Clustering

for Competitiveness in Agriculture

Pre-Feasibility Studies for Selected Agribusiness Clusters in the Caribbean

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This paper is intended to inform and guide future efforts at pre-feasibilities for selected agribusiness clusters in the Caribbean. It is offered in support of the dialogue towards defining strategies for developing competitive enterprises, firms, industries and value chains in agriculture in CARICOM.

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Key Facts[1]

Eighty percent of the global trade in goods currently takes place along value chains in which each link represents a different task. Within the next 25 years the world gross domestic product is set to double. The benefits will be derived by countries and regions whose businesses succeed in integrating local, regional and global value chains, leveraging markets as well as cost and specialization advantages, and learning from technological innovation processes.

Seventy five percent of the world's poor live in rural areas, yet only 4% of public development funds flows into agricultural projects. More than 70% of the population of developing countries is directly dependent on agriculture. The share of developing countries in world trade reached its highest level in 2005, at 36%. The share of export from the fifty poorest countries in world exports has stagnated at around 0.5% since 1995.

At present, many producers in developing countries are either completely excluded from value chains or obliged to compete with products that offer only few opportunities for local added value – typically agricultural products. One way of strengthening the performance and competitiveness of small producers and downstream businesses in a specific region is cluster development. Typically, clusters consist of a geographical concentration of companies (producers, suppliers, specialized service providers etc.) operating within the same sector or related sectors.

Cluster development aims to improve the performance and efficiency of the sector as a whole. This involves measures promoting cooperation to achieve economies of scale, strengthening state and private institutions, mobilizing local capital or promoting joint learning and innovation processes.

Introduction

The Key Facts provide the context for a discussion on the possibilities of developing clusters in agriculture in the Caribbean.

Caribbean governments and private sector agencies, supported by International Development Organizations, are being encouraged to promote small business, increase supply capacity, expand value adding and build competitive value chains in agriculture. Support is expected to be forthcoming from the Economic Partnership Agreements (EPA) which emphasises the importance, *inter alia*, of *'supporting conditions for increasing investment, private sector initiative and enhancing supply capacity, competitiveness and economic growth'.* Further, its Development Cooperation Pillar prioritises *'support measures to promote private sector and enterprise development (especially small entrepreneurs) and enhance competitiveness and diversification' and 'diversification of CARIFORUM exports of goods and services via new investment & development of new sectors'.*

Governments and private sector agencies, supported by International Development Organizations are expected to put in place various financing offering, including micro-financing and specially established business development support units, to achieve these objectives. While primary production, generally, does not rank as high on the areas for support as value-added products, these initiatives do offer some stimulus to expand farm production. Building farm supply capacity - the start of the value chain – will be a pre-requisite for successfully developing the business of agriculture in the Caribbean. In a 'buyer-driven' world, the worst nightmare for these buyers, be they importers, wholesalers, supermarkets, hotels, or consumers, is supplier failure through the over reliance on importer/distributor supply systems.[2]

Also, in a buyer-driven world, the business of agriculture is not about helping marginal poor farmers. A prosperous agricultural sector feeds industrial development, supports the services sectors and is a pre-requisite for food and nutrition security. These are essential to promote employment, economic growth and sustainable development. As consistently emphasized by Chelston Brathwaite, Director General of IICA, agriculture contributes to three fundamental aspects of development, namely: national food security; national social stability; and environmental protection. Agricultural development is not about helping

marginal poor farmers; the agricultural sector is a strategic sector of every CARICOM economy. A prosperous agriculture is also a pre-requisite for rural prosperity since the majority of the poor are in rural areas and are largely engaged in primary production.

In spite of this importance, the business of agriculture, particularly at the start of the chain – primary production – has been challenged to sustain prosperity. In the Caribbean, with few exceptions, output from the primary agriculture sector has declined, stagnated, or at best, remained unchanged from year to year. Notwithstanding efforts to increase investment, raise productivity levels and negotiate more favourable market access, performance over the last two decades, has been less than acceptable. In mid-2004, through national and regional consultations, a set of nine inter-related issues were defined as being the major and key binding constraints to the emergence of competitive business in agriculture [3]. At the political/institutional level, this regional 'agricultural repositioning initiative' is led by President Bharat Jagdeo of Guyana, in his capacity as Lead Head of Government with responsibility for agriculture.

While all the nine key binding constraints (KBCs) have impacted on the success of the agriculture business, one in particular is of direct significance to this topic - that is fragmented and unorganised private sector. This has left both farm and factory inadequately supplied with the necessary inputs for production and processing, which in turn has limited expansion and access to markets for both goods and services, resulted in disinvestments and increased the level of import reliance. These deficiencies have relegated farm agriculture to a fringe activity that is improperly planned for, regardless of its real or measurable contribution to national development. This has also limited the emergence of competitive agriculture value chains.

The regional public and private sectors as well as the international development agencies confer, that in order to overcome this constraint, the private sector must become more organized and coordinated at the industry level and more efficient at the individual farm/firm level. This position is based on the successful experiences of the agri-business sector in developed countries. It is also based on the institutional successes of the traditional agriculture export industries of banana, rice, sugar, nutmeg, cocoa, coffee and more recently, poultry and pork.[4] Strengthened institutional efficiencies in the private sector and greater integration into the policy process will auger well for the development of integrated value chains and sustainable agriculture. There are numerous opportunities for business and sustainable livelihoods emerging within agriculture and its linked businesses. These are associated with, among others, increased global demand, particularly in China and India, for a range of food products and development of agro-energy capacity, particularly in de-

veloping countries. With respect to crop production for food, fibre and fuel, the Caribbean is moving ahead to build supply capacity by adopting greenhouse technology, hydroponics, advanced irrigation, organic production, the development of new varieties of crops, and greater use of disease and pest resistant varieties. There have also been significant investments and mergers by regional agro-industries, such as, Ansa McAl, Bermudez, Goddard and Grace Kennedy, which have expanded supply capacity for processed products. This has also contributed to the development of new products and increased agro-based exports within the region as well as extra-regionally.

Bearing in mind the limits imposed by the nine defined key binding constraints, the capacity of business from farm to table, to take advantage of emerging opportunities depends on the policy decisions and the strategies taken in the current period. One such policy and strategy, that is gaining currency in the region, is that of developing agribusiness clusters to create and expand competitive value chains. It is argued that using a cluster approach to build farm supply capacity will provide a firm foundation for building competitive Caribbean value chains. In addition, the cluster approach will also provide an efficient framework for addressing deficiencies related to insufficient availability of essential services, fragmentation in the sector, evidenced by non-alignment of relations between buyers and sellers and weak producer organizations, and well targeted public sector interventions.

Make no mistake, this discussion on clustering is not premised on the belief that a single initiative, such as promoting and facilitating development of clusters in agriculture, is a magic bullet. It is based on experiences, around the world, that clusters have had positive impacts on productivity, competitiveness and business start-ups and expansion. Globalisation has brought with it a new level of production co-ordination between countries. With new trade agreements based on reciprocity, such as, the EPA, the stakes now are higher than before. It will no longer be sufficient to merely negotiate market access without addressing the issue of market presence; and in this context a discussion on ‘clustering’ as a vehicle for developing the agriculture business becomes valid. An understanding of cluster and value chain development is essential to define new strategies for inserting firms, industries, groups and regions into global production and distribution systems in more equitable and sustainable ways.

This paper brings the issue of ‘cluster development’ into context, guided by both theory and practical examples in and outside the Caribbean.

Overview of Main Issues

The discussion flows according to three main issues described below.

I - Clusters: a "new" type of organization, provides the theoretical underpinnings tempered by development experiences on the topic of 'clustering'. The topic is very involved and is subject to a large body of literature. It is important to understand where and how the concept emerged and how it has evolved if one is to learn lessons from theory and experiences in attempting such initiatives in a Caribbean context.

II - Clustering in Agriculture and Initiatives in the Caribbean, briefly discusses the issue of clusters specifically in an agriculture context, with special focus on the role of entities. Cluster initiatives have been promoted by private sector and government, both enabled by international development organisations. The discussion also profiles a few of these attempts and the role played by government. These and other previous efforts provide lessons that should be considered in any planned efforts to create clusters in agriculture in CARICOM.

III - Potential Clusters in Agriculture in the Caribbean, puts the theory and experience into a practical discussion of conceiving a dasheen cluster as a key vehicle to energise farm agriculture and to lock it more firmly into the value chain. The general conclusion is that while there are limiting weaknesses, these are outweighed by the possibilities and benefits.

The discussion concludes with suggestions for continuing the exploratory process introduced with the dasheen case study, in determining the feasibility of building clusters for agribusiness development. There is an over-riding conclusion that even in the current absence of 'clusters' in agriculture, firm steps must be taken to create the conditions favourable for strong pre-clustering in agriculture.

I - Clusters: a "new" type of organization

Clustering .. a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field

Industry and business collaboration has long been recognized as one of the most practical and strategic options for successfully negotiating today's increasingly competitive and global market place. Benefits associated with clustering can be summarized as either savings or cost reductions, or both, from the clustering of activities external to the firm[5]. Clusters are seen as the new approach to economic development. In so much as the understanding of clusters has grown, they have become a prevalent component of national and regional economic development plans and more so, have become a striking feature of virtually every nation and region especially in more advanced nations[6].

- - -the new approach to economic development

Clusters have attracted the interest of policy makers wanting to boost innovation in industrial growth sectors, such as, biotechnology and telecommunications, as well as to support local economic development in disadvantaged countries and regions[7]. Hundreds of cluster initiatives have been launched in virtually every region of the world, and the number is growing. These initiatives, which take a wide variety of forms, are now an accepted part of economic development. However, there is surprisingly little systematic knowledge of these initiatives, their structure, and their outcomes.

As more and more resources are devoted to efforts to foster cluster development, and more particularly, the formation of new businesses, the need to understand best practices has become urgent. Therefore, it is necessary to determine those best for entrepreneurship and business development along the process from idea conceptualisation, to start-ups to full establishment of business. More specifically, the need to outline and understand the process of implementing these best practices for the development and growth of agribusiness clusters in the Caribbean region is critical.

- - -critical masses of linked industries and institutions

The 'clustering' phenomenon can be traced back in history, as early as 1920s. (Piore and Sabel, 1984) Clustering may be described as the process by which firms and other organizations within a concentrated geographical area cooperate towards common goals and establish close linkages and working alliances to improve their collective competitiveness[8]. Building on the concept of "collective efficiency" introduced by Schmitz (1995), Nadvi (1999, 1608) has elaborated on this: "Collective efficiency is defined as having two aspects to it: external economies that clustered agents accrue by virtue of their location, and joint action benefits that arise from deliberate cooperation between local agents…" (Meyer-Stamer and Marisol, 2002).[9]

In the context of the rapid growth in clustering, the process of identifying, defining and describing a cluster has not been completely standardized. Porter (1990) describes clusters as critical masses of linked industries and institutions in one place that enjoy unusual competitive success in a particular field. Porter's cluster concept is also known as a competitive cluster or an industry cluster, which he defined as 'a set of industries related through buyer-supplier and supplier-buyer relationships, or by common technologies, common buyers or distribution channels, or common labour pools'. The most famous example is found in Silicon Valley[10]. Clusters can also include firms in downstream industries, producers of complementary products, specialized infrastructure providers, and other institutions that provide specialized training, and technical support as well as industry groups such as trade associations (Porter 1997).

- - -an alternative way of organizing the value chain

The literature is replete with definitions and different terms to refer to the clustering phenomenon among firms in an industry or related industries[11]. Categorizations of cluster, mainly contributions from Porter[12,13], and Enright, have different meanings and are sometimes used interchangeably, creating confusion and a need for more precise definitions. A glossary of various terms is provided in Annex 1. A more detailed discussion on these issues can also be obtained from the literature review undertaken in preparation for this paper. For this current purpose, especially given the varied interpretations of clusters and the practical development experience of clusters in the United Kingdom and the Silicon Valley[14], the contributions from the New Zealand Trade and Enterprise[15] provide a more simplified and palatable understanding of types of clusters as:

Geographical Clusters - businesses located within the same geographical location; which could be either (a) national; i.e., groups of companies or organizations which collaboratively address the development issues such as policy, infrastructure and other national issues; or (b) regional; i.e., the typical type based on the premise that the industry will increasingly prosper in a specialized, networked environment.

Sectoral Clusters - a Cluster of businesses operating together from within the same commercial sector e.g. agriculture, tourism.

Commercial Clusters - which are consortiums of companies which have chosen to collaborate in a number of areas. They are usually membership based with the fee structure supporting a dedicated support person and can be further classified as (a) horizontal cluster - interconnections between businesses at the resource sharing level e.g. knowledge management or (b) vertical cluster –typical of the supply chain.

Based on this categorization, the New Zealand Trade and Enterprise also provides a basis for differentiation within these categories according to three fields[16], namely:

(a) scale, referring to whether the particular scale indicator (export earnings, number of firms in the organization and/or employment) falls within an established threshold for small, medium or large in terms of value of its contribution. A cluster may have a large number of companies involved (sixteen or more) and therefore be categorized as “large”, but may have limited exports (up to $5m) suggesting “small” scale. In such instances, the level of export earnings will be the deciding factor as the earning potential of the cluster is the key element.

(b) maturity of the cluster initiative, depending on factors that range from (i) no initiative - a group of companies exists but there have been no attempts to launch a cluster initiative; (ii) initiation - the firms within the cluster companies have held initial discussions with interaction being predominantly of a social nature; (iii) incubation - the cluster’s stakeholders are developing a cluster strategy and conducting feasibility studies for specific joint projects; (iv) implementation: stakeholders are working on specific projects and joint ventures; or (v) improvement: the firms within the cluster are winning contracts or completing projects and building on results.

(c) level of government intervention/support, which refer to the sources of the resources that support the development of local clusters, based on whether these resources are in the form of funding (through grants) and time (particularly through the availability of local cluster facilitators), where the focus is on interventions to facilitate clusters, rather than larger scale projects.

Each of these elements of the term 'cluster' has meaning for CARICOM countries. Sectoral clusters are relatively straightforward and can be easily interpreted in the context of agriculture, as shown above. In terms of geography, as an integrating unit, the geographical cluster would resemble a group of firms and industry located in various member states that enjoy the advantages provided by regionalism; that is, economic cooperation, functional cooperation or foreign policy coordination. For agriculture, issues of scale, maturity, more in terms of the 'approaching agriculture as a business' and level of government support have been issues related to its development and competitiveness profile since the 1960s. They remain issues today and even more so, in any efforts to develop clusters.

Further, regardless of the definition or term used to describe the phenomenon, Porter's interpretation of clusters as representing a new kind of spatial organizational form, aptly describes the today's economic map of the world. Porter notes that this 'new kind of organization' is one in-between arm's-length markets on the one hand and vertical integration on the other. Compared with market transactions among dispersed and ransom buyers and sellers and the proximity of companies and institutions, clusters are an alternative way of organizing the value chain. (Porter,1998).

- - -major advantages of clustering

A cluster of independent and informally linked companies and institutions represents a robust organizational form that offers advantages in efficiency, effectiveness and flexibility. Clusters mitigate the problems inherent in arm's-length relationships without imposing the inflexibilities of vertical integration, or the management challenges of creating and maintaining formal linkages such as networks, alliances and partnerships. The following highlights the major advantages of clustering.

Competitive advantage: In essence, Porter (1998) singled out three ways that clusters affect competition: by (a) increasing the productivity of organizations based in the particular location; (b) driving the direction and pace of innovation; and (c) stimulating the formation of new businesses, which will further expand and strengthen the cluster. In today's dynamic economy, competitive advantage lies not only within companies or even inside industries, but also in the location of the business unit. Due to globalisation, the role of location differs vastly from a generation ago. Today, input costs disadvantage can be mitigated through global sourcing, leading to organizations gaining competitive advantage by making greater productive use of inputs, which requires continual innovation. This, therefore, challenges conventional thinking on how companies should be structured, how institutions, such as, universities can contribute to competitive success and how governments can promote economic development and prosperity.

Productivity enhancing: Clusters allow organizations to be more productive in accessing specialized suppliers, services and human resources and in coordinating with related institutions and organizations and measuring and motivating continuous improvements. These result in minimal inventory requirements and lower transaction costs arising from distance advantages and the establishment of high trust relations among companies within a cluster. The major elements of productivity improvements due to clustering include greater access to employees and suppliers, access to specialized information, complementarities, since the linkages among cluster members can result in a whole greater than the sum of its parts, access to institutions and public goods, better motivation and measurement, and flexibility and fast change reaction due to extreme specialization.

Continuous Innovation: A society will not have innovation processes without firms producing new designs and ideas (Rebernik et al 2004). The ongoing relationship with other firms within the cluster make the opportunity innovation a reality and can provide the capacity and flexibility to act rapidly on the idea by sharing organizational and technological knowledge. Gray et al (2001) stated that identifying regional competitive advantages and forming industry-led export driver clusters are the foundations for building national and regional innovation systems. Further, Gray et al (2003) suggested that generally, for a cluster to increase levels of innovation and productivity, it must have a critical mass of industries with a geographic concentration, a well defined activity sector and the support of local industry champions who believe in collaborative change and are willing to motivate the other members. Strong linkages with

suppliers and customers, access to research and education facilities; and supportive labour markets and infrastructures were also critical requirements.

New Business Formation: Through greater circulation of information about market opportunities and the barriers and risks to new entrants, new firms can clearly perceive unfilled needs and develop strategies to overcome the potential risks, contributing to the wider social, economic and environmental benefits. Porter (1998), Ketels (2003) and Rebernik (2004) recognize that clusters facilitate the development of new businesses as individual firm within the cluster can easily identify the gaps in the products and services and build an enterprise to fill these gaps. The barriers to entry are lower within the cluster and the needed assets, skills, staff and inputs are more readily available at the cluster location. In addition, financial institutions and investors are already familiar with the cluster resulting in lower risk premiums on capital and ease in sourcing funding. The cluster also presents a significant market share and can benefit the entrepreneur from established relationships. These factors reduce the perceived risk of entry and exit should the new business fail. Hence, it is usual for new firms to grow up within an existing cluster rather than at isolated locations, as the net effect is the new business in the cluster will advance relative to its rivals in other locations. Therefore, it is necessary to create conditions in society that enable the constant creation of new business ventures as well as new entrepreneurship activities in existing firms.

Cooperation enabling: clustering is critical in promoting both competition and cooperation, allowing a firm to increase its competitive advantage when it is surrounded by a strong cluster of world-class buyers, suppliers and related industries. In this context, cooperation for competition could be called '**coopetition**' (Nalebuff & Brandenburger 1996), meaning cooperating in order to be more competitive and successful. According to Porter (1998), competition can co-exist with cooperation because they occur on different dimensions and among different players, thus without vigorous competition, a cluster will fail. EDA (1997) stated that this "collaborative advantage" is what defines a successful market, that is, buyers and suppliers working with each other and using proximity and economies of scale to improve innovation and access to markets.

The key to growth for many small firms within a cluster is its ability to gain strength through co-operation and collaboration utilizing formal and informal networks (OECD 1996). Rosenfeld (2002) emphatically

stated that the single most important operating principle of competitive clusters is the ability to network extensively and form networks selectively. Based on Schmitz and Nadvi (1999) observations of the cluster, a firm can learn about market trends and needs, the technological developments currently taking place, and find suitable partners and allies for innovative initiatives. Waits (2000), provided six activities for enhancing 'coopetition' among cluster members:

i. co-inform, which identifies cluster members and their competencies, promotes the cluster, and improves member's communication;
ii. co-learn, where educational and training programs are sponsored by the cluster for their members;
iii. co-market, which are activities collectively organized to promote the cluster's services or products;
iv. co-purchase, where equipment or other resources are jointly acquired that individual organizations could not afford on their own;
v. co-produce, which involves alliances to manufacture a product; and
vi. co-build economic foundations, where the cluster lobbies for legislation, policies or programs to provide the right economic environment for their economic growth.

Clusters demand a flow of knowledge among the cluster members in order to succeed and hence knowledge sharing is an essential area for such 'coopetition'. According to Lee and Al-Hawamdeh (2002), knowledge sharing is an "unnatural act" for a firm, thus some kind of compensation must take place. Companies decide whether to share knowledge or not with other firms depending on the costs and benefits anticipated for doing so (Appleyard 1996; Loebecke, Van Fenema & Powell, 1999; Lee & Al-Hawamdeh, 2002). Questions on how to manage this process, such as, how much, what knowledge, when, with whom and under what circumstances, must be taken into account by all parties (Loebecke, Van Fenema & Powell, 1999). Nevertheless, some organizations have opted to collaborate with firms that are at the same time their competitors to tackle new business opportunities (Loebecke, Van Fenema & Powell, 1999; Kluge et al., 2001).

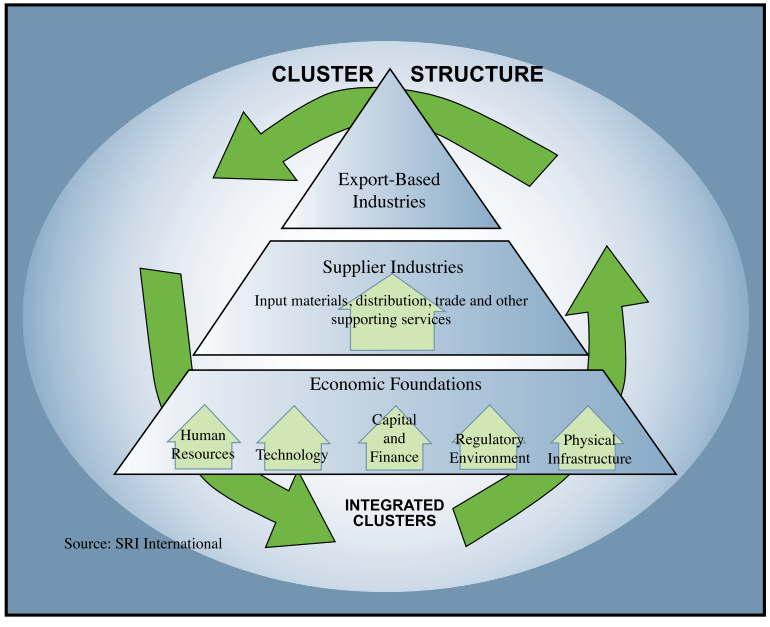
In their analysis, Swann, Prevezer, and Stout (1998) took in consideration both the advantages and disadvantages of clusters from the demand side and the supply side.

Advantages	Disadvantages
Demand Side	
- input-output multipliers: firms located in the same geographic area may take advantage of a strong local demand as well as the demand in other areas, thus creating a virtuous energy that sustains the cluster's growth; - hotelling: the location to increase its market share due to the existence of its participants in established markets. - search costs: the presence of a firm within a cluster may increase its visibility to existent and potential customers allowing them to reduce searching costs; - information externalities: information relationships favoured by co-location may increase the transfer of tacit knowledge between people working within a cluster;	- congestion and competition in output markets: an increased number of competitors in the same geographic area may reduce individual firm's sales, prices, profits and growth when congestion becomes heavy, suggesting that there may be diminishing (and eventually negative) returns to locating in a cluster as it reaches its maturity.
Supply Side	
- technology spill-overs: from widespread transfer of tacit technology; - specialized labour: the supply of high-qualified labour within a cluster is mainly affected by two processes: (i) the ability to generate resources "internally" and (ii) the ability to attract key people from other geographic areas. - infrastructure: the possibility of sharing common facilities, which reduces costs for firms within a cluster;	- congestion and competition in input markets: whether it may be, for example, the cost of real estate or the cost of labour. It is expected that these effects come to dominate new firms when the cluster reaches its maturity.

- - -clustering is a process of evolving

There is a range of visual illustrations of the cluster model. Some are illustrated as circular-inter-related relationship among the various elements. However, the Stanford Research Institute (SRI) International model of cluster development illustrates the cluster as a three-tier pyramid, which suggests a hierarchy and step-wise process. The top tier, or apex, represents the "core cluster firms" that export goods or ser-

vices to other states, countries or regions. The second tier represents “supplier firms” or those firms that provide inputs, distribution and support services to the core cluster firms and are an essential part of the value chain. These two tiers are similar to Albino and Kuhtz (2006) description of a cluster as consisting of a ‘cluster core’ of highly specialized firms within the same industry, which are closely linked to `specialist supporting firms’ which supply specialized industry services to the core[17]. There may be combinations of small and large number of enterprises, as well as small and large firms in different proportions. Surrounding and supporting these components of the central core is a `supporting social infrastructure’, which is tightly linked to the central core by sharing a common vision.



In the SRI International model, the bottom tier of the pyramid represents the “foundation factors” that provide the building blocks of the cluster, such as, human resources, technology, capital and finance, regulatory environment and physical infrastructure. These are similar to the `supporting physical infrastructure’, which consists of specialized facilities for the use of the cluster participants described by the USAID (2003). However, perhaps the most important dimension of the SRI model is the arrow that surrounds the pyramid, that is, the result of all three layers of the pyramid fully engaged and working toward a common goal is operational synergies and dynamism, which makes the concept very consistent to that of Albino and Kuhtz (2006). This model is also similar to the definition of clusters described by Meyer-Stamer and Marisol (2002)[18] as concentrations of firms of a given sub-branch of industry plus supporting industrial and service firms within a delimited region.

This structure of clusters lends itself to a definition of a set of common elements that all high performing clusters must possess. In keeping with the SRI model, these can be divided into four broad areas[19]:

Core Businesses: the businesses that are the lead participants in the cluster, often earning most of their income from customers who are beyond the cluster's boundary.

Support Businesses: the businesses that are directly and indirectly supporting the businesses at the core of the cluster. These may include suppliers of specialised machinery, components, raw materials; and service firms including finance/venture capital, lawyers, design, marketing and public relations. Often these firms are highly specialised, and are physically located close to the core businesses.

Soft Support Infrastructure: in a high performance cluster, the businesses at the core and the support business do not work in isolation. Successful clusters have community wide involvement by local schools, universities, local trade and professional associations, economic development agencies and others, which support their activities and are key ingredients in a high performance cluster. The quality of this soft infrastructure, and the extent of teamwork within it, are very important keys to the development of any cluster.

Hard Support Infrastructure: this is the supporting physical infrastructure, including roads, ports, waste treatment and communication links among others. The quality of this infrastructure needs to at least match competitive destinations, either locally or extra regionally.

SRI International provides useful criteria for selecting highly potential clusters. These includes the capacity to offer clear promise for growth as well as expanded and new opportunities for investment, it should possess an existing critical mass of skills and resources and be capable of generating substantial employment opportunities. Such criteria should also exhibit strong potential for generating export and foreign exchange earnings and demonstrate strong interest in collaborating on common issues.

Ketels (2003) argued that clusters develop over time and are not a phenomenon that just appears or disappears overnight. Further, the interventions that are appropriate at an early stage in the lifecycle of

a cluster are likely to differ from those appropriate at later stages. While the exact understanding of the evolution of clusters is still the subject of much research, a number of observations emerge from case studies and the conceptual thinking. Clusters usually emerge organically, meaning a number of interdependent firms in a particular geographic location perceive strong potential growth benefits by linking with each other (Porter, 1998; Gray, Harvey & Brimblecombe, 2001). This could be because they are internationally competitive (economies of scale), strategic (small but vital to a region's economy), in an emerging sector (high growth potential and skill rates) and in an area of new potential (some core competency might be developed).

- - -clusters have a life cycle

Clusters are dynamic and have a recognizable life cycle. The interventions that are appropriate at an early stage in the lifecycle of a cluster are likely to differ from those appropriate at later stages. The lifecycle is often described in different ways (USAID 2003, Rosenfeld 2002 and DTI 2004) but can be represented simply as a cyclical process containing four stages:

1. Embryonic Stage (Pre-clusters): the early stages of growth characterized by emerging cluster linkages, firm linkages, and industry concentration which can be can generated by innovation, invention and investment.
2. Growth Stage (Expanding Clusters and Growing Linkages): those clusters perceived as having room for further growth and where markets have developed sufficiently to spin off and attract imitators/competitors and to stimulate entrepreneurship.
3. Maturity Stage (Lift-Off: High Inter-firm Linkages and Critical Mass): which is when the processes or services have become routine, more imitators enter the market, and costs become a key competitive advantage. These firms have either become stable or find it difficult to expand.
4. Decline Stage (Decay): those have reached their peak, as the products become fully replaceable by lower cost or more effective substitutes, and are failing or declining; clusters at this stage are sometime able to reinvent themselves and enter the cycle again.

Clusters continuously evolve as new organizations and industries emerge or decline and as local institutions develop and change (Bisso et al 2003). They can maintain vibrancy as competitive locations for

several years, but they can and do lose their competitive edge due to both external and internal forces. Perhaps the most significant external threat is the discontinuity of technology as they can neutralize many competitive advantages simultaneously. Based on case studies, Porter (1998) estimates that a cluster may require at least ten years to develop and become an effective source of competitive advantage.

- - -incubating clusters

Within the ten year cluster development process, a key activity for nurturing entrepreneurs and new firms is incubation. The Business Incubator is a facility designed to assist businesses to become established and sustainable during their start up phase, including being financially viable and sustainable. They are named this because they "hatch" ideas. The main goal of most business incubation programmes is to nurture the development of entrepreneurial companies, helping them survive and grow during the start-up period, when they are most vulnerable. Typically, they do this by providing: shared premises; business advice and services; access to investor, market and international networks; mentoring and a full-time, hands-on management team.

Two principles characterize effective business incubation: (1) the incubator aspires to have a positive impact on its community's economic health by maximizing the success of emerging companies; and (2) the incubator itself is a dynamic model of a sustainable, efficient business operation. Incubator graduate companies create jobs, revitalize neighbourhoods and commercialise new technologies, thus strengthening national and regional economies. The entrepreneurs emerging from the incubators often utilize cutting edge technologies to developing new and innovative high quality products and services targeted to established markets and also new ones. Revamped Business Incubator facilities, designed to assist agribusinesses to become established and sustainable during their start up phase, including being financially viable and sustainable, can be useful precursors to cluster development. These business incubators will have a positive impact on its community's economic health by maximizing the success of emerging companies. Additionally graduate agribusinesses create jobs, revitalize neighbourhoods and commercialise new technologies, all of which provide fertile ground to grow clusters.

..in conclusion....

Clusters aim to grow the competitive advantage and reputation of firms and industries, and regions, in key markets to increase economic prosperity. Using the 'cluster' or collaborative team approach allows businesses, regions and interest groups to develop greater speed, quality, innovation and critical mass. This assists in resolving practical issues, such as, training, infrastructure and procurement, among others. Working together for growth helps overcome the scale and capability limits inherent in operating an individual enterprise. Facilitation of new ideas and ways of doing things, creating momentum, productively tackling obstacles and barriers and opening up new and successful commercial opportunities are just some of the benefits to be gained from working together.

The cluster framework can be a valuable tool for effective economic change EDA (1997). It is market driven, focusing on bringing the demand and supply side of the economy together to work more effectively and inclusivly, reaching out to companies, albeit small medium and large, as well as suppliers and supporting economic institutions. The cluster framework also places great emphasis on collaborative solutions to regional issues and is strategic, helping stakeholders create strategic vision of their region's next generation economy shared by many different constituencies and providing motivation and commitment to action. Further, clusters are value-creating, improving depth (more suppliers) and breadth (attracting more industries) to increase regional income.

Clusters facilitate business, within the cluster itself, and the wider economy, that stimulates growth and strategic alliances aimed at new markets. Employment growth and job retention, increased investment and enhanced domestic and export performance are just some of the many positive economic spin-offs from the "collaborative" approach.

For agriculture, clusters are seen as one way to tackle the long-standing deficiencies in the supply chain, as a firm base on which competitive value chains can be built and sustained. The next section briefly discusses the issue of clusters specifically in an agriculture context, with special focus on the role of entities. Cluster initiatives have been promoted by private sector and government, both enabled by international development organisations. The discussion also profiles a few of these attempts and the role played by government. These and other previous efforts provide lessons that should be considered in any planned efforts to create clusters in agriculture in CARICOM.

II - Clustering in Agriculture and Initiatives in the Caribbean

One way of strengthening the performance and competitiveness of small producers and downstream businesses in a specific region is cluster development.

Agribusiness Cluster Models

An agribusiness cluster may be a local or regional network comprising farmers, input suppliers, co-operatives, agro processors, pack-houses, transporters and other actors in the sector with the aim of clustering production, processing, distribution, logistic and many other activities which will reduce the current problem of low production, inadequate supply of products and overall procurement of goods. Furthermore, the agribusiness cluster may also consist of a number of different organizations, such as, local authorities, financial institutions, universities, research and development institutions, and other associations. Matopoulos et al (2004) describes two different types of agricultural development models (a) Traditional Agricultural Model (TAM); and (b)Agribusiness Cluster Model (ACM).

> the TAM comprised of mainly small sized firms which were mainly focused on production. Other agribusiness activities, such as processing and trade, were done by other firms at the national or regional level, while input suppliers and distributors were mainly from the local markets.
>
> the ACM, in contrast, seeks to cluster farmers and processing activities, local agribusinesses, universities, financial institutions, research and development institutions and service providers to establish relationships among these members which will present new opportunities.

Through the ACM approach, the critical mass that farmers/firms now possess allow: (1) increased options in choosing input suppliers and distributors, (2) firms to conduct much of the business activities that were previously conducted by other firms at the national/regional level and moreover, (3) increases flexibility and innovation by sharing organizational and technological information and knowledge.

The ACM: Entities, roles and related ICT applications

Rosenfeld (1997) underscored the need for cluster members to have active channels for business transactions, dialogue and information exchange. The introduction and the implementation of information and communication technology (ICT) applications could act as a catalyst in the formation of agribusiness clusters, since business transactions and information exchanges can be facilitated and improved. Thus, Gillespie et al (2001) noted that although the geographical element of clusters remains important, it does not constrain activities such as information, data and knowledge exchange among cluster members.

Entities	Roles	ICT Applications
National and regional authorities and associations	• Motivating and promoting co-operation • Infrastructure development • Support services (recruitment, training) • Conduct feasibility studies	• government applications • e-centre for employment (labour supply & demand synchronization) • Databases and internet technology
Agricultural co-operatives	• Clustering production and procurement • Support trade activities	• e- procurement services • e-marketing, e-auctions
Agri-business firms	• Facilitating warehousing, transportation, distribution and logistics activities	• e-logistics applications
Universities, R&D institutions	• Conducting current state analysis • Consulting services • Education and training tools	• e-learning services • e-business applications
Source: Adapted from Matopoulos et al (2004)		

Barriers to Agri-business Cluster Development

According to Rosenfeld (2002), several factors limit the development of competitive clusters in developing regions, but the most common element is traced to weak infrastructure, both physical and technical. Other factors include: (a) the lack of access to capital, (b) a skilled work force, (c) absence of organizational structures and (d) lack of information flow channels.

The limited use of the new technology is one of the most important problems that agribusinesses face in rural areas. The technology infrastructure is the mortar for building cluster-based actions, and its absence is a serious handicap in growing clusters. In addition to the previous problem, cluster entities may confront the problem of how to strike a balance between internal needs for different organizational and technological systems and external needs for connectivity and share-ability of messages, data, applications and processes (Vlachopoulou and Manthou 2002).

An important barrier that deteriorates the development of agribusiness clusters is the lack of the appropriate co-operative business philosophy among entities. For many years, agri-business companies in rural areas were used to practicing their business activity autonomously and independently. Given the changing nature of competition, most of the companies find themselves unable to trust other companies and therefore experience difficulties in co-operating with them. In this context, the role of government as a “neutral” facilitator becomes important.

..governments should not choose among clusters as each offers opportunities

The Role of Government

Since its development and successful growth, cluster development has become a focus for many governmental programs (Rosenfeld 1997). Although sound macroeconomic policy is necessary to create an environment that supports rising productivity, by itself, it is insufficient. The microeconomic foundations for competition will ultimately determine productivity and competitiveness. Porter (1998) describes the role of governments as ensuring that both the macro and microeconomic environment is conducive to supporting same. In doing so, they must ensure the supply of high quality inputs, such as well educated and skilled persons and physical infrastructure. They must also set the rules for competition, by protecting intellectual property and enforcing antitrust laws, as to ensure innovation and productivity successfully contributes to the economy. In addition, governments must promote cluster formation and upgrading where necessary and the build up of public and quasi public goods that have a significant impact on linked businesses.

Meyer-Stamer and Marisol (2002), observed that the 1980s and 1990s have witnessed the demise of heavy-handed, government-driven, top-down, centralist approaches to the promotion of industrial development in latecomer countries. As part of the “Washington Consensus”, it was suggested that government intervention did more damage than benefit, even in the successful newly industrializing countries of East Asia (World Bank 1993). Even though this argument has repeatedly been challenged, it is probably fair to argue that in the course of the 1990s even those who saw industrial development in East Asia as a success story of developmental government started to have increasing doubts regarding the applicability of this approach in less-advanced countries. The increasing scepticism regarding the effectiveness of centralized government intervention and traditional industrial policy was one of the reasons why industrial clusters and cluster promotion received increasing attention.

The role of the government in developing industry policy is different from that of cluster–based policy. In industrial policy, governments target desirable industries and intervene directly through subsidies or restriction on foreign investments, as compared to cluster-based policy, which simply aims for government to reinforce the development of all clusters. The cluster-based policy provides a better perspective of the economic situation, as well as, a better understanding of the industry needs and a direct means of dialogue among cluster members, which enables the tailor made design of support for the industry, involving the private sector in their financing and management[20]. However, the limited resources to be distributed for developing the public goods, drive governments to concentrate on certain clusters as they see fit, disregarding traditional clusters, such as agriculture (Porter 1998).

Porter contends that governments should not choose among clusters as each offers opportunities to improve productivity, employment and contribute to the economy as well as affect the productivity of other clusters. In addition, government should work with the private sector to build on existing and emerging clusters rather than create entirely new ones, since successful new industries and clusters often grow out of established ones. In general, it is agreed that the cluster-strategies lead the way towards competitiveness, and government policy enhances the repositioning strategies of the cluster[21].

Although Government is an important factor in shaping the business environment, individual firms, universities, and many other institutions have an important role (Ketels 2003). To identify limiting factors to

productivity and innovation, companies must be part of the policy process as they are the most affected. Depending on the unique circumstances, all entities related to the cluster – from the government to individual companies to trade associations and universities with relevant research or educational programs – may have to be involved and work together.

..in the Caribbean, clusters do not fulfill many of the Waits test for cluster efficacy

...cluster initiatives in the Caribbean

The Caribbean is replete with examples of immature and sometimes ad hoc clusters. Several examples of immature geographic/sectoral clusters dot the landscape in several countries; concentrated coffee production in the Jamaican Blue Mountains; and contiguous Dairy Farms in Wallerfield or Carlsen Field in Trinidad. The fact that these clusters do not fulfil many of the Waits test for cluster efficacy highlights their immaturity. Many of these primordial clusters co-build economic foundations by lobbying for policy or legislative changes and they may also co-market through an export agency.

The broiler industry in Jamaica and Trinidad and Tobago provide examples of vertical clusters typical of supply chains. In many instances, the benefits allow organizations to be more productive in sourcing inputs, accessing information and technology, coordinating with related institutions and organizations and measuring and motivating continuous improvements. Improved productivity results from the easier access to specialised suppliers, services and human resources. These result in minimal inventory requirements and lower transaction costs arising from distance advantages and the establishment of high trust relations among companies within the cluster.

Traditional, preferential treatment driven, banana production exemplified a form of sectoral cluster with significant co-learning through centralized Banana Board led extension services. Co-purchasing, co-informing, co-producing and co-marketing were all features of their operation. The Fairtrade banana farmers in the Windward Islands represent a significant cluster, by Enright's standard, in terms of density (number and economic weight of firms in the cluster), activity base (number and nature of activities in the

value-added chain), growth potential (individual cluster depends on competitive position of cluster relative to competitors) and industrial organization (governance structures and relationships among firms in the cluster). Fairtrade clusters lack depth and innovative capacity due to the lack of vertical integration and Label monitoring respectively. The Fairtrade Labelling Organisation (FLO) maintains a tight rein on the approved processes and procedures surrounding the production of Fairtrade goods. Innovations involving biotechnology enhanced germplasm and/or inorganic pesticides, for example, are not sanctioned by FLO.

The experience of Trinidad and Tobago, where the government has partnered with the Trinidad and Tobago Agribusiness Association (TTABA) to implement the country's National Agribusiness Development Program provides a framework for the cluster approach. The government recognized the need to reposition the agricultural industry and entrusted the process to the TTABA. This body was sanctioned by the private sector and is guided by both private/public sector interests. The Program aims at developing clusters and addressing the production and marketing constraints faced by industry players. Based on an extensive consultative process, involving a consultant-led scientific review, ten products were identified and the formation of an "industry organization" for each mandated. Although State-supported in the early stages these organizations were to be weaned and left to mature as private sector entities. These sectoral clusters were meant to involve the producers and eventually, the supply and demand chain stakeholders. The results have been mixed with attention to the role of facilitators being a notable shortcoming.

The Market Access Initiative in St Lucia provides a good example of a fledgling inter-sectoral cluster. Producer Cooperatives in Black Bay and other areas have co-produced vegetables for a group of hotels including Sandals Resorts. This agglomeration includes often stated cluster benefits such as co-purchasing of inputs, co-marketing and co-informing. The cluster is supported financially by its Credit Union membership in keeping with the support business concept of the SRI pyramid model. Both the Four Seasons Hotel-Nevis Farmers and the Travel Foundation-Tobago Farmers clusters have integrated the bottom tier of the pyramid's "foundation factors" that provides the building blocks of human resources, technology, capital/finance and physical infrastructure.

Meyer-Stamer and Marisol (2002) conclude that public policy on clusters and networks can help SMEs realize the opportunities and meet the challenges associated with globalisation. Essentially, a policy on clusters provides a framework for dialogue and cooperation between firms, the public sector (particularly at local and regional levels of government) and non-governmental organizations. This dialogue can lead to efficiency-enhancing collaboration amongst firms, such as in joint marketing initiatives, the creation of mutual credit guarantee associations, joint design and sponsorship of training, a more efficient division of labour among enterprises, etc.

Experiences worldwide suggest that clusters should not be considered beyond the investigative phase if the stakeholders have not independently, or as a result of good facilitation, bought into the concept. The major players should demonstrate a strong interest in collaborating on common issues as that is the bedrock on which the cluster should be built. If the prospective cluster does not include a mechanism for the growth and expansion of the value chain or the critical mass of skills and resources are lacking, the initiative is doomed to fail. The Anglophone Caribbean has had a relatively unsuccessful history with cooperatives, so the structure of the cluster must be aligned to the three underpinning principles of commonality, concentration and connectivity.

The following provides information on the level of maturity of the conccept in CARICOM and some cluster initiatives undertaken to bolster agribusiness in the Caribbean.

The Jamaica Cluster Competitiveness Project (JCCP)

Background

To address the country's deteriorating economic performance, the government of Jamaica launched its National Industrial Policy (NIP) in 1997. By 2002 it was determined that the NIP had not succeeded in delivering growth for Jamaica or fostering a sense of partnership between the public and private sectors. It was recognized that collaboration improved the chances of being competitiveness, at the firm level, nationally, regionally and internationally. In this context, the JCCP, a two-year pilot project managed by the Jamaica Exporter's Association (JEA)was launched in September 2002 with a focus on three of its targeted sectors; Agribusiness (sauces and spices), Tourism and Entertainment.

Objectives

The overall goal was to generate greater prosperity in Jamaica by building new competitive advantages at the firm level, to increase firms' export capacity and their contribution to the nation's economy. Specifically, the project sought to: 1. Increase sales and profits at the firm level by way of new products, new sales channels, and targeting more attractive customer segments; and 2. Improve the enabling environment by eliminating regulatory constraints to growth and competitiveness and strengthening the capacity of the private sector to engage in a public-private dialogue (PPD) around issues of competitiveness.

Cluster Members and Leaders

Each cluster comprised a mix of all the relevant public and private sector agencies and firms. For example, in addition to the private entities (properties, attractions, transport, marketing companies etc.), the tourism cluster included members of the Ministry of Tourism and the Tourism Product Development Company. The cluster leaders emerge naturally by the development process and selected or elected by their peers. At the end of the JCCP, the Entertainment Cluster formed itself into a registered NGO (Jamaica Signature Beats) and elected its own leaders. The same occurred with the Tourism Cluster (Unique Jamaica).

Processes and Milestones

The JCCP was designed in recognition of the fact "that competitiveness is driven by firms, not governments". To re-establish the trust needed to build competitiveness after the mutual resentment caused by the NIP failure, a ten-step change process was introduced in three phases:

Phase I: National Assessment- focused on improving PPD by explicitly addressing the attitudes and beliefs that shape and steer the dialogue.

Phase II: Cluster Analysis and Process- brought leaders from the public, private, and donor communities together under the guidance of a Cluster Coordinator to collaboratively develop mutually agreed industry objectives, plans, budgets, and commitments. Specifically, this phase undertook a Situation Analysis, initiatives to understand target customers' needs, set detailed objectives, articulated a cluster positioning and developed action guidelines.

Phase III: Pilot Project Design and Implementation - developed a strategic plan along with a clearly defined means for its implementation.

Process Outcomes

During the development of each cluster's action plans, buying-in of the strategy had already begun by participants and workgroup members were ready to work together on implementing the strategy. Specifically, the PPD that had

been fostered enabled: (1) the development of a shared vision for the industry; (2) the respective roles of the public and private sector to be defined; and (3) the development of an industry strategy and implementation plan.

Results

Within two years (2004), the JCCP had successfully fostered a formal and high-trust PPD in all three of its targeted sectors. This was the result of a highly structured cluster process that focused on strengthening the linkages between firms, government agencies, and the international market. The important role played by research and information, the lowered costs of marketing, improved access to international markets have together lowered the levels of uncertainty and thus encouraged new investment. In effect, the JCCP helped to fill the many "missing links" that existed throughout the economy. The final result was a return on investment (ROI) amounted to approximately 300%.

Key elements for sustaining the clusters

The coordinating role of the Jamaica Competitiveness Company (JCC) and its Competitiveness Advisers; the institutional capacity of the Jamaica Exporters' Association with its capacity to provide access to appropriate financing and technical assistance to the firms. In addition, the development of trusting relationships is fundamental for clusters to survive.

Challenges

The relatively young nature of all the clusters poses the challenge of them becoming sustainable without the presence of donor funding. However, in all cases, there are initiatives being designed or already on-stream overcome this challenge. These include the provision of services and products which bring added-value and are hard to access at the individual level for which members are willing to pay. For example, the tourism cluster is seeking to provide group insurance (particularly public liability) that is expensive for small firms, operating on their own. However, this also provides an incentive for the firms to upgrade their operations to meet the requirements of the insurers.

Future Outlook

The outlook is good for all the clusters. They are all in the process of developing/updating strategic plans to guide their activities for the way forward, and will require time and funding to realize success. In addition, since the closure of the JCCP, two more clusters were introduced, namely the West Indian Sea Island Cotton and Ornamental Fish in 2005 and 2006 respectively.

Source: Interview with Morgan, B. (2007), The Competitiveness Company, Strategy Advisory Unit of the Jamaica Exporters' Association and Working Group 4 Case Study (2006) The Jamaica Cluster Competitiveness Project, International Workshop on Public-Private Dialogue, Paris, February. www.publicprivatedialogue.org

Jamaica's Agribusiness Cluster Combines 'Buying' Power[22]

For most Jamaican hot sauce and jerk manufacturers, packaging is the single largest input cost. Glass bottles are particularly expensive, accounting for as much as 40% of unit costs. Although the bottles used in the industry are generally standardized, they are purchased in small batches by the individual processor due to volume requirements. As a result, the larger glass bottle suppliers have been able to exert bargaining power over a fragmented buyer base, dictating prices, credit terms, and the degree of after sales service. To address this situation the Jamaica Competitiveness Cluster Project (JCCP) launched a consolidated glass purchasing programme, whereby cluster members have taken their needs to the market in search of better prices, credit, and service. The purchasing initiative has already resulted in orders from several agro-processors (representing approximately 25% of the local market), through the preferred vendor pricing arranged by the JCCP. Cluster members have realized savings in the range of 8% to 25%, already resulting in excess of U.S.D. 900,000.

Source: http://www.otfgroup.com/eng/projects.html

Selecting clusters through competitive bidding[23]

Through the Jamaican Exporters' Association (JEA), a national selection steering committee comprised of leaders from the public and private sector used three criteria as the basis for discussion and selection: (i) the size and economic importance of the cluster; (ii) the cluster's potential for growth; and (iii) the cluster's degree of openness, enthusiasm, and willingness to change. Following robust discussions, the steering committee members chose three clusters: agribusiness (specifically, jerk and hot sauces), tourism, and musical entertainment. It was concluded that although the selection criteria was used to frame the questions to be examined by local stakeholders, there was also considerable room for discussion, consensus building and group decision-making, which is deemed to be extremely valuable by the project technical assistance teams. Similarly, final decisions for cluster selection were placed largely in the hands of local public and private leaders – a key benefit of this process. The project's technical assistance teams also played an important role in developing selection criteria, analysing the proposals, and providing preliminary recommendations to these stakeholders.

Source: Ketels, C., Lindqvist, G., Sölvell, O. (2006). Cluster Initiatives in Developing and Transition Economies, Center for Strategy and Competitiveness, Stockholm, First edition, May, pp. 15.

Dominican Republic Mango Farmers Become Entrepreneurs[24]

Some of Latin America's finest mangoes are grown in the Dominican Republic. Yet for decades they were only sold domestically, often grown in backyards or abandoned plots, and exported only as an industrial pulp, selling at lower prices than fresh fruit. Although the U.S. market was nearby, the competition and regulations appeared too daunting to tackle. Mango farmers had no organized association, lacked a clear business strategy, and had little government support. In 2005, United States Agency for International Development (USAID) helped create a mango "industry cluster," bringing together farmers, suppliers, exporters, transport companies, and government bodies. The objectives[25] of the mango cluster were to: (1) establish the DR mango as a product of high product of high quality through the development of seals of quality and (2) increase the volume of mango production through the design, communication and implementation of a plan of national development. USAID assisted them in gaining entry to the U.S. market, helping set goals and overcome obstacles. A major hurdle was meeting U.S. phytosanitary requirements and ensuring that all exports were pest-free. Since this required a lot of collaboration among all parties, similar efforts had failed before. Therefore, a plan of work was introduced which included new pruning and packaging methods, a program to control Anthracnose disease, objectives of value added products, post harvest handling and visits to packing companies in the USA. In addition, to meet the international market requirement, industry standards were established including HACCP, certified/seal of quality and a seal of origin issued for traceability. The USAID worked closely with the U.S. agencies that provided final approval to import the mangoes. Today, everyone involved in the nascent mango export industry is working together and their next goal is to expand to high-end niche markets. They're no longer farmers or distributors; they're entrepreneurs who are working jointly to develop a sector-wide business strategy and reduce costs. Also, private investors are investing in treatment facilities for mangos. Pruning techniques introduced by USAID are doubling yields, improving fruit quality and lowering costs. In 2005, they earned $2 million from exports to Europe and $300,000 from exports to the U.S. In 2006, they intend to double their U.S. sales. For the mango cluster, now known as PROMANGO, this is only the beginning.

Source: USAID (US Agency for International Development), Mango Farmers Become Entrepreneurs, Telling Our Story. www.usaid.gov/stories

Developing an Export Platform
Initiative of the Inter-American Institute for Cooperation on Agriculture

This programme is an IICA initiative developed with the support of the public and private sectors[26]. Its objective is to diversify and increase the number of exporters and the value of agrifood exports to specific markets, through a programme for owners and/or managers that provides effective training, trade information and marketing tools. The Programme consists of three stages designed to support agri-entrepreneurs who wish to begin exporting to a specific market; all three of these stages must be completed in their entirety, namely training, market validation and in situ marketing.

Stage 1: Training will provide participants with the information and basic tools necessary for beginning or strengthening their export capabilities. It comprises eight training models from 'Getting Ready', 'Business Planning for Export Marketing', 'Assessing Market Opportunities', 'Getting to Market', 'Making the Sale', 'Getting Paid', 'Export Marketing for Specific Agri-Food Industries' and 'Implementing Your Business Plan'.

Stage 2: Market Validation is to determine the possible acceptance, in the target market, of the products participating in the program, and to identify any changes needed in same to comply with existing rules and satisfy the tastes and preferences of potential buyers. This stage will be handled by an expert of the selected market, who will be responsible for, identifying and rating potential buyers, as well as current procedures related to the import of foods, presenting the products to at least four potential buyers and determining their interest in them, and recommending any changes that may be necessary in same to enter the market, verifying the acceptance of the products in the desired market, in terms of demand, competition, the price at every level of the distribution chain, rules and regulations, and shipping, among others, and obtaining the buying criteria of at least four potential importers, the calculation of the price at the point of sale, and samples of competitors' products, which must be sent to each enterprise confidentially.

Stage 3: In Situ Marketing which comprises visits to supermarkets and distribution centers; participation in a fair and trade mission; meetings with possible partners; and promotional activities and publicity of the firms.

On completion of the three stages, participating firms will have benefited from their (a) involvement in training programs that provide tools for upgrading their business capabilities, (b) greater knowledge of the logistics of exporting to the elected market, and modifications needed to be successful in the specific market, and (c) the possibility of having one on one meetings with buyers interested in their products.

The beneficiaries are expected to be between 10 to 15 firms of the agri-food sector (agriculture, fisheries and food industry) interested in exporting to a specific market. To be eligible, firms must (a) be legally established; (b) not be a regular exporter to the selected market, (c) produce a quality good that has the potential for being marketed abroad, (d) have the production capacity (exportable supply) to meet possible international demand, (e) complete all stages of the program and (f) have the financial capacity to cover the cost of participation and the cost of participating in the fair (airfare and per diems). To date, 13 Export Platforms were developed in the following countries: Costa Rica (4), El Salvador (4), Nicaragua (2), Honduras (2) and Dominican Republic (1). More than 150 companies have been trained. More than 250 products validated. (Product examples include: mini vegetables, watermelon, roots and tubers, chayotes, frozen fruits (melon, pineapple, watermelon, among others), frozen okra, frozen coconut, green plantain, fried and frozen sweet plantain, heart of palms, loroco, organic sesame, green coffee, gourmet coffee, organic roasted coffee, fair trade coffee, guava and pineapple pastries, horchata, red and black beans, canned gourmet tuna, plantain and cassava chips, sugar, honey, meat, cookies, shrimps, spices and fruit beverages). Fifty percent of the companies that complied with selection criteria are exporting to the selected markets. The main markets visited have been Miami, Los Angeles, Vancouver, Toronto and Montreal.

Source: IICA Agribusiness Programme

Creating Clusters for Competitiveness
– organising the disorganised private sector!
extracted from various information and presentations of CABA

Given the size of national organisations in particular, and the CARICOM target market in general, no cluster exists that can successfully meet quotas and respond to the volumes required to sustain meaningful international trade. The Project “Strengthening market access opportunities for small and medium size enterprises (SMEs) in the Caribbean Agri-Food Industry” hopes to make the concept of agriculture ‘clusters’ a reality in the Caribbean region. Clusters to be created to facilitate the generation of raw materials will span traditional as well as non-traditional elements. Within the more traditional clusters, there still needs to be a more significant divergence from being mere primary producers into differentiated and distinctive variations that could give the region a competitive advantage. Given the region’s combined volume limitations, niche marketing will indeed go a long way towards liberalising the region from the effects of competitors’ domestic subsidies and mass produced goods.

Through this project and model, CABA is attempting to promote, enable and achieve vertical integration within established clusters in order to minimize waste and maximise market opportunities. Vertical integration is also intended to provide more direct benefits to farmers in terms of their receiving a greater share and returns on their investments.

Essentially, in the vertical integration model, the clusters will include those who provide the finance, state of the art applied technology, growers or producers of raw materials, as well as those who process, brand and market the end products, all working as a team.

CABA has identified some key areas in which cluster groupings can be formed and will be promoted. These are sorted by category and include, but not limited to:

- Traditional agriculture: banana, sugar-cane, citrus and other juices;
- Animal products: pork producers, poultry producers and processors; beef and dairy; small ruminants; mari-culture (marine and fresh water fish);
- Non-traditional crops: root crops; vegetables; exotic fruits and vegetables;
- Herbs and spices;
- Non-food products: nutriceuticals; pharmaceuticals; cosmetics; animal feed; weavable cotton and other fibres;
- Bakers and produce based on grains and cereals;
- Wines, spirits, other brews and alcoholic-based beverages.

It is well recognised that there are several other areas in agriculture value chains that can be included, such as, craft, honey production and forestry products. Indeed, viable associations and commodity groups in these areas already exist. Public-private-partnerships will be crucial to the successful implementation of such as model. Success of such a ‘cluster’ model which will also contribute to the ‘branding’ of distinctive Caribbean products, will help to drive development of competitive and integrated value chains, from farm to table and enhance the region’s concepts and objectives for developing agri-tourism value chain.

The above discussion shows that CARICOM countries have promoted and attempted to develop clusters in agriculture over the last 10 years or so. However, if one uses the Wait's test for cluster efficiency, then one can conclude that these initiatives are still relatively nascent and competitive clusters in agriculture in CARICOM are yet to emerge.

The next section puts the theory and experience into a practical discussion of conceiving a dasheen cluster as a key vehicle to energise farm agriculture and to lock it more firmly into the value chain. The discussion also points to the critical actions and steps that should be taken in any effort to develop clusters in agriculture in CARICOM. Of note is the caution, based on theory and experience, that a cluster may require at least, 10 years to develop and become an effective source of competitive advantage. This has serious implications for cluster initiatives and particularly, building-in a long-term support framework to take the process further after the establishment phase - usually the project is completed. The general conclusion is that while there are limiting weaknesses in cluster development in agriculture in CARICOM, these are outweighed by the possibilities and benefits that clustering brings to the sector and the region.

III. Potential Clusters in Agriculture in the Caribbean

Potential clusters are those that have some of the elements necessary for the development of successful clusters, but where these elements must be deepened and broadened in order to benefit from the impact of agglomeration. The need to develop these potential clusters into working clusters is seen as essential to inject dynamism into agriculture, expand value-added, and contribute to food and nutrition security in the Caribbean. At the basic level, this will require concerted and integrated focus on developing supply capacity in primary production and value added products. This thrust is also critical to feed a thriving and burgeoning tourism industry.

The literature and experiences suggest that a cluster approach can provide an important vehicle to build supply capacity at the primary production level and build linkages between farm and factory for expanding value added products, both domestically and in particular, intra-regionally. However, expanding sufficient supplies of primary production has been a long-standing challenge to satisfy both the fresh and processed foods, more so for cluster development.

In the region, specialization in production and processing between countries with physical capacity to produce raw materials and those with resource and cost advantages for processing industries – a form of clustering – has been a recurring recommendation. The implementation of the CARICOM Single Market and Economy (CSME) provides the framework for such organisation in the region. In fact, agricultural development has been identified as a mechanism for promoting regional unity and integration. In the context of the CSME, there are ever increasing opportunities for regional collaboration, already evident in the financial, construction, sports and cultural arenas. Cluster formation could be a good vehicle to propel business in agriculture as a building block to the development of competitive value chains and integration into world markets.

Root crops offer classic cluster opportunities for the Caribbean. In recent times, as a result of the growth in agro-energy (bio fuels), the need for ‘food banks’ in the aftermath of hurricanes, and the new global association of the potency of root crops, particularly ‘yams’, with 2008 Olympic speeds, as demonstrated by successful Jamaican athletes. Root crops have experienced resurgence in many countries after the

meteoric rise in food prices seen in 2007/2008. Root crops can out-yield many of the more popular imported cereals under Caribbean conditions. A 2008 study conducted by the US Agricultural Research Service indicated that sweet potatoes grown in Maryland and Alabama yielded two to three times as much carbohydrate for fuel ethanol production as field corn.

Cassava: its use as a food bank in the aftermath of hurricanes is well established. The roots remain viable and retain their utility for months. It is also highly nutritious and well adapted for production in the Caribbean, with high demand as fresh and processed products. The proposed "mega farms" as stated by the Trinidad and Tobago government for initiation in 2008 will involve the establishment of fifty acre plots of cassava.

Yam: a traditional part of the agriculture landscape in virtually all Caribbean countries, was made famous with the pronouncement, by Usain Bolt, that yellow yams (Dioscorea cayenensis) was a major part of his training diet.

Dasheen: (*Colocasia esculenta*) also called coco, taro and tannia, has traditionally been a regular staple in the diets of Caribbean people. Unlike other produce, both the corm and leaves of dasheen is widely used in the region. This holistic usage capacity of the root crop provides double the value added and traditional uses. The many potential and actual uses of the dasheen in the primary form present a range of opportunities for business.

Opportunities for a Dasheen Cluster

We are living in a 'buyer-driven' world. It is argued that only when market signals are taken as the basis for innovation and diversification of production and for quality improvement can domestic value chains achieve competitiveness and economic viability. Market signals indicate that consumers are increasingly concerned about health, nutrition, safety, quality and variety in foods. The usual price factor is still a consideration, and even more so, with prices rising and competition of traditional foods, such as corn, as feed for fuel plants and livestock intensifying. The potential of dasheen for 'clustering' is discussed along three key elements: production (supply), exports (demand) and food (nutrition).

Why Dasheen?

…In terms of production

White dasheen (Colocassia esculenta) is one of the most important economic crops for starchy food in the eastern Caribbean (Archibald, 2002). Also known as “eddoe”, “malanga”, “taro” and “yautia”, dasheen is from the calla lilly family of tubers, and is similar to the potato. It is known in Asia, Africa, South America, Hawaii and the Caribbean. Dasheen has an eight month growing cycle, is relatively easy to grow and recovers quickly from disasters as a consequence of hurricanes, floods etc. It is a crop in which there is long traditional farming experience in the Caribbean. It is well adapted to Caribbean conditions and soils, which are mostly heavy clay, and can tolerate floods. Pest and diseases is not a huge barrier and can be managed through good agricultural practices (GAP).

Over the last ten years the government of Caribbean countries has embarked on an agricultural diversification program centred on bananas. Integral to this thrust is the renewed emphasis on root crops, including dasheen. At present, St. Vincent and the Grenadines, Dominica, Guyana and Jamaica are three of the larger producers of dasheen corm in the region. Trinidad and Tobago is the largest producer of the leaves. Dasheen produced for leaves is relatively easy to grow. A rapid appraisal conducted by the National Agricultural Marketing and Development Corporation (NAMDEVCO) in June 2007 estimated total production of dasheen leaves in Trinidad is approximately fifty acres. The two major production zones account for an estimated 90% of the country’s total production. The general consumer opinions in municipal markets of San Juan, Tunapuna, Arima and Debe in Trinidad and Tobago are that root crops originating from St. Vincent and the Grenadines are of a preferred standard.

Production for major producers between 2004 and 2006 is provided in Table 1. The data suggest that Dominica was the leader in dasheen production over the 2004 to 2006 period, followed by Jamaica, Guyana and Trinidad and Tobago.

Table 1: Production (MT)/Year of Dasheen by Selected Producers, 2004-2006				
Country	2004	2005	2006	Average
Guyana	6,594,000	3,595,000	4,255,600	4,814,866.7
Jamaica	9,750,000	8,656,000	10,993,000	9,799,666.7
St. Lucia	*1,229,169*	*580,275*	*958,713*	*922,719*
St. Vincent & the Grenadines	2,500,000	3,818,181	3,9544,545	3,424,242
Dominica	11,655,000	11,503,000	11,446,000	11,534,667
Trinidad & Tobago	4,322,000	4,408,000	-	4,365,000
Source: National statistical offices Figures for St. Lucia represent production for the 2001-2003 period				

Abijah Buchanan - The Dasheen Bush Man

Now, dasheen, as a staple, is surprisingly not as widely consumed locally as one would imagine considering its delightful flavour and delicate texture. It is certainly comparable in those characteristics with the various forms of yam, green bananas and potatoes. It did, however, find a very lucrative niche on the export market and would have rivalled yam exports in importance except for one reason - inadequate supplies. There simply was not enough acreage in cultivation. Worse yet, yields were abysmally low. Then, along came Abijah Buchanan and things began to change. It appears Abijah became aware of the poor yields the dasheen growers in his area were achieving and became concerned about it. He felt that much more could be achieved with the proper approach so he studied their methods of production and soon realised that there was one missing input - water. Somewhere along the line the farmers had accepted the quaint notion that dasheen does not need water to thrive so

they planted it and left it to fend for itself. Even so they got a crop even when the rainfall was poor. After a few seasons of experimentation with different permutations and some frustrating failures, he hit on the right combination of water and plant density. Through his vision and hard work, the growing of dasheen was revolutionised. His method resulted in increased yields of as high as ten times what was obtained previously. The export of dasheen soon began to rival that of yam and Abijah Buchanan became the farmers' hero and the "Dasheen Man".

[Jamaica Gleaner, Friday | February 28, 2003. Hugh Martin is a communications specialist and farm broadcaster. E-mail: humar@cwjamaica.com; http://www.jamaica-gleaner.com/gleaner/20030228/cleisure/cleisure3.html]

…In terms of food


Bhaji burgers

Dasheen is highly nutritious. It qualifies both as a vegetable (dark green leaves) and as a staple (corm) essential in a healthy diet. The root crop is high in a number of vitamins, iron, potassium and other nutrients and in dietary fibre. It contains no cholesterol and fats. In its primary form, the dasheen corm is used as an item in many dishes and is very popular. In addition, the leaves are also used to produce what is termed callalou or callaloo in the region. This item is used as a soup or as a side dish in meals. It must be cooked because it is toxic when raw. Dasheen can be boiled, baked, roasted, used for purees, or fried. The taste is earthy and is often thought to be more like nuts. Any potato recipe can be adapted to use dasheen, but it should always be served hot, as its texture changes when cold.[27] In terms of value added, a number of items including dasheen chips, flour, jam, wine and ketchup can be produced.

The Story of a Trini Dasheen Farmer


Dasheen leaves

Mr. Ramkissoon, a farmer in North Trinidad grows dasheen leaves. Dasheen leaves, or callaloo bush, is key ingredient in the national dish callaloo. Because of the high demand for leaves, dasheen is grown mostly under paddy conditions. This cropping system has little international experience and as a result, good quality scientific and other information needed to increase productivity and transform it into a solid and expanding business, has not been generated. As a result, dasheen-leaf producers have had to experiment, learn-by-doing and become innovators. Mr. Ramkissoon has innovated out of necessity. On his small plot, he operates a 'flooded' grow box system where the plants and pathways are submerged. This system has greatly facilitated harvesting and maintenance, but is expensive and would probably not be cost effective on a large scale. Mr. Ramkissoon knows that value-adding, 'ready-to-eat-foods', is the way to go! He would like to produce the popular saheenas or 'bhaggi burgers', in frozen form, for the local and niche markets in Europe and North America. The opportunities are ripe for the picking. Literally! Adding value has the potential for tripling to quadrupling farmer incomes: one saheena fetches TT$3.00 (US 0.50); dasheen leaves wholesale at between TT$1.20 to $1.75/lb. 1lb dasheen leaves = roughly ten saheenas. The relatively few numbers of farmers producing the crop makes it easy to organize them to supply a processing facility to produce frozen saheenas or other value added products, such as callaloo soups.

[Adapted from lead story in the electronic i-bulletin, #1 or 2007, aimed at promoting a wider appreciation of information and knowledge management for agricultural development generally and specifically, support for the IICA/CTA MEAgrISys project]

In terms of trade

Dasheen is considered a root crop with good export potential to the UK, France, Holland and US (Archibald, 2003). In recent years, these countries have been increasing their demands and this has re-

sulted in a fivefold increase in dasheen exports during the past 10 years (Robin, 2004).[28] DEXIA will soon be exporting 22,000 lbs of dasheen to the US on a regular, monthly basis, reflecting 'strong demand'. Trinidad, for example, exports largely dasheen leaves to New York, Miami and Toronto, to the tune of roughly US$1.6mil., per annum. Over the 2001-2005 period, Jamaica's exports averaged US$1 million worth of the corm. Recently, (May 2008) the Dominica Export Import Agency (DEXIA) says that they will be soon exporting 22,000 lbs of dasheen to the US on a regular, monthly basis, reflecting 'strong demand'. This 'strong demand' is linked, in part, to the increased health focus by consumers and good demand in export US and UK market segments normally referred to as the 'diaspora'. In diaspora market presents a particularly lucrative one for value added dasheen products. The Trinidad and Tobago, St. Lucia and the diaspora in North American markets appear to be most attractive given the volume of food traditionally imported into these countries,[29] the tourism focus of the countries and the proximity of these markets to the processors. In the case of the North American market, the diaspora in those countries are very open to foods from the Caribbean.

Table 2: Exports (Kg)of Dasheen, Selected Countries, 2004-2006

Country	2004	2005	2006	Average
Guyana	50,000	54,000	52,000	52,000
Jamaica	na	na	na	na
St. Lucia	na	na	na	*na*
St. Vincent & the Grenadines	2,010,708	3,339,324	3,462,823	2,937,618
Dominica	679,952	615,412	-	647,682
Trinidad & Tobago	100	0	3,607	1,854

Source: National statistical offices

The fact that dasheen prices are relatively competitive has also facilitated the current trading patterns and dynamics. Prices of dasheen from St. Vincent and the Grenadines tend to be relatively more competitive than that locally produced in Trinidad and Tobago. Prices however, fluctuate depending on the availability of markets and are affected by price mark-ups by intermediaries and transportation costs. The development of a supply chain and eventually a dasheen cluster will have a positive impact on flattening dasheen prices and enhancing the competitiveness of the raw material for engaging in competitive processing.

As the above discussion suggests, dasheen exports have enjoyed fairly good success despite the fact that its production base remains small, scattered and of rudimentary technology, both in terms of fresh and processed products. Export data from Jamaica does indicate that over the 2001 to 2005 period, dasheen exports from Jamaica was the second most important root crop export, second only to yam. There was also the admission that the decline in export earnings of dasheen was due to declines in production. Thus for all countries, the dasheen production base has been a major limitation to expanding the industry, both in terms of value-adding and bulk exports. When the production and trade data are compared, it appears that a number of the higher producing countries lack export capacity.

What kind of Cluster?

Developing a dasheen cluster in the Caribbean, while drawing from the theoretical models and the New Zealand experiences in developing an industrial/commercial cluster, should also take into consideration the indigenous influences, experiences of farmers' organizations in the region, and national and regional dynamics.

The glossary of terms related to 'cluster' defines a potential industry cluster as 'a group of related and supporting businesses and institutions that, given additional core elements, inter-firm relationships, or critical linking sectors, would obtain some pre-defined critical mass.' In deciding whether dasheen fits the bill as a potential cluster that can be established and made viable and sustainable will be examined based on the key element of the definition.

'…a group of related and supporting businesses…'

The preceding discussion indicated the existence of several, but independent producers in dasheen production in several countries in the region. In fact, it is estimated that there are over 200 small-scale dasheen farmers in St. Vincent and the Grenadines. Some of these are part of a farmers' organisation, such as, Eastern Caribbean Trading Agriculture and Development Organisation (ECTAD) that is coordinating the production and export of dasheen to the UK and other favourable markets. This suggests the presence of alliances between small pockets of farms/firms working together to achieve goals they cannot realize alone. In the context of the definition, while these dasheen farmers may, in large part, be related by virtue of cultivating a common crop, it would be a stretch to conclude that they qualify as a group or related and supporting businesses. The latter is of particular significance, especially in the context of the two articles highlighted above that also suggest that in the main, the 'business' aspect of dasheen farming is rather weak. Further, it is well documented that fragmentation is a major limiting factor in the small farm/firm sector in the Caribbean, which has serious implications for efforts at cluster development.

Hence, in efforts to develop a dasheen cluster, the mobilization of producers at the farm level will require concerted mobilization efforts to secure the supply base capable of satisfying the fresh and processed foods markets. Given the current situation where Dominica, Jamaica, St. Vincent and the Grenadines and Trinidad has developed a fairly good and stable supply capacity, it could be that producers in these countries could be 'clustered' to become the source of produce and raw material. In this regard, then, the strategies would identify and focus efforts on mobilizing and consolidating a community of dasheen producers at the national level, linked together in the region, through networking tools. This would become the first step in building a reliable dasheen supply chain among dasheen farmers in the region.

If one examines whether 'groups of related and supporting businesses' applies to the processors, then the situation will change substantially. There are a few large food, snack and beverage processing industries in the region, mainly in Barbados, Grenada (including products of the milling sector), Jamaica, Trinidad and Tobago, and St. Vincent and the Grenadines (including products of the milling sector). There is also a vibrant small and medium sized enterprise sector in the food sector in the Caribbean, processing crops that have a well established processing potential.

The evolution of processing of root crops has been very slow, even with the considerable attention given to research into sweet potato and cassava chips and fries and arrowroot flour. Banana, plantain and cassava chips are common, while cassava and arrowroot flour, pancake and porridge mixes are being produced by a limited number of small firms around the Caribbean. Some processors are beginning to express interest in exploring the processing of more root crops, including dasheen products, based on the emerging market opportunities for non-traditional value-added products.

Hence, simultaneously with the efforts at building the supply chain for dasheen, there should be a mobilisation effort aimed at securing and consolidating a group of processors that will expand the opportunities for marketing through value-added dasheen products. Value-added is the more significant revenue generating aspect of the industry. In this regard, this financial dominance may foster a situation where the processors will be the primary drivers of the cluster. The key factors that guide the determination of the location of such processing capacity are relative energy and labour efficiencies and reliable export transportation services. In this regard, Trinidad and Tobago has established itself as the primary agroprocessing hub in the region. The use of contracts and guaranteed prices by the processors can inject greater confidence in the supply chain and strengthen inter-firm relationships. The result will be an improved environment that encourages the adoption of and adherence to best practices, transfer and utilisation of appropriate and productivity-enhancing technologies and results in expanded production and export capacity in raw material supplying countries. This will contribute to the aspect of the cluster definition that speaks to “buyer-supplier relationships, common technologies, common buyers and distribution channels”.

With Trinidad and Tobago possessing a certain production capacity, the enhancement of the processing industry may spur domestic production to capitalize on opportunities in the industry. However, the current domestic supply of dasheen will not be sufficient to sustain processing, particularly as the dasheen is valued more for its leaves than the corm. In this regard, utilizing imports from other Caribbean countries is an option to be explored, and in this context, building a reliable dasheen supply chain becomes instrumental. Similarly, for St. Vincent and the Grenadines, with the establishment of a root crops processing facility at Lauders, domestic production is expected to receive a boost to meet the requirements of the plant. However, operations at the facility appear limited and may not be ready to absorb the supply pro-

vided. In this area, the synergies established as a result of a supply chain will foster excess dasheen exports to Trinidad and Tobago for processing. Success at this will enhance the possibility of developing a 'pre-defined critical mass' that will set a firm foundation for the emergence of a regional dasheen industry cluster in the Caribbean.

'…buyer-supplier relationships or distribution channels…'

The buyer-supplier relationship and common distribution channel is essential to bind the supply chain. In the current environment where dasheen producers essentially operate independently, the only binding elements, albeit weak, could be considered to be extension officers, an umbrella farmer association, if any exists, and the buyers, such as the traffickers/hucksters/traders that buy produce from a range of individual farmers. In this regard, the mobilization of markets, particularly the forging of linkages with major supermarket chains, is the key to the growth of a supply chain and an industry cluster. This is particularly so for those supermarket chains that are relatively supportive of locally produced value added, such as, TruValu, HiLo, JTA, Maraj, Xtra Foods supermarkets in Trinidad and Tobago, Super J's and JQs in St. Lucia. This is critical to determine demand, enable effective distribution and is essential to the cluster development process. There are also a number of wholesale and retail companies that are willing to explore new local, value-added products. These companies are at the front line in terms of consumer satisfaction and hence the issue of standards is essential to their success. This presents a formidable challenge to the traditional methods of selling dasheen, for example sold by the sack in St. Vincent and the Grenadines. Hence, these supermarkets themselves either contract individuals or small companies to package fresh root crop products for better shelf presentation and convenience.

The role of the supermarket chains therefore becomes wider than just providing a distribution channel. Supermarkets are an important source for advertisement and promotion of new products, which contributes to influencing consumer tastes and demand patterns. The ability to influence consumer purchasing patterns towards dasheen value-added products is an important factor in sustaining a cluster. Extra-regional markets are fairly mature in terms of consumption preference. But there is always a niche segment looking for new eating experiences and novel products. To penetrate and sustain a presence in these markets, presentation, taste and convenience sometimes rank more highly than nutrition. Caribbean markets are also maturing and convenience has also become a major demand pull.

While in the long-run, nutrition may eventually overtake presentation, convenience and taste, the initial entry into supermarkets will depend on the success of these aesthetics, especially since it will be competing against known, familiar and readily available substitutes, such as rice and pasta. In moving the industry forward, additional research is required to highlight the potential benefits of the crop in addition to nutrition as well as to fully appreciate the constraints associated with the root crop[30]. The linkage with the supermarket players will play a critical role in establishing these aspects of the product and will ensure visibility and provide opportunities to create consumer demand.

The absence of firm market relationships that offer common distribution channels and solidify buyer-supplier relationships negates the rationale for establishing the cluster. In addition, the lack of export transportation will also frustrate efforts at binding this buyer-supplier relationship and developing viable clusters. While transporters are traditionally not directly involved in the cluster development process, their presence and cost effective access to their services is critical for the growth of the cluster.

In this regard, sea freight, with lower relative costs and greater carrying capacity than air freight, becomes a pre-requisite. The absence of reliable, organised and quality transportation has long impacted on intra regional trade. Although transportation has always been a significant concern for moving products within the region, a CARICOM study has concluded that it is not a major limitation to the development of regional industry clusters. There are several inter-island schooners operating in the region that provide an invaluable service in moving significant volumes of fresh produce. However, these small scale schooner operators do not generally adhere to international standards. With efforts to strengthen the supply chain, similar efforts must be made to develop inter-island transportation, whether it be upgrading these inter-island schooners, or acquiring a dedicated shipping space in the more formal shipping sector. The conditions onboard the inter-island schooners are generally not commercially oriented for value-added products. Consequently, processors opt to transport goods via air freight, depending on the competitiveness of the prices and availability of freight. Air freight will remain relatively more costly for moving fresh produce compared to value added products. Further, the high cost of air freight in the region, the relative absence of specified cargo flights and the subsequent transportation on commercial passenger flights, transportation of fresh agricultural produce will continue to rely on sea freight.

'…additional core elements…'

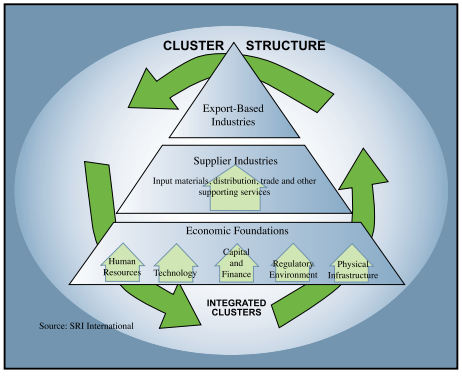
The preceding discussion focused on the private sector aspects of cluster development in terms of elements critical to establishing supply capacity. While these are essential pre-requisites, other 'additional core elements' must be provided if the critical mass is to be obtained and a firm foundation built for cluster development. Unlike the traditional approach to cluster building, involving individual companies, the cluster development model requires the mobilization of individual, independent farmers. This is a major challenge that relates to the issue of group dynamics and governance to achieve an environment of trust and collaboration among individuals as part of a group. In the current situation, much of the collaboration is based on informal agreements, where business is undertaken entirely on the willingness of parties to engage. The arrangement can be dissolved by either party at their pleasure. For effective cluster building, more formal arrangements, such as that obtained through contractual obligations, will need to be introduced and adhered to. This will also reinforce the business aspect of cluster members and ensure the stability of the cluster in the market.

Often time, this effort involves a third party to mobilise partners and manage the group dynamics, at least during the early stages of 'collective action'. Hence, the support of regional and international organisations, such as the Organisation of Eastern Caribbean States, Caribbean Agricultural Research and Development Institute (CARDI), the Caribbean Agribusiness Association (CABA) and the Inter-American Institute for Cooperation in Agriculture (IICA), complementing those of national private and public sector organisations, will be critical. While the private sector is best positioned to drive the efforts at mobilising stakeholders and creating linkages, in today's environment, private-public sector partnerships have been shown to be more effective and self-sustaining. This is also given the reality that private sector firms, themselves, are fully occupied in managing business operations and may also not have the resident expertise to undertake the tasks. Hence, an essential and shared agreement between the public and private sector partners is the selection of a facilitator. The cluster development models all strongly suggest the need for a facilitator - an individual or institution - in playing a critical role in guiding the process. To ensure neutrality and confidence by the private sector, the various chambers of commerce, agricultural marketing boards or agribusiness associations can be selected to act as facilitators. The various players may express greater confidence in a body than an individual.

Yet, in looking at the efforts at cluster development for the poultry, rum and sugar industries, the process saw some level of individual facilitation of the cluster development process. The emergence of CABA as an umbrella organisation for agribusiness associations could also evolve as a cluster facilitator, particularly given the existence of national chapters in the countries highlighted for a dasheen cluster. As at 2008, CABA is implementing an Inter-American Development Bank funded project titled 'Strengthening Market Access Opportunities for SMEs in the Caribbean AgriFood Industry'. This project aims at enhancing the capacity of stakeholders to export and meet the requirements of global markets. More importantly, the project ensures that domestically, the quality of food produced is of a relatively high standard. In this regard, the CABA project can benefit dasheen stakeholders and enhance their supply and trade capacity and by extension, their cluster development.

Can Agriculture Cluster?

In the context of the described constraints in the regional 'Agricultural Repositioning Initiative', led by President Jagdeo, to agricultural development on the Anglophone Caribbean, clusters as an independent, stand-alone strategy will not provide the immediate relief sought. In keeping with the SRI International Cluster pyramid, the base, or 'Economic Foundation' or as is commonly referred to in the Caribbean as the enabling environment is still regarded, in 2008, as a major limitation to the emergence of competitive farms, firms and industries. These are largely in the purview of the public sector which either provides the framework for, or supplies the essential services to facilitate competitive business.



Of the five elements defined in the base, at least three are explicitly specified among the nine Key Binding Constraints (KBCs) in the 'Agricultural Repositioning Initiative'. These are human resources, in terms of labour skills, professional and advisory services and management, technology, stated as inadequate research and development, capital and finance, stated as lack of financing and new investments. The latter is of particular significance in terms of the provision of an essential facility - effective business incubation – to grow nascent businesses and clusters. Other major hindrances in the Caribbean remain the ab-

sence of supportive labour markets and infrastructure. The other two elements, regulatory environment and physical infrastructure, are partially reflected in the KBCs of outdated agricultural health and food safety systems and inadequate risk mitigation facilities, respectively. According to the USAID (2003), in cases where a policy, legal and regulatory issue is overriding, public sector receptivity to change on that issue must be strong for a cluster-based approach to progress. Given this situation, one could be driven to conclude that the economic foundations in the Caribbean are not, at this point, facilitative for the emergence of clusters in agriculture. However, it could also be argued that resources could be mobilized to build the key aspects of these economic foundations to the needs of a specific cluster. This is because, if one argues that such actions cannot be initiated until these economic foundations are in place, then cluster development will not be attempted.

One could also ask the question, what if the second tier exists in sufficient form to support cluster emergence and development, would the limitations of the base tier be so binding? The second tier defines the supplier industries. Of these, input materials are also a source of concern in Caribbean agriculture, in terms of pricing, availability and effectiveness. This is especially related to the primary production sector. The issue of inputs for processing is largely related to competitive supplies of raw materials for processing. Other defined elements of distribution, trade and other supporting services are also deemed to be generally inadequate for nurturing agribusiness in the Caribbean.

Given this situation, it would appear that the emergence of export-based industries, comprised of combinations of small and large number of enterprises, as well as small and large firms in different proportions, could be constrained. The USAID (2003) also concluded that based on best practices, the private sector must own and drive the process of cluster development and be willing to put “sweat-equity” investment in the cluster – the most critical determinant of success. The various assessments of agribusiness in the Caribbean, summarized by the key binding constraint of ‘fragmented and disorganised private sector’, suggests that such a `cluster core’ of highly specialized firms within the same industry has not yet materialised in agriculture in the Caribbean. However, a few large, diversified pan-Caribbean industries, such as Grace Kennedy, Ansa McAl, Cannings, Matouks, etc, do exist and have carved out and sustained their market presence in regional and international markets. These are individual companies and cannot be classified as clusters.

However, the most important limiting factor in the Caribbean that poses significant challenges to the development of potential clusters is the lack of full engagement of all three layers of the pyramid, working towards a common goal to achieve operational synergies and dynamism.

The situation is not as bleak as an assessment based on a theoretical construct. Fortunately, in a number of instances the rudiments of sectoral clusters exist. This is referred to in the literature as 'latent clusters', that have a critical mass of farms/firms in related industries sufficient to reap the benefits of clustering, but have not developed the level of interaction and information flows necessary to truly benefit from co-location. The farms/firms do not think of themselves as clusters and, as a result, do not think of exploring the potential benefits of closer relationships with other local organizations (Enright (1998). These 'latent' clusters, if given additional core elements, particularly as defined in the two lower layers of the pyramid, would obtain some pre-defined critical mass and be elevated into the category of 'potential clusters'. Potential clusters are those that have some of the elements necessary for the development of successful clusters, but where these elements must be deepened and broadened in order to benefit from the impact of agglomeration. Often there are important gaps in the inputs, services, or information flows that support cluster development. Like latent clusters, they lack the interaction and self-awareness of working clusters.

The Case for Dasheen

In using the SRI International selection criteria for highly potential clusters, how does dasheen fare? Does it offer clear promise for growth as well as expanded and new opportunities for investment? The evidence suggests yes; the opportunities for value-adding dasheen are relatively unexplored but promising. When added to a basket of root crops that have well established potential, dasheen clusters will add to growth and investment prospects.

Does dasheen possess an existing critical mass of skills and resources?

On the skills aspect, most would agree that dasheen farmers are well experienced in dasheen production, and with well targeted upgrading of technologies and farm operational procedures, would become very efficient. On the aspect of possessing an existing critical mass of resources, the situation appears

less complementary. However, this is not unique to dasheen, but ails the entire agriculture sector, and more particularly, primary production.

Is it capable of generating substantial employment opportunities?

Dasheen farming is relatively labour intensive. Dasheen processing, if done by numerous SMEs, which form the base for cluster development, will also require labour. Combining these two labour requirements provides sufficient preliminary evidence that would point to the capacity of a dasheen cluster to generate employment opportunities at levels similar to other agriculture ventures. When all other labour requirements of supporting services are added, the possibilities appear even more favourable.

Does it exhibit strong potential for generating export and foreign exchange earnings?

The data and experiences presented in the discussion show clearly, that dasheen exports have generated relatively good export trade and earnings. The potential for expanding trade and increasing net foreign exchange earnings will undoubtedly improve markedly if a dasheen cluster can be successfully mobilised and nurtured.

Does it demonstrate strong interest in collaborating on common issues?

With the exception of the ECTAD experience, there is no specific evidence of 'coopetition' among dasheen producers in Caribbean countries. Again this situation is not unique to dasheen as shown by the experiences in establishing and sustaining viable farmers' associations and cooperatives. However, recent trends suggest that given the evolving situation with global food markets and the need to ensure survival, farmers' organisations are taking more concerted efforts to cooperate and collaborate on common issues. Also there is an increasing movement among individual producers towards collaborating as issues of major significance emerge.

Is dasheen a good candidate for cluster development?

Are there any considerations that would emphatically suggest that dasheen will not be a good candidate for cluster development? Is the case for a dasheen cluster that described in the literature as 'wishful thinking clusters' chosen by governments for support, but which lack a critical mass of firms or favourable conditions for organic development? Does there exist one strong leader who can make an enormous difference and provide a strong impetus for change? With respect to the latter, Jethro Greene, Coordinator of ECTAD is optimistic that there are many success stories in agriculture around the region, where "farmers were doing amazing things and making money from agriculture. Amazing things can be done if we allow people into the process." This provides some evidence of multiple champions that can drive a dasheen cluster in the region.

Other issues include whether or not cluster development is more challenging in non-traditional sectors, which often do not have as long a history of industry organisation as traditional industries. In fact, the USAID (2003) findings were just the opposite, that cluster development is often hardest in traditional industries. They concluded that participants in such sectors have "histories" with each other, that is, memories of "glory days" tend to produce backward- rather than forward thinking and new ideas or participants can threaten older leaders, who may think that only they know the sector. From their results, it was clearly demonstrated that traditional sectors are reluctant to embrace the new ways of doing business embodied in cluster development.

Additional considerations

Notwithstanding weaknesses, the benefits of cluster development are clear and unambiguous. In the Caribbean context, clusters could provide an important means of creating economies of scale and enabling smaller firms to increase their capabilities of exporting faster (Gray, Harvey & Brimblecombe 2003). Given the distance from most export markets and the cost and time involved in establishing new overseas markets, these are critical benefits.

Strongly performing clusters have a proven track record in improving efficiencies, and driving innovation and productivity. As a result, higher real wages and profits will result, leading to higher investment,

more product development and faster technology acquisition. Clusters therefore provide the systems where regional innovation can directly lift the standard of living of the Caribbean people as measured by Gross Domestic Product (GDP) per capita. According to Gray et al. (2003), clusters based around unique regional specializations, also help to secure the economic future of the region within the global economy. Also, a prosperous regional economy thrives on strong connections between groups of related companies, and local developmental institutions have a significant role to play as proponents of such relationships.

A critical issue is whether the national and regional environment is enabling of cluster emergence and development and whether potential cluster members have the flexibility and choice to be part of a cluster and choose the type of cluster to develop. In this regard, two aspects need to be clarified. The first is the role of government in promoting and enabling cluster development. Ketels at al (2003) notes that the clustering process should not be forced onto members but rather be selected through a consultative process whereby members have the flexibility and choice to be part of a cluster and choose the type of cluster to develop. The development experiences suggest that using a public-sector-led process of 'picking winners' in leading sectors to cluster will result in a failure to stimulate private sector leadership.

The second relates to EDA's (1997) five key 'rights' or reasons for determining when to adopt the cluster approach. These are the right:

1. economic scales- thinking regionally rather than on a single community or country.
2. economic challenge- responding to the need for economic restructuring, to improve economic inputs used by industries and effectively shape development projects.
3. economic focus- thinking of the region's cluster portfolio and a regional vision rather than one industry or company.
4. leadership and strategy process- having leaders and organizations that care about the region's economy and are ready to use an inclusive and collaborative process to engage industries and institutions.
5. capacity to take action- working regionally to face challenges with adequate technical and financial resources to work together for shared returns.

Porter (1998) advises that cluster development initiatives should embrace the pursuit of competitive advantage and specialization rather than simply imitate successful clusters in other locations. This requires building on local sources of uniqueness through areas of specialization, which normally proves more effective than head on competition with well established rival locations. This is based on the recognition that cluster initiatives often face three critical challenges;

a. Monitoring performance: it takes a long time to realize and measure success and will depend on other external factors as well;
b. Organizing the cluster initiative (CI) process over time: moving from setting objectives to implementing solutions, requires a massive shift in the participation of cluster members; and
c. Integrating the CI in a broader microeconomic policy agenda, CIs will be much more effective, if they occur in the context of other CIs and the upgrading of the business environment areas affecting many clusters.

Critical for the success of cluster initiatives are: a common vision; a local leadership team, formulating a focused approach; tight integration with all participants moving in the same direction; information spillovers, multiple linkages and networks that build trust and bridge system gaps; and a high degree of rivalry and competition, yet cooperation for the participants' mutual advantage. There are countries in the region which proclaim a common vision, a local leadership team, a focused approach, tight integration with all participants moving in the same direction, information spillovers, multiple linkages and networks that build trust and bridge system gaps, and a high degree of 'coopetition'. Such countries will have the foundation upon which to build the SRI International Pyramid based clusters.

To Cluster or not to Cluster? Ten critical steps to developing sustainable regional business clusters:

Step 1 - Link sustainable development and cluster policies
A Regional Economic Strategy often has sustainable development as an overriding objective but it has to link much more explicitly to cluster policy. This should not just be down to the sustainable development teams either: it should be an integral objective within regional organisations.

Step 2 - Selling sustainable development as better business sense
Regional organisations need to let businesses know how working together will not only deliver economic, environmental and social benefits but also help them become more innovative and competitive.

Step 3 - Tailor interventions to individual clusters and sectors
Regional organisations need to determine the best sustainable development measures for the clusters in their area to work on. Some initiatives are generic, such as improving the landscape of an area, whilst others are specific, like waste re-use. For example, in some parts of Europe, cluster support initiatives have been created to identify issues on behalf of businesses within their cluster.

Step 4 - Share learning experiences
Regional Development Agencies (RDAs) have the potential to create the demand for sustainable development initiatives amongst businesses and then share the learning and experiences.

Step 5 - Focus on quick wins
Sometimes the advantages of working together are obvious: in waste disposal or re-use, for example, where costs can be saved and new opportunities created. The RDAs should start with these areas when promoting the idea of working together.

Step 6 - National governments to link sustainable development and cluster policies
At a national level there is also a failure to make an explicit link between sustainable development and cluster policy. Making this link would provide guidance to the RDAs and also send a message about the importance of these links. National government can help facilitate sharing examples between regions.

Step 7 - Facilitate networking
A key element of businesses working together on sustainable development initiatives is building trust and co-operation. One of the most important success criteria for clusters is networks and networking and this need to be fostered. The opportunity for businesses to work together on sustainable development initiatives would ideally build on existing networks. Such networks are ideally placed to facilitate businesses working together on sustainable development initiatives.

Step 8 - Encourage innovation
RDAs should challenge business clusters to be innovative. Whilst learning and experiences can be shared, it is important not to be too prescriptive and to encourage businesses to develop new ways of working together. For example, in the East of England, businesses within the motor sports cluster are working together to develop biofuels to improve energy efficiency.

Step 9 - Use scrutiny process
The intense examination of the RDA's cluster policy from a sustainable development perspective by the governments, businesses and other organizations and groups could spur on the integration of cluster and sustainable development policies within the RDA. It could also provide additional guidance on how these objectives could be achieved.

Step 10 - Review and reappraise
Any process needs to be regularly monitored and appraised. The links between cluster and sustainable development policies needs to be regularly reviewed to incorporate new developments and new thinking as well as take account of past experiences and learning.

The OECD Leed programme[31] provides a useful guide organised in terms of 'Strategy to build and strengthen a Cluster' which speaks to cluster mapping, competitiveness initiatives and attracting foreign direct investment, 'Designing the Cluster programme' which addresses issues such as cluster sustainability, limited state intervention and public-private sector partnerships, and 'Cluster management' which deals with institutional governance and human resource development of cluster members. These guidelines can complement the steps provided above in efforts to build clusters for competitive value chains in the Caribbean.

In Conclusion

The evidence indicates that clusters cannot be cemented into place by purely external means. There must be a genuine desire for, and recognition of, the benefits accruing to clusters by the would-be participants themselves. There must also be a critical mass of industries with a geographic concentration in well-defined sectors; this is a prerequisite for successful cluster initiation. Local industry champions who believe in collaborative change and are willing to motivate the other members must be identified, nurtured and supported. Clusters depend on strong linkages with suppliers and customers as facilitated by appropriate research and education entities. Any movement towards cluster development in agriculture in the Caribbean will require much more economic linkages and inter-sectoral cooperation above what currently exists. Effective business clusters can contribute significantly to improvements in government policies that affect competitiveness. They can also promote overall cluster strategies that can focus attention and resources on the issues most important for long-term competitiveness.

Given the challenges of gestation, the length of time it takes to realize and measure success, a great deal of political will is necessary. Moving from setting objectives to implementing solutions will require more proactive operations than currently obtains in most of the agricultural sectors in the region. Potential cluster members will have to demonstrate more intense participation and clearly see where these activities fit into national or regional policy. The current lip service being paid to agriculture as a result of perceived food and energy crises in 2007/2008 provides an excellent backdrop against which clusters can be promoted.

Why Cluster?

The challenges facing Caribbean Agribusinesses are wide-ranging and systemic. The use of agglomeration measures, like clusters, presents a possible means of alleviating several constraints. In so much as clusters are frequent in developing countries, and the private sector there mostly consists of SME, promoting clusters appeared to be as a promising new approach to stimulate latecomer industrialization (Schmitz 1989). Clusters promised to reduce all sorts of barriers – barriers to intra-firm competence building, as firms could specialize more; barriers to exports, as local firms could work jointly in export consortia; barriers to upgrading, since an agglomeration of many firms of the same branch created strong

demand for business development services. In both industrialized and developing countries there is increasing awareness that isolation, rather than size, is the key obstacle, preventing SMEs from boosting their competitiveness. Groups of firms located in close proximity (also known as clusters) have proved to be capable of rapid economic growth, sustainable leadership in export markets, significant employment generation and/or preservation of high-value-added jobs, and sustained technological progress.

Evidence from both developed and developing countries testifies to the unique opportunity that SME cluster development provides for reconciling the objective of economic development, environmental sustainability and social equity. In the many dynamic clusters to be found around the world, the successful features are the outcome of the co-operative linkages both between local firms and among local firms and business partners (such as suppliers of plant & machinery, producers of raw materials, testing laboratories, financial institutions, industrial associations; technical and management consultancy organizations, training institutions and local government agencies). Unfortunately, in many developing countries, cooperation within clusters is hard to find. Very low levels of trust, latent conflicts, and absence of suitable discussion fora are the unequivocal markers of an “under-performing” cluster.

There is precedent and evidence to suggest that cluster initiation as part of a well-researched, end-user determined agribusiness policy framework, can be a significant boon to development efforts in agriculture and related sectors. However, clusters cannot be seen as a quick fix. The case studies of business clusters internationally suggest that eight to ten years are required for the full benefits to be realized.

Annex I
- Industrial and Regional Clusters: Concepts and Comparative Applications[32]

GLOSSARY OF TERMS	
Concept	**Definition**
Sector (or Industry)	A sector or industry is a group of enterprises that manufacture similar products, as typically defined, for example, under the U.S. Standard Industrial Classification (SIC) system.
Industry cluster	A group of business enterprises and non-business organizations for whom membership within the group is an important element of each member firm's individual competitiveness. Binding the cluster together are "buyer-supplier relationships, or common technologies, common buyers or distribution channels, or common labour pools (Enright 1997, p. 191)." See Porter (1990).
Regional industry cluster	A cluster whose elements share a common regional location, where region is defined as a metropolitan area, labour market, or other functional economic unit.
Potential industry cluster	A group of related and supporting businesses and institutions that, given additional core elements, inter-firm relationships, or critical linking sectors, would obtain some pre-defined critical mass.
Value-chain industry cluster	A value chain cluster is an industry cluster identified as an extended input-output or buyer-supplier chain. It includes final market producers, and first, second and third tier suppliers that directly and indirectly engage in trade. It is comprised of multiple sectors or industries. (See Roelandt and den Hertog 1999). A "Value-chain cluster" is consistent with an "industry cluster" as defined by Czamanski and de Ablas (1979, p. 62): "a subset of industries of the economy connected by flows of goods and services stronger than those linking them to the other sectors of the national economy." May also be defined as potential, where enterprises may or may not presently trade with each other, although such trade could possibly occur in the future.
Business network	"A group of firms with restricted membership and specific, and often contractual, business objectives likely to result in mutual financial gains. The members of a network choose each other, for a variety of reasons; they agree explicitly to cooperate in some way and to depend on each other to some extent. Networks develop more readily within clusters, particularly where multiple business transactions have created familiarity and built trust (Rosenfeld 1995a, p. 13)." Ties between firms in networks are typically more formal than in clusters.
Italianate Industrial district	A highly geographically concentrated group of companies that "either work directly or indirectly for the same end market, share values and knowledge so important that they define a cultural environment, and are specifically linked to one another in a complex mix of competition and cooperation (Rosenfeld 1995b, p. 13). Key source of competitiveness are elements of trust, solidarity, and cooperation between firms, a result of a close intertwining of economic, social, and community relations. See also Harrison (1992).
Industry complex	"A group of industries connected by important flows of goods and services, and showing in addition a significant similarity in their location patterns (Czamanski and de Ablas 1979, p. 62)."
Innovative milieu	Not a group of business or a region, but a "complex which is capable of initiating a synergetic process. . .an organization, a complex system made up of economic and technological interdependencies. . .a coherent whole in which a territorial production system, a technical culture, and protagonists are linked (Maillat 1991, p. 113)." See also Maillat (1988).

Resources

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IICA

IICA is a specialized agency of the Inter-American System established to encourage and support agricultural and rural development in Member States. For over six decades, IICA has built up a network of skilled professionals and administrators in Office in 34 countries of the Americas, providing technical support and working together with public and private sectors and civil society to develop agriculture and rural communities. IICA is the secretariat for the AgroPlan 2003-2015 and supports member states to implement its vision.

www.iica.int

CTA

CTA is an ACP-EU institution working in the field of information for development, operating under the ACP-EU Cotonou Agreement. CTA was given the task in 1984 of improving the flow of information among stakeholders in agricultural and rural development in African, Caribbean and Pacific (ACP) countries. Important areas of work are providing information products and services and building capacity in managing information and communication, mainly through training and partnerships with ACP organisations, including IICA and CARDI.

www.cta.int

Globalisation has brought with it a new level of production co-ordination between countries. With new trade agreements based on reciprocity, such as, the EPA, the stakes now are higher than before. It will no longer be sufficient to merely negotiate market access without addressing the issue of market presence; and in this context a discussion on 'clustering' as a vehicle for developing the agriculture business becomes valid. An understanding of cluster and value chain development is essential to define new strategies for inserting firms, industries, groups and regions into global production and distribution systems in more equitable and sustainable ways. This paper brings the issue of 'cluster development' into context, guided by both theory and practical examples in and outside the Caribbean.

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