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AGRICULTURAL DIVERSIFICATION: THE FACILITATING FACTOR FOR SELF-RELIANT AND SUSTAINABLE DEVELOPMENT IN THE CARIBBEAN REGION

LENNOX E.A. DAISLEY* and OSCAR A. ALLEN**

(CARDI Representative, Dominica and Rural Development Technician and **Coordinator Rural Transformation Collective (RTC), St. Vincent and the Grenadines)

Agriculture dominates the economies of most Caribbean States. Only Jamaica and Guyana with substantial deposits of bauxite and Trinidad and Tobago with reserves of oil and natural gas are not as dependent upon agriculture. Also, a few states like Barbados and Antigua reportedly place emphasis on tourism.

The agricultural sector contributes directly to employment, income and the provision of food and food security. It also contributes in an indirect way, through a multiplier effect, to the stimulation of growth of other sectors such as commerce and trading, manufacturing, transport, construction and tourism.

Agriculture could contribute to the economy's development by supplying foodstuff and raw materials to the expanding sectors; providing investible surpluses of savings and taxes to support investment in other sectors; and selling for cash, marketable surpluses which will raise the demand of the agricultural sector for products of the expanding sectors. Kuznets (1965) summarises the contributions as the "market contribution" and the "factor contribution" as follows: The "factor contribution" occurs when is a transfer or loan of resources from the given sector to other. Thus if agriculture itself grows, it makes a product contribution; if it trades with others, it renders a market contribution; if it transfers resources to other sectors these resources being productive factors, it makes a "factor contribution".

Notwithstanding the fact that steps have been taken to diversify the economics of Caribbean States by the promotion of tourism and manufacturing, agriculture will continue to be the main productive sector in the foreseeable future. Given its undisputed importance and the potential to provide linkages with other sectors in the economy, agriculture is to be recognised as the sector with the potential for underpinning the economic development and transformation strategy.

Although the contribution of agriculture is recognised as being consequential, it is widely believed that its full potential is not being realized, nor are the current systems of modern agriculture sustainable. The agricultural sector has performed only moderately with the result that large quantities of food have had to be imported to eliminate increasing food deficits and meet consumer needs. Demas (1987) has indicated that the food import bill into the Caribbean region is just under US\$1 billion. A range of reasons have been advanced for the moderate agricultural performance, the high import bill and the unrealized potential of the agricultural sector. These include:

1. The widespread policies and programs for the adoption of monocultural systems of production at the expense of the tested and proven polycultural and mixed farming systems, which are more rational and reliable under Caribbean conditions. Other proven practices

such as the use of fallow periods and the maintenance of trees to protect against soil erosion are generally disregarded.

2. The excessive dependence upon export markets, over which the Caribbean producer has little or no control, rather than meeting the demands for food by the local population. Accordingly, policies and programs favour the expansion of investment in production for export instead of supporting production for domestic consumption. Land is converted from food to cash crops, thereby placing increased pressure on marginal lands and on traditional farming systems as some farmers try to produce enough to eat and sell.

3. The constraints imposed on Caribbean States by external market forces to produce a very limited range of commodities, then compete for the same market. In addition there are a number of other countries worldwide with similar competing products. The result is often a glut, falling prices and stringent quality requirements which increase production costs and wastage.

4. The sector is characterized by institutional weaknesses and inadequate technological development. Technologies which were developed elsewhere, for a different set of circumstances and conditions, have been transferred to and adopted within the Region with little or no validation.

Experience has shown that a significant proportion of these practices and systems of modern agriculture have themselves contributed to the degradation of soils, the pollution of water systems and destruction of other natural resources so essential to sustained agricultural production and life.

5. The policy of abandoning the production of local indigenous varieties of crops and livestock which existed in dynamic equilibrium with the environment, in favour of introduced hybrids. As a consequence, biogenetic diversity gave way to genetic homogeneity resulting in significant usage of synthetic fertilizers, pesticides and other agro-chemicals which, in turn, have a negative impact upon the environment. Thus the Region's agricultural production has become highly import dependent.

6. The failure to promote or finance the use of locally produced raw material in agro-industry

and in other sectors like tourism and domestic trade. There is a lack of development of processing and value-added products.

7. The absence of a comprehensive education policy by the Agricultural Commodity Organizations for the wider population.

8. Consumer persuasion by foreign food corporations via satellite transmissions and other modern forms of communication.

Sustainable agriculture involves the judicious use of natural resources - land, water, sunlight, air etc. - to produce food and other requirements in adequate quantity and quality for the sustenance of a population while replenishing the natural resource base over time. The natural resource base exists in dynamic equilibrium and has the ability to replenish itself. Many advances in science and technology have been introduced to make greater use of the finite natural resources by such activities as genetic alteration of plants and animals, manipulation of physiological processes, the introduction of disease resistance, dwarfism and other characteristics considered favourable to increased productivity.

However, some advances have been found to have deleterious effects upon the environment, many of these effects are irreversible.

The prevailing climatic and other conditions in the tropics favour species proliferation, hence the natural flora and fauna are very diverse and complex. Tropical ecosystems can support biomass multiple times more than a corresponding unit area within a temperate ecosystem. The closer the agricultural production system is to the natural system, the more efficient is the production system with respect to resource utilization. Accordingly, a diversified agricultural production system is optimally suited to the Caribbean region.

The traditional farming system which existed prior to the colonial era was a diversified system which emphasized multiple cropping, self-provisioning and complementary activities like fishing. Mintz (1959), Marshall (1968) and Beckford (1972) referred to the post-emancipation 19th century as a time of peasant led agricultural diversification. As such, the notion of agricultural diversification is not new; it has

been promoted several times in the past. The Royal West India Commission in 1987 and the Moyne Commission, some fifty years later, both highlighted the need for diversification of the agricultural base to improve the economies and livelihood of people in Caribbean States. Daniel (1971) advised that where the natural resources of a country are best utilized by agricultural production, the industry should be spread over as wide a range as is technologically and economically possible. The past efforts at diversification were however directed either at crop substitution - shifting from one crop to another; or crop diversification - changing the emphasis from one crop to a few others, in response to some external signal that threatened the existing crop. Those initiatives emphasized crop production aspects of farming with little or no attention to livestock, agro-industry, or the broader aspects of agriculture such as input procurement and marketing.

THE AGRICULTURAL DIVERSIFICATION PROGRAM

A program of agricultural diversification should include the following options:

The formal and informal education programs should be geared to creating an awareness of the central role of agriculture and the need for a local pool of scientists to fill the void that perpetually exists for competent technologists to serve the Region. Primary and secondary schools should offer agriculture as an integral part of its curriculum for all students. At present, training in agriculture at certain schools is reserved for the laggards, despite the efforts of the Caribbean Examination Council (CXC) to the contrary.

The schools' curriculum should emphasize crop diversity and mixed farming. The formal agricultural curriculum should include rural sociology, anthropology, engineering, electronics, food chemistry and management.

At the tertiary level, a deliberate policy should be instituted to provide training at the professional and community levels, with emphasis on the social and behavioural sciences.

2. *Production Diversification* - The current policy of placing major emphasis on the commercial, export-oriented system of farming and de-emphasizing the traditional systems, which include both subsistence and mixed farming systems geared to providing food for local consumption, should be urgently reviewed in favour of a policy for dynamic balance between the three basic systems. The development of indigenous plans the animal genetic resources may offer good potential for broadening the production base and restoring environmental wholesomeness.

A number of production based programs, with appropriate support services to address institutional weaknesses should be developed. Emphasis should be on the expansion of both food and commercial commodities. The objective should be to increase farmers' incomes, reduce imports of basic foodstuffs, increase exports and preserve or renew the environment. The possible mix of output to be produced should include:

- (i) Crops - vegetables, herbs (tea and spices) fruits, cereals, bananas, root crop and pulses;
- (ii) Livestock - cattle, pigs, sheep, goats, chicken, ducks, turkeys and rabbits;
- (iii) Fisheries - fish, lobster, conch, oyster and shrimp; and
- (iv) Ecosystem renewal - mixed stand forests, mangrove, parks, soil erosion control measures and land reform.

3. *Product Diversification* - The production of primary products should be replaced by a programme of product intensification, or increasing the range of products from a single commodity. This may involve a shift to a wider range of non-traditional products, through the establishment of agro-industries based on local and regional food production. Agro-processed products will include preserved fruits, vegetables, juices, fish, meats and forest products. Local entrepreneurial initiative may however need to be stimulated and supported, perhaps through incentive programs. Girvan (1989) suggested that "*there are true entrepreneurs and innovators to be found both in government and in private enterprises. The task is to locate and to provide them with opportunities to play active and creative technological roles*".

Regional experience with agro-based industries has revealed many technical and economic problems. The irregularity and seasonality of production and the need for large volumes of very low-price inputs are major constraints. Often, agro-industries have turned out to be glorified "screw-driver" industries depending on major amounts of imported raw materials, preservatives and packaging material at high foreign exchange costs. Many such industries could not be sustained.

4. *Market Diversification* - Increasing the range of market opportunities for locally produced commodities is the major goal. The local, regional and extra-regional markets will therefore be consistently cultivated. The role of the region's Ministries of Agriculture should be expanded to include a pro-active marketing and intelligence gathering capability, with greater emphasis on pro-active marketing strategies. To this end, the long established habit of waiting and reacting to market requests and signals communicated by outsiders, before designing production and marketing systems should be de-emphasized, but not neglected.

Market signals from extra-regional sources in the past have had the effect of stimulating large-scale production of many commodities such as sugar cane, cotton, citrus, cocoa, coconut, arrowroot, bananas, coffee and a range of exotic cultivars of egg plants, melons, hot peppers, cucumbers, passion fruit, tumeric, papaya and mangoes. The majority of these enterprises were short-lived as perceived markets disappeared. Many of these market signals were communicated by individuals and agents with selfish interests, who later found cheaper sources elsewhere. Farmer losses were considerable. The effect on farmer confidence has been devastating. 'Market led' agriculture has meant that Caribbean producers are the passive players who the external market puts through a performance routine that changes every season. While 'market led' food industry to the developed countries means that the industry develops its own 'show' and parades it before the consumers worldwide who then develop a high, through artificial, demand.

The pro-active strategy calls for a re-orientation of the region's research and extension

to service local needs. This will include the engagement of personnel in the search for, and propagation of choice local fruits, vegetables, ornamentals and livestock species for development and market promotion. Indigenous products are not only delicious, but have important nutritional and health properties like high fibre, low cholesterol and low fat. The search should also identify appropriate packaging and presentation methods for local commodities that will compete with the imported exotic items.

In addition, the indigenous crop and livestock species are tolerant or resistant to the local pest regimes and farmers are familiar with their production techniques, unlike the exotic varieties which are frequently requested.

The present perception that the extra-regional markets should be pursued at all costs needs urgent review. Often, the earning of foreign exchange is so critical that it appears to take precedence over profitability. Many are of the opinion that this approach has led to net foreign exchange leakages, therefore prudent economic analyses in choosing alternatives is highly recommended.

Previous migration patterns from the Caribbean have resulted in sizeable communities in many foreign countries, thereby providing the so-called ethnic markets. Advantage could be taken of these markets by the identification and promotion of Caribbean entrepreneurs living within and serving these communities.

5. *Industry Diversification (Sectoral)* - Meaningful involvement and specifically, investment of the agricultural sector in industry is a highly recommended option. Investments in the following activities will greatly strengthen the economies of the Region and fuel the development process:

(a) *Banking*: Partial or full ownership of a bank by farmers in their commodity group, and workers through their organization will not only offer favourable savings and loans conditions/facilities for the region's people, but can significantly reduce the leakages and flight of capital from the Region that have been the norm, since the overwhelming majority of banks are foreign owned and controlled.

Savings of this nature, as well as funds earned through the normal banking activities can

be re-invested into agriculture for farm improvements and rural development.

(b) *Insurance*: Investment in this thriving industry can provide substantial benefit. Coverage can be offered to farmers and other locals for farming activities, equipment, vehicles and homes. Accident and life coverage are particularly important because of the increasingly hazardous nature of farming, and many traditional insurance companies are unwilling to offer the type of coverage needed. Retirement benefits for farmers and industry workers alike, may encourage greater interest and involvement in the agricultural sector.

(c) *Input trading and manufacture*: Farmers require a range of inputs - from agro-chemicals and packaging material to equipment and vehicles. The value of these inputs is enormous and represents a major leakage of foreign exchange, on an annual basis, since they are mainly imported by commission agents and other non-producers. Procurement and/or manufacture (locally or regionally) by farmer organizations, or members of the farming community could significantly reduce cost and generate employment locally.

CONCLUSION

There are many arguments that can be advanced in support of agricultural diversification but, a most powerful and persuasive argument is the old and proven adage that "one should never place all of one's eggs in a single basket". This maxim is particularly relevant to the field of agriculture, which is so subject to the unpredictable nature of the environment and the whims and fancies of importing countries. It is a great pity that the indication by European countries for the formation of a single market, is the driving force behind the rationalization of the Region's agriculture, when experience and knowledge should have indicated a more prudent approach to the Region's development.

Development is about people and their societies and the progress they make in terms of improvement in the quality of life during each succeeding generation.

Development should at least involve the need to generate surplus which can be used for

re-investment; to acquire managerial and technical expertise; and to establish greater value-added for the benefit of the respective countries and the Region. Merely substituting one crop for another, without analyzing and addressing the socio-economic and ecological implications will make little impact on the development of Caribbean people.

It is an established fact that people tend to adopt practices which are in keeping with and closely mirror their natural system. The closer the agricultural system is to the natural system, the more efficient is the production system with respect to resource utilization and sustainability. Accordingly, poly cultural systems which emphasize mixed farming and diversification is the appropriate strategy for the Region's agriculture.

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