can address a range of development challenges – among them low agricultural productivity, high food imports and loss of tourism revenue, poor public health and youth unemployment. The majority of people in Small Island Developing States (SIDS) depend on agriculture for their livelihoods – yet the islands are often net importers of food. The EU helps develop farmers’ capacity to link into value chains by meeting food standards and gaining certification. (To find out about the EU’s work on Technical Barriers to Trade in Africa, the Caribbean and Pacific, see our Voices & Views.) See more of Caribbean Challenge Initiative and Caribbean Biodiversity Fund on Facebook. Log In. or. Create New Account. See more of Caribbean Challenge Initiative and Caribbean Biodiversity Fund on Facebook. Log In. Forgotten account? Ministry of Economic Growth and Job Creation The Nature Conservancy in the Caribbean Panos Caribbean. 5. About the CBF 2016. Sustainable agriculture Food and nutritional security Climate-smart agriculture Agricultural policy Climate policy. This is a preview of subscription content, log in to check access. References. Williams T, Smith R (2008) Rethinking agricultural development: the caribbean challenge. Paper presented at 40th Annual Monetary Studies Conference, St. Kitts Google Scholar. Wuddivira MN, de Gannes V, Meerdink G, Dalrymple N, Henry S (2017) Challenges of food and nutrition security in the Caribbean. In: Clegg M, Bianchi E, McNeil J, Herrera Estrella L, Vammen K (eds) Challenges and opportunities for food and nutrition security in the Americas: the view of the academies of science. IANAS regional report. http://www.ianas.org/docs/books/Challenges_Opportunities.html. 2030 / Food, agriculture and rural development in Latin America and the Caribbean. Poverty is higher for rural households and for women and indigenous people. The degree of urbanization is relatively stable over the past years, with the exception of Haiti. Climate change and natural hazards pose key threats to agricultural development in the Caribbean. The main challenges from climate change include droughts, temperature increase, lower precipitation, sea level rise and saltwater intrusion, increased intensity of cyclones, as well as shifting agricultural seasonality. Figure 9 illustrates the forecasts in temperature and precipitation for the Caribbean by the International Panel on Climate Change (IPCC).