

GENERAL  
LC/CAR/G.752  
29 September 2003  
ORIGINAL: ENGLISH

**COMPARATIVE STUDY OF POLICIES ON TECHNOLOGY AND INDUSTRY  
IN THE CARIBBEAN AND THEIR EFFECTS ON DEVELOPMENT**

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## Executive Summary

One of the major challenges facing developing countries is to attain high levels of competitiveness in all areas in order to effect the necessary transformation of their production structures. Technological development and innovation are identified as key factors in the attempt to meet this challenge. In many ways technology, in the broadest sense, has become *a sine qua non* for attaining and maintaining competitiveness, which is itself considered one of the imperatives of successful industrial development. Similarly, in the Caribbean, science and technology are identified as core components of the development process. While technological development and its link to competitiveness has long been recognised, countries of the Caribbean, like most developing countries, depend on technology transfer more than technological development for their needs. The often-cited reason is that a particular problem of developing countries is the lack of finance needed for endogenous research for technological development. There exist, therefore, a number of programmes promoting technology transfer from developed countries. While some countries have been able to take advantage of these transfers and benefit from them, the overall record of technology transfer to developing countries has not been promising. The results suggest that there is no real substitute for indigenous technology generation to augment imported technologies. In addition, technology and technological innovation are generally preceded by the development of a scientific orientation within society. Together these form the basis of the traditional science and technology system that has contributed to the success of the industrialisation effort in many countries.

An analysis of science and technology policies in the subregion do not seem to deviate much from the long-established model of externally-propelled development. Whether in finance or know-how, the emphasis continues to be on how to lure resources into the subregion, with minimal indigenous investment. Hence the policies have focussed on incentives to foreign investors rather than on research and development and indigenous capacity building. In so doing policies have ignored, to a large extent, the agricultural base of the economy and the institutions and investments needed to transform that base from raw materials to value-added products. There is therefore an urgent need for programmes that would develop simple and accessible rule-of-thumb approaches for policy formulation and implementation which would facilitate development and establishment of robust and effective policies.

## COMPARATIVE STUDY OF POLICIES ON TECHNOLOGY AND INDUSTRY IN THE CARIBBEAN AND THEIR EFFECTS ON DEVELOPMENT

### Science, technology and industry

One of the major challenges facing developing countries is to attain high levels of competitiveness in all areas in order to effect the necessary transformation of their production structures. Technological development and innovation are identified as key factors in the attempt to meet this challenge. In many ways technology, in the broadest sense, has become *a sine qua non* for attaining and maintaining competitiveness, which is itself considered one of the imperatives of successful industrial development. Similarly, in the Caribbean, science and technology are identified as core components of the development process.<sup>1</sup> It is noted in a paper on industrialization, new technologies and competitiveness, that while technological development and its link to competitiveness has long been recognised, countries of the Caribbean, like most developing countries, depend on technology transfer more than technological development for their needs.<sup>2</sup> The often-cited reason is that a particular problem of developing countries is the lack of finance needed for endogenous research for technological development. There exist, therefore, a number of programmes promoting technology transfer from developed countries. While some countries have been able to take advantage of these transfers and benefit from them, the overall record of technology transfer to developing countries has not been promising. The results suggest that there is no real substitute for indigenous technology generation to augment imported technologies.<sup>3</sup> In addition, technology and technological innovation are generally preceded by the development of a scientific orientation within society. Together these form the basis of the traditional science and technology system that has contributed to the success of the industrialisation effort in many countries.

In a modern day context, technology is defined as organized knowledge systematically applied to the production and distribution of commodities and services. Because technology is always invariably linked with science, there will rarely be instances of a separate, stated technology policy. Historically, science and technology had been separate. The fact of science's increasing impact on technology has led to the mistaken idea that technology is just applied science. Science has its internal dynamics; similarly new technology often grows out of old technology, and not necessarily out of science. Technology is not merely applied science, as it often has run ahead of science. Things are often done without the precise knowledge of how

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<sup>1</sup> Science and Technology, Industrialisation and Development in the Caribbean. A Case Study of Trinidad and Tobago. Hayden Toney. November 1996.

<sup>2</sup> Industrialization, New technologies and Competitiveness in the Caribbean. General LC/CAR/G.614 CCST/2000/1. 12 June 2000. ECLAC/CDCC.

<sup>3</sup> Dunning, John H and Hamdani, Khalil. The New Globalization and Developing Countries. United Nations University Press. UN. 1997.

or why they are done. Early technology, craft skill, was almost entirely of this sort. Science and technology came into close interaction during the nineteenth century. Prior to that, it is suggested that few inventions were based on science. They were based almost wholly on the empirical insights of craftsmen, with no discernible scientific input. By the latter half of the nineteenth century science stimulated many inventions, leading to the growth of science-based technologies and industries, as in electricity and chemistry.<sup>4</sup>

### **Science and technology policy**

In the above context, reference is usually made to science and technology policy, which is defined as a set of principles, declarations, guidelines, decisions, instruments and mechanisms aimed at bringing about scientific and technological development in the medium and long term, usually within the framework of overall socio-economic development. The term science policy is sometimes used as an abbreviation of science and technology policy, although on other occasions it has been employed as an equivalent of scientific and technological research policy, specifically, promotion, financing and coordination. On the other hand, the expression “technology policy” has been used in the sense of technological options for industry, which is closely linked to industrial policy. More recently the expression *policies for industrial innovation* has come into use, which in fact represents the point of convergence of science and technology policy and industrial policy.<sup>5</sup>

A technologically capable country is not simply one which produces goods and services efficiently, but one which has also gained mastery over the various components of technological activity, particularly the essential technological functions which the selected specialization involves. In addition, the capacity to invest in innovations and improvements that either raise the productivity of a given technology or lead to the introduction of new products and processes should have been developed. A technological capability has many components, but its foundation is based on sound human resource strategy. As a consequence, industrial policy pays particular attention to the development of the science and technology human resource, both in terms of quality and quantity. As knowledge increasingly becomes an important input and value-added component in the production process, the economic advancement of nations is more dependent on the knowledge skills and base of the population. High quality education and training become more important and further strengthen the base for the development of the endogenous technological capability. A science and technology policy therefore must incorporate education and/or human resource development as an integral part of the policy framework.

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<sup>4</sup> De Gregori, Thomas R. *A Theory of Technology – Continuity and Change in Human Development*. The Iowa State University Press. 1985.

<sup>5</sup> Martinez, Eduardo. *Science and Technology Planning in the Caribbean: Methods and Options*. UNESCO – ROSTLAC 1988.

## Industrial policy

Industrialisation is considered one of the quickest means of development. If undertaken successfully, it can alleviate unemployment and underemployment and spur on the process of economic expansion. Industrial policy can be described as a set of coherent and internally consistent measures designed to influence the pattern of specialisation in the economy.<sup>6</sup> The need for an industrial policy arises from the assumption that unrestricted market forces would not always yield the desirable pattern of trade and development, and/or social results, or do not achieve them as rapidly or as fully as may be required. This may be the result of a number of factors including market imperfections, institutional inadequacies and information deficiencies.<sup>7</sup>

Industrial policy is also sometimes used interchangeably with industrialisation. It is a subset of public policy which specifically seeks to alter an economy's structure of production by a set of direct interventions and with the intention of increasing the manufacturing value added in the gross domestic product. (Lall, 1994)<sup>8</sup>

An industrial policy may be targeted either at individual firms, regardless of the industry, or firms in a particular industry. The former applies in situations where unassisted market forces would not encourage the requisite size of firms to reap economies of scale, penetrate export markets or pursue a more rapid technological development. Industrial policy is applied to whole industries to prevent decline, enhance competitiveness or maintain employment. Wendell A. Samuel, at a conference on industrial policy and Caribbean development in 1993, noted that economic integration theorists in less developed countries three decades earlier recognised the shortcomings of the free market and opted for solutions which tended to suppress market forces. He theorised that the move towards the adoption of free market solutions is an over-compensation for earlier mistakes. The problems with the free market system, which existed at that time, have not been eliminated, thus it is now necessary to have a policy in place to address these difficulties, i.e. an industrial policy.<sup>9</sup> However, the route of an industrial policy is planted in science and technology development and its attendant human resource base, supported by institutions of research that are adequately financed.

## Competitiveness

No paper on industrial and technology policy will be complete without reference to competitiveness. Recent economic analysts have been preoccupied with the notion of competitiveness as a measure of economic success or prosperity of nations, firms and industries

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<sup>6</sup> Lall, Sanjaya. Industrial Policy: A Theoretical and Empirical Exposition. Industrial Policy and Caribbean Development. Conference Proceedings. October 11 – 13, 1993. The University of the West Indies – Department of Economics and Consortium Graduate School, Jamaica. January 1995.

<sup>7</sup> Samuel, Wendell A. (1993) "Industrial Policy and Regionalism" Industrial Policy and Caribbean Development. Conference Proceedings. January 1995

<sup>8</sup> Lall, Sanjaya (1994), Industrial Policy: The role of government in promoting industrial and technological development (UNCTAD Review).

<sup>9</sup> Samuel, Wendell A. (1993) "Industrial Policy and Regionalism" Industrial Policy and Caribbean Development. Conference Proceedings. January 1995

and present day industrial and technological policies are all aimed at increasing a country's competitiveness. Competitiveness may be defined as the ability of a nation or firm to achieve sustained productivity growth by continually upgrading itself and maintaining or increasing its share in any given market.<sup>10</sup> This is what really leads to increases in the standard of living or balance of trade surpluses. This definition is useful even in the absence of international trade, which is an especially important consideration. It is in this context that technological change and the level of technology employed are critical influences on the level of productivity and competitiveness.

Paradoxically, however, economic growth allows for the adoption of new generations of equipment and products, thus helping to raise productivity and improve international competitiveness. Initially, the domestic market expands, in order to receive a growing range of goods and services associated with economic growth. This type of growth is enhanced when there is equity and austerity, and an invaluable base is provided for learning in the areas of industry and technology, which is a prerequisite for further participation in international trade. This mutual reinforcement of economic growth and competitiveness, in which the requirements of equity, austerity and technological learning are often forgotten, is one of the pivots of a successful industrialisation process. In the Caribbean, because of deficiencies in the areas of equity and austerity and in protectionist practices, growth and competitiveness have been sporadic. This is not consistent with the cyclical nature of growth in developed countries.<sup>11</sup>

## **Regional perspective**

### ***Science and technology policy***

At their first meeting in Kingston, Jamaica, 6 - 7 April 1983, Caribbean Ministers with responsibility for Science and Technology emphasized the pivotal and pervasive role which science and technology plays in the development process. The critical importance of regional cooperation in its application to development in the Caribbean was also stressed.<sup>12</sup> At that time, the Ministers identified agri-industry and science and technology information as immediate priority areas for concerted action at the national and regional levels. They, however, noted that there were a number of other wide-ranging issues, which required in-depth study with a view to formulating a comprehensive science and technology action plan for the region. Efforts at addressing development issues in the Caribbean have not always been coordinated and the science and technology components of the development process have been, by and large, neglected.

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<sup>10</sup> Toney, Hayden. Science and Technology, Industrialisation and Development in the Caribbean. A Case Study of Trinidad and Tobago. November 1996.

<sup>11</sup> Fajnzylber, Fernando. Industrialization in Latin America: From the "Black Box" to the "Empty Box". A comparison of contemporary industrialization patterns. United Nations Economic Commission for Latin America and the Caribbean. Santiago, Chile. 1990.

<sup>12</sup> A programme for Science and Technology Management in the Caribbean – 2000. LC/CAR/G.571 CCST/99/4 27 September 1999.

In 1994, the United Nations adopted a Programme of Action for Small Island Developing States (SIDS-POA), which described the broad outlines of the science and technology issues on small States. In 1998, the Caribbean Council for Science and Technology (CCST), in responding to the SIDS-POA agreement, undertook to do a revision of a proposal for a science and technology policy that was the outcome of the 1983 meeting of government ministers with responsibility of science and technology. Finalised in June 2000, the document was entitled “Towards establishment of a framework for use of science and technology in regional development”. The document provided a rationale for a regional policy on science and technology and the objectives as well as the detailed framework by which these could be implemented. The document also outlined general policy areas such as planning and infrastructure, innovation, education and training as well as specific policy areas, as follows: information technology, systems and services, telecommunications technology, the environment, agriculture and agro-industry, marine science, energy, construction, mineral and forest resources, technology acquisition and development, new technologies and standardisation. A summary of decisions that needed to be undertaken was also included, all of which took into consideration existing programmes and recommendations from other regional policy initiatives. The document was tabled for governments’ consideration, but to date has not been ratified.

### *CARICOM industrial policy*

The Caribbean Community (CARICOM) was established in 1973 by the Chaguaramas Treaty which attempted to provide for both market and production integration. There were four main areas for which special measures were to be undertaken - agriculture, manufacturing, regional enterprises and functional cooperation. Dennis Pantin, writing in an “Industrial Policy for CARICOM” observed that in the first (agriculture), there was some success in obtaining markets for agricultural output from the Organisation of Eastern Caribbean States (OECS) into the larger CARICOM countries but the ambitious regional food plan and, in particular, the Caribbean Community for Agricultural Development that considered both the marketing and location of production facilities never really got off the ground. A similar programme, the Caribbean Industrial Programming Scheme (CIPS) was floated and two intellectual approaches were aired.<sup>13</sup> The criticisms of this proposal were that it was inward looking in terms of both supply and demand and focused on the exploitation of natural resources. What was important in this proposal, though, was that it recommended that the focus of regional investment projects be one which would benefit from the existence of a regional market. This market was proposed to be the initial base for developing extraregional capacity. The proposal also saw it necessary to offer protection to the new industries and/or even direct public investment to stimulate investment in production facilities where protection was temporary until a firm developed into an exporter.<sup>14</sup>

Arnold McIntyre, in his contribution to a Conference on Industrial Policy and Caribbean Development in 1993, observed that CARICOM countries had not developed a long-term industrial policy, but that regional efforts and national programmes of industrial development have emphasized an important role for the State. The scheme was never implemented and

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<sup>13</sup> Industrial policy and Caribbean development. Conference proceedings. October 11 – 13 1993. The University of the West Indies – Department of Economic, Trinidad, and Consortium Graduate School, Jamaica. January 1995.

<sup>14</sup> King, Mary K. A Critique of Approaches to Industrialization and Industrial Policy in the Caribbean. April 1997.

McIntyre observed that it was important to note that the conceptual framework identified an important role for governmental policy intervention in the process of industrial development. At the national level, the State actively encouraged industrialization via the provision of fiscal incentives, the provision of industrial space (industrial estates), support services (including investment promotion and marketing) and technical assistance.<sup>15</sup>

As recently as the mid-1990s, CARICOM industrial policies had focused on the integration among the islands of production facilities with allocations and restrictions that violated the freedom of the firms in the countries (both local and foreign) to control the decisions on how they invested their money. The mistake, according to economist Mary King, was in thinking that countries and, in its turn, the region, compete. She emphasized that ***countries do not compete against each other, firms compete***. Dr. King noted that in attempting to restrict competition among regional companies because of small markets (diseconomies of scale), the properties of entrepreneurship and innovation that were being encouraged in the region could die before even germinating in the poor soil of managed industrialization. Dr. King repeated Sir Arthur Lewis' advice on the development of clusters. Sir Arthur had said that governments had a large part to play in generating the momentum of firms even in direct investment and subsidies to get them started. Care must however be taken to ensure that governments did not also regulate out the managerial decisions. Policy decisions for the development of industrial strategies, he advised, should never remove the discretion of the managers. In "*The Theory of Economic Growth*", Sir Arthur had consistently contended that if there was a choice between foreign investment and domestic capital, the latter should be preferred. In the absence of domestic capital, foreign investment should, given its scarcity and competing claims for its use, be encouraged and offered incentives, provided that the net results were favorable to the domestic economy and contributed to the development of entrepreneurial, management and administrative skills, the relative lack of which has hitherto served as a constraint on development in the Caribbean.<sup>16</sup>

More recent efforts by CARICOM for a regional position on an industrial policy are reflected by the Protocol Amending the Treaty Establishing the Caribbean Community - Protocol III: Industrial Policy, which recognises that *inter alia*:

- (i) Market-driven industrial development in the production of goods and services is essential to the economic and social development of the peoples of the Community;
- (ii) Conscious that trade liberalisation and globalisation have operated to underscore the importance of international competitiveness as an essential condition of survival in the national, regional and international market place;
- (iii) Recognising the potential of micro, small, and medium enterprise development to contribute to the expansion and viability of national economies of the Community;

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<sup>15</sup> Mc Intyre, Arnold. Multilateral Conditionalities and Macroeconomic Policy: The Context for Caribbean Industrial policy in the 1990s. October 1993.

<sup>16</sup> Sir Arthur Lewis. The Theory of Economic Growth. 1955

(iv) Recognising further the importance of large enterprises for achieving economies of scale in the production process;

(v) Mindful of the imperatives of research and development and technology transfer and adaptation for the competitiveness of community enterprises on a sustainable basis;

(vi) Desirous of establishing and maintaining a sound and stable macroeconomic environment that is conducive to investment, including cross-border investments, and the competitive production of goods and services in the Community;

(vii) Aware that differences in resource endowment and in the levels of economic development of Member States, may affect the implementation of the Community Industrial Policy;

(viii) Determined to promote and establish a sustainable balance between industrial development and environmental integrity;

agreed that the goal of the Community Industrial Policy shall be market-led, internationally competitive and sustainable production of goods and services for the promotion of the region's economic and social development. In addition, the Council for Trade and Economic Development (COTED) works in collaboration with competent organs and bodies of the Community and the private sector to establish criteria for according special consideration to particular industries and sectors. Under the Agreement, member States are to undertake to establish and maintain appropriate macroeconomic policies supportive of efficient production in the Community. In order to facilitate the implementation of the Community Industrial Policy, the COTED, in collaboration with competent organs and agencies would:

- a. develop strategies for the development and dissemination of market information and appropriate mechanisms to facilitate acquisition, storage and retrieval of such information;
- b. promote the establishment and development of capital markets in member States; and
- c. encourage member States to establish and develop export markets, especially in non-traditional sectors, through the development of sector-specific incentives and appropriate policy instruments.

This new policy environment in CARICOM has placed greater emphasis on improving the efficiency of the market system via economic liberalisation and has reduced the importance of governmental interventions. Government policy interventions have been reduced and those that have been maintained are seen as transitional policies to be phased out when the market-oriented policies have been fully implemented.

### ***Organisation of Eastern Caribbean States (OECS)***

The OECS was officially launched in 1981. Of singular importance is that the member States all belong to one common monetary union and there is the view that the very fact of this common currency, under a modified currency board arrangement, provides one of the most important incentives for investment and hence is a key element of industrial policy. (Dennis Pantin, 1993) Also of significance is the fact that the individual countries' export sectors are identical – tropical agriculture and tourism. The above situation is almost tailor-made for the formulation and successful implementation of an industrial policy within this “cluster” of States. The OECS at this time, however, does not have a stated industry policy.<sup>17</sup> There does exist, however, cooperation on several matters of trade including the OECS Regional Pharmaceutical Project, with responsibility for the procurement and management of pharmaceutical supplies for Eastern Caribbean countries.

### **Country positions**

In most, if not all, CARICOM countries, industry is within the Ministry of Trade. In the smaller States, tourism is also within this portfolio, further emphasizing the importance of the direction of industrialisation, whether there was a stated policy or not, in economic development. In some cases, international trade is linked with the Ministry of Foreign Affairs. The Ministry of Trade and Industry of four countries - Guyana, Jamaica, Saint Lucia and Trinidad and Tobago were examined with a view to comparison of policies on technology and industry, where applicable. Of the four countries, Trinidad and Tobago had a stated industrial policy. The other three countries had statements, which, while not considered industrial policies, all contained such elements in the Mission Statements of the Ministries responsible for Trade. It will also be noted that technological development was also a part of the industrial policy, with various agencies with responsibility for technological development under the auspices of the Ministry of Trade. In Trinidad and Tobago for example, the Caribbean Industrial Research Institute (CARIRI) and the Bureau of Standards fall within this portfolio. Likewise, in Jamaica, both the Bureau of Standards and the Scientific Research Council (SRC) fall within the portfolio of the Ministry of Industry and Commerce.

### ***Guyana - Ministry of Tourism, Industry and Commerce***<sup>18</sup>

Industrial development falls within the portfolio of the Ministry of Tourism, Industry and Commerce. Guyana at present does not have a stated industrial policy, but the mission statement of the industry division of the Ministry is indicative of the intention to formulate such a policy, which states in full – *to formulate and improve industrial development policies and programmes aimed at defining investment opportunities, attracting new investments and encouraging industry competitiveness.* The key responsibilities of the division are to formulate an industrial development policy; develop and implement policies that improve the fiscal incentive regime and support investment expansion; develop and implement internationally attractive industrial

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<sup>17</sup> OECS Secretariat, Saint Lucia. September 2003

<sup>18</sup> <http://www.sdn.org.gy/mtti/industry.html>

investment incentives; identify and exploit industrial development opportunities with both joint venture and public and private capital, and secure both internally and abroad; create linkages within and amongst industries and sectors; and publish an investment guide. There are several programmes and projects that are ongoing to achieve some of the objectives, and which are undertaken by different government agencies including the Guyana Office for Investment and the Rain Forest Conservation and Development Agency – Iwokrama.

In September 1998, a national civil committee, now known as the National Development Strategy Committee (NDSC) was assembled to complete a National Development Strategy for Guyana. The strategy, for the period 2000 to 2010, was put forward both as a compass and as a framework for realising the country's potential and for releasing the society and economy from the constraints it presently faces. The objectives of the strategy include the attainment of the highest rates of economic growth possible in the time-frame of the NDSC, poverty alleviation, the achievement of geographical unity, the equitable distribution of economic activity and diversification of the economy. It seeks to define the most urgent priorities in every area and clearly outlines policy reforms and actions.

Several government agencies are all part of the coordinated effort to achieve the objectives of the NDSC, including the Institute of Applied Science and Technology (IAST). The IAST is an industrial research organization which has as its mandate the development and/or adaptation of appropriate technology for the utilisation of Guyana's natural resources, so that these resources can be gainfully developed and exploited for the benefit of the people of Guyana. In pursuit of its mission, the Institute's operational framework has to take cognisance of national policies, plans and strategies especially the developmental thrust of the government. This is to ensure that the set programmes and moreso research and development projects will have to be clearly defined and prioritised in keeping with national development needs. The projects undertaken by the IAST are varied and include: Information Technology Training for Teachers in collaboration with the National Institute for Higher Education, Research, Science and Technology (NIHERST) of Trinidad and Tobago, the Caribbean Development Bank (CDB) and the Organisation of American States (OAS) and the Information and Communication Technology Project, a collaborative effort of the Inter-American Development Bank (IDB) and the Government of Guyana. In the past, the IAST had concentrated its work programme on transformation of agricultural and other natural products into pilot industries that could be taken up by the private sector. For example, flour was made from a number of agricultural products and a number of pottery items were developed. The challenge to the private sector and the total acceptance of these by the society has not been successful.<sup>19</sup>

### *Jamaica – Ministry of Industry, Commerce and Technology<sup>20</sup>*

The mission of the Ministry of Commerce, Science and Technology is to develop competitiveness by facilitating and stimulating domestic and international commerce. Cutting edge technology and communications, fair competition and trade, consumer awareness and protection, scientific research are some of the tools used and the results of these applications are used to increase economic activity. In order to achieve the aforementioned objectives, several

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<sup>19</sup> <http://www.iastguyana.org>

<sup>20</sup> Ministry of Commerce, Science and Technology

departments and agencies fall within the portfolio of the Ministry, each agency reflecting, to some extent, the stated objectives. Some of the agencies are as follows:

- Bureau of Standards;
- Consumer Affairs Commission;
- Post and Telecommunications Department;
- Registrar of Companies;
- Scientific Research Council;
- Spectrum Management Authority.

With specific regard to science and technology, the Scientific Research Council is Jamaica's principal public sector agency, responsible for the fostering and coordination of scientific research and the promotion of its application. Most of the Council's projects support the growth and development of the agro-industrial sector in Jamaica through research, adaptation of available technologies, creation of new and appropriate technologies and the provision of training and technical assistance. With over 40 years of service to Jamaica, the SRC conducts research and development work in several areas, including:

- Waste Management/Alternate Energy
- Agro Industry/Biotechnology
- Natural Products and Analytical Services
- Food and Nutrition
- Mineral Resources
- Technologies/Processes Developed - Service To Industry
- Aquaculture Industry
- Agricultural/Horticultural Sector
- Mushroom Cultivation
- Popularization of Science and Technology

Of the many programmes undertaken, the biotechnology project whereby farmers are provided with clean planting material has met with some success. However, with the downturn in agricultural output, it will require sustained financing to realize its full potential. The mushroom project also, where both plantlets and the technology are provided to farmers, also shows some success. However, production is not on a large enough scale to make a serious contribution to the economy.

### ***Saint Lucia – Ministry of Commerce, Tourism, Investment and Consumer Affairs***

The Mission Statement of the Ministry of Commerce, Tourism, Investment and Consumer Affairs is "to actively promote and facilitate, together with the private sector, the establishment of a dynamic investment and trading environment, which anticipates changes in global circumstances, whilst strengthening and enhancing the productive capacities and competitiveness of industry and commerce, encouraging good business practices and promoting consumer interests."

The Ministry consists of a Central Administrative Unit covering the major portfolios of Commerce and Industry, and the three divisional entities, the Consumer Affairs Department, the

Bureau of Standards (est. 1991) and the Small Enterprise Development Unit (est. 1995). The priority areas are the promotion and facilitation of investment, both local and foreign; development and enhancement of a more diversified industrial and commercial sector; enhancement of entrepreneurial skills and fostering the growth and development of small and micro enterprises; promotion and facilitation of stronger inter-sectoral and inter-industry transactions aimed at optimizing resource allocation within the framework of vertical and horizontal integration; development of an entrepreneurial environment within which decision-making is based on reliable data; establishment of close working relationships with the private sector on all matters relating to industrial and commercial development; generation of greater awareness and a higher level of sensitivity among the consuming public with regard to rights, interests and protection; networking with other public sector agencies on matters pertaining to trade, investment and commerce in Saint Lucia; promotion of competitive sustainable export-oriented industry; and orderly development of commerce and industry.<sup>21</sup>

Within the Office of the Prime Minister is the Office of Private Sector Relations (OPSR) which serves as the link between government and the private sector. The OPSR is responsible, therefore, for putting into effect a number of incentive programmes introduced by government for the strengthening of the private sector. One of these programmes is the Private Sector Development Strategy (PSDS). This is designed to improve medium-term growth and investment prospects, through capacity-enhancing and export-related initiatives targeted directly at the Saint Lucian private sector. The strategy seeks to build an efficient, productive and export-oriented private sector, capable of competing favourably at regional and international levels. However, there is still limited linkage with other public institutions in terms of operational activities.

### ***Trinidad and Tobago – Ministry of Trade and Industry***<sup>22</sup>

The vision of this Ministry is to be the “the premier institution positioning Trinidad and Tobago as the major manufacturing, transshipment and commercial platform in the hemisphere”. The Mission Statement is to “promote the international competitiveness of Trinidad and Tobago through the execution of effective trade, investment and industrial development policies and programmes”. Trinidad and Tobago has a stated industrial policy identified for a specific time period. The Industrial Policy 2001–2005 seeks to establish a vibrant, robust, productive and diversified economy by reconstructing the framework within which the non-oil manufacturing sector and the services sector would be transformed into the new engine of growth in Trinidad and Tobago. Its theme "Forging a Competitive Economy through Partnership" underscores the principal need to involve the private sector in collaboration with the government, to achieve the following objectives:

- Attain sustained economic growth and development;
- Expand business activity with emphasis on the development of the micro, small and medium enterprises sector;
- Generate more and better employment opportunities;

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<sup>21</sup> Ministry of Commerce, Tourism, Investment and Consumer Affairs. 2003

<sup>22</sup> Republic of Trinidad and Tobago – Ministry of Trade and Industry. 2003

- Enhance the competitiveness of the non-oil manufacturing sector in order to increase exports and capture new and emerging markets;
- Accentuate the development of human resources in tandem with our development strategies, and;
- Increase foreign direct investment inflows and improve the domestic financial system through the establishment of a sound legal and regulatory environment for banks, capital markets and the entire financial sector in order to facilitate investment

The above is to be achieved by advancing improved competitiveness within businesses through human resources, knowledge and exploitation of technology, entrepreneurship; Micro, Small and Medium Enterprises (MSME); enhancing and expanding export capabilities; maximizing human capital; facilitating and funding investment; technological modernization; institutional strengthening and environmental considerations. There are several statutory boards and other bodies to achieve the objectives of the Ministry, as follows:

- Trinidad and Tobago Bureau of Standards
- CARIRI
- Business Development Company Limited (formerly Small Business Development Company Limited)

Following is a brief overview of some of the agencies whose mandates are specific to industrial and science and technological development in Trinidad and Tobago.

#### Tourism and Industrial Development Company (TIDCO)

The Tourism and Industrial Development Company (TIDCO) is another parastatal agency with responsibility for industrial development and was established to promote investment, trade and tourism. In 1995, TIDCO absorbed the assets and liabilities of three former agencies set up to encourage the growth of investment, trade and tourism, namely - the Industrial Development Corporation, the Export Development Corporation and the Tourism Development Authority. TIDCO is in the business of the promotion of trade, investment and tourism. The company's activities in trade facilitation and investment include:

- Reduced time for facilitation process;
- Research and network to facilitate market access and penetration;
- Participation in trade and investment missions and Investment Regional Conferences;
- Proactively promoting inward investment;
- Contracting site location consultants and investment finders;
- Development and implementation of prospects and projects;
- Enhancement of ongoing investor after-care services;

- Focusing on downstream energy and non-oil energy sectors to broaden economic base;
- Development of sector profiles and define sector opportunities including film;
- Implementation of the Wallerfield Business Park - TIDCO sees the development of the Wallerfield Business Park as a significant opportunity to forge strategic alliances and partnerships with industrialised nations, local and foreign learning institutions, as well as key local stakeholders for financing the Wallerfield Business Park project, attracting investors and tenants, developing human resources and obtaining technical assistance. They are currently in the process of alliance negotiations.<sup>23</sup>

### Trinidad and Tobago Bureau of Standards (TTBS)

The Trinidad and Tobago Bureau of Standards (TTBS) was established in 1974. Its statutory function is to promote and encourage the maintenance of standards:

- For the improvement of goods and services produced or used in Trinidad and Tobago .
- For ensuring industrial efficiency and development.
- For promoting public and industrial welfare, health and safety.

The organization is a full member of the International Organization for Standardization (ISO), of the Caribbean Common Market Standards Council (CCMSC), and of the Pan American Standards Commission (COPANT). One of the more recent regional projects undertaken by the TTBS to improve the competitiveness of the region is “Overcoming technical barriers to trade through the strengthening of accreditation systems”, to be implemented over a two-year period which began in May 2003. The overall objective of the project is to facilitate trade and increase the competitiveness of Small and Medium sized enterprises (SMEs) through enhanced access to regional and international markets, by establishing and/or strengthening the capacity of the accreditation bodies and the conformity assessment bodies (CABs) in Costa Rica, Paraguay, Trinidad and Tobago and Mexico. This project is a regional corporation by Trinidad and Tobago, Costa Rica, Paraguay and Mexico, with majority funding being provided by the Inter-American Development Bank-Multilateral Investment Fund (IDB-MIF), and counterpart funding also provided by each of the participating countries.

### CARIRI

CARIRI is a laboratory-based technological consulting institute with over 30 years experience in providing technological support to governments and industries in the Caribbean. The institute works directly with clients and through a multidisciplinary team provides a comprehensive package of technological services. These integrated services include testing and analysis, consultancy, technological information, research and development and, through its

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<sup>23</sup> [www.tidco.org](http://www.tidco.org), 2003

local, regional and international network, brings together teams to solve technical problems. The industries served include: food, hotels and hospitality, light manufacturing, heavy manufacturing, service sector, hydrocarbons/petroleum, construction, petrochemicals and health. CARIRI has also most recently embarked upon a programme to assist in the commercialisation process of a range of agro-processing products, which include award-winning products developed by its scientists and research personnel. These agro-processing opportunities are made available to interested small and medium-sized entrepreneurs.<sup>24</sup>

The policies leading to the establishment of the Point Lisas Industrial Estate and other hydro-carbon-based industries have not been addressed in this paper, although they do follow the externally-propelled development strategy.

## **Other elements of policy and implementation**

### *Capacity building*

As evidenced by the above, the larger countries possess some of the basic building blocks, although at different stages of development (or underdevelopment), for the adequate level of industrialisation and the implementation of an industrial policy at both the national and firm levels. The pattern that characterised the successful developing countries in Asia, specifically, required certain prerequisites:

- An aggressive government policy that spearheaded the industrial development;
- The existence of local entrepreneurs that knew how to put foreign capital, technology and local human resources together to exploit business opportunities; and
- The existence of a highly skilled and motivated labour force that quickly learned and assimilated the product design and production technology.

The question that needs to be asked is whether any of the above prerequisites are being met in any of the countries of the region. In Guyana, Jamaica and Trinidad and Tobago, the exploiting of natural resources plays a major part in industrialisation and the encouragement of foreign investment or business. In the other islands with limited natural resources, the policies are also focused on the encouragement of foreign investment. The existence of institutions such as NIHERST and CARIRI in Trinidad and Tobago, IAST in Guyana and the SRC in Jamaica, and the focus on entrepreneurial development in the countries stated, support the idea that policy makers are aware of these prerequisites. However, the mere existence of such agencies may not be enough. The training of skilled people in the subregion in technology is along the lines of craftsmen, technicians, professional engineers and scientists. The formal structures exist in the form of trade schools, technical institutes and universities. However, the output, particularly in university trained, technical, human resources is lower than what is normal in other rapidly developing countries.<sup>25</sup>

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<sup>24</sup> [www.cariri.com](http://www.cariri.com). 2003

<sup>25</sup> Report on Survey of Science and Technology Indicators 1999. NIHERST.

The relationship between science and technological development and industrialisation has long been recognised in developed countries. For example, the British economic historians Nathan Rothenberg and L.E. Birdzell in *How the West Grew Rich (1988)*, devoted an entire chapter to the concept of science and technology. The authors noted that “science and industrial technology have always flowed in separate channels, easily kept apart but nonetheless united here and there sharing common sources”. Both divergencies and links have had a critical bearing on the contribution of technology to economic development. While industrial research laboratories attract interest, knowledge development is equally or more important. Knowledge development is frequently overlooked in scientific discourse. Consider that during the post-war era, both the research community and policy makers ascribed to education and research in the broad sense, a key role in the strategy for increasing economic growth and improving social prosperity.<sup>26</sup>

In an examination of the statements on industrialisation at both the national and regional levels in the Caribbean, there is no link between education and industrial development. It would not be wrong to state, therefore, that, in the Caribbean, the foundation for capacity-building may be misplaced. In an essay on capacity building for policy analysis and implementation in developing countries in *Research for Development, SAREC – 20 years*, it was noted that one of the myths that drive the capacity-building debate is that there is a large and unbridgeable gap in local expertise for undertaking the requisite level of policy analysis and formulation. The reality, though, is significantly different (*Commission on Developing Countries and Global Change, 1992*). While it is true that in certain specialised niches, local expertise is inadequate, there is often a significant number of highly skilled local experts who are grossly underutilized. This is, in part, due to inadequate remuneration and unfavourable working conditions which result in apathy and poor performance. (Bhagavan, 1992). Another important reason is what is referred to as “internal brain drain”, a consequence of incoherent and poorly thought through transfers of skilled personnel to positions for which they are not trained. Consequently, developing countries in the Caribbean face a difficult-to-resolve paradox of insufficiently skilled personnel, while the available capacity is underutilized (Bossuyt et al, 1991; and World Bank Report, 1989). In addition to the above, there is also the oft-cited high cost of technology that is the usually given excuse for the low level of technological development in the Caribbean and other developing countries. While it may require long-term support to develop capacity in policy analysis and formulation, the alternative to relying on external technical assistance may be much more expensive and in the long run, much less effective.

### **The role of the private sector**

Notwithstanding the role of the State, the private sector also has an important role to play. Historically, industrialization in the Caribbean was spearheaded by the private sector, whether unwittingly or not. The process was centred upon sugar, which was the basis for the establishment of our societies. Cocoa, citrus, coffee and banana production followed the sugar industry. There existed then, a close relationship between the private sector and government – both being practically one and the same. At that time labour had no franchise. It was therefore,

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<sup>26</sup> Research for development – SAREC 20 years. Swedish Agency for Research Cooperation with Developing Countries. 1993.

a foreign private sector, whose main objective was the creation of wealth for disposal, for varied reasons, at home in the colonial power. Fully supported by monopolies and bolstered by a very strong lobby in British Parliament, these new industrialists generally felt no need to diversify their activities. Eventually a combination of these and other factors led to the decline of these industries in which, for a time, the Caribbean was in the forefront of world production. The openness and dependency of our economies which the structure of this industry established and maintained, continued to be the dominant features of our economies long after its demise. So that attempts by the private sector to venture into agro-industrial activities have not had the desired success because of competition from cheaper and more standardised products from the international markets. Agricultural production was simply replaced by mineral-based production in the case of Trinidad and Tobago and Jamaica. In less mineral-rich countries, tourism replaced agriculture. Even with supposed State initiatives, the local private sector as opposed to a foreign-driven private sector seems to be sidelined. The private sector, however, has an increasing role to play in the determination of industrial policy.

The reality is that the region possesses only a miniscule base of skills and industrial experience. The compilation of science and technology indicators for the region, an exercise which is fairly recent, is beginning to reveal this. A 2001 survey on human resources in science and technology conducted by NIHERST determined that there were 547 researchers or approximately 420 researchers per million population in Trinidad and Tobago. The majority of researchers was cited in higher education – 70%, 14% in government and 12% in research and science and technology institutions. The supply of human resource in science and technology (HRST) numbered 1,912 persons.<sup>27</sup> The number of scientists per million people in Latin America and the Caribbean, according to the World Bank's World Development Report 2000 is 656.6. In the developed countries of the OECD, this figure is 2649.1,<sup>28</sup> almost four times that of the region.

The private sector must assist governments in the creation of innovative responses to the pressures of trade liberalisation and globalisation in the very uneven playing field. The transformed private sector must take on roles which were generally once the purview of governments. More and more this sector should become more involved in the business of education, not merely establishing private schools as profit centres, but by assuming responsibility for financing education and training. The sector should:

- lobby for the legal framework/taxation regime that will recognise their financial contribution to the development of a skilled and flexible labour force;
- concern itself with the frightening growth of unemployment in the region
- concern itself with safeguarding the environment. Notwithstanding the technical and economic dilemmas that will arise when environmental protection conflicts with economic growth, environmental concerns must become part of the industrial policy.

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<sup>27</sup> Human Resources in Science and Technology in the public sector 2001. NIHERST. May 2002.

<sup>28</sup> World Bank, World Development Report, 2000

## **Analysis of the policies and results**

The industrial policies outlined above are consistent with the CARICOM position, with an emphasis on trade liberalisation, privatisation, public sector reform and market deregulation. Mary King, writing in “A Critique of Approaches to Industrialisation and Industrial Policy in the Caribbean” (April 1997) observed that an industrial policy goes hand-in-hand with a trade policy. This is evidenced by the industrial policies and positions by the four countries examined. However, it is significant to note that none of the policy statements or positions make specific mention of a trade policy. That is not to say that there is no trade policy for the subregion. The trade policy for the subregion is in two parts - an interregional trade policy and one for external trade. CARICOM has developed a customs union and some industries have been developed behind tariff barriers.

The other significant regional objective is the Caribbean Single Market and Economy (CSME). A 'single market' is to be created whereby goods and services, people, capital and technology freely circulate. When created among States, it involves, so far as market transactions are concerned, the complete removal of physical, technical and fiscal frontiers. Thus, for example, moving goods or services, capital or people from Trinidad and Tobago to Barbados would be no different from moving them across parish borders in Barbados itself. A single market is thus somewhat different from a 'common market' which is an arrangement among States to remove market barriers, while the frontiers themselves remain.

In the Revised Treaty of Chaguaramas, unlike the Single European Act (1986), there is no concept of an area without frontiers. In fact, to the contrary, the Treaty implicitly rests on the maintenance of frontiers, within which it is the aim to liberalize conditions of access to markets. Thus, although the Treaty refers to a 'single market' this is in effect no different from the pre-existing common market. The Revised Treaty of Chaguaramas goes further to establish a 'single economy.' This requires unified economic and monetary policies, including related legislation, executive instruments and institutions. One of the most important instruments of a single economy is a single currency – just as there is a single Barbados currency for all parishes of the country. The Revised Treaty actually provides, in principle, for most aspects of a single economy, incorporating the original protocols on establishment, services and capital; industrial policy; trade policy; agricultural policy; transport policy; disadvantaged countries, regions and sectors; competition policy and consumer protection; dumping and subsidies; dispute settlement. In addition, macroeconomic policy convergence, fiscal policy harmonization, monetary convergence, fiscal policy harmonization, monetary union/single currency, as well as the Caribbean Court of Justice, complete the mandate for implementing the CSME. The free trade regime and the common external tariff (CET) were core features of the earlier common market, and of course are essential components of a CSME.

Although the range and depth of decisions made in respect of creating a CSME, going back to 1989, is impressive, very little has actually been put into operation. This cannot be due wholly to inadequate institutional capacity. There is no apparent correlation among the member States between their institutional capacity and their record of implementation which would create and promote a regional climate for industrial development.

Industrial policy development and implementation in small nation States is often compared with subnational regions, which share many similarities in terms of the challenges faced in implementing successful industrial policies. Globalisation and the emergence of supranational organizations such as the European Union (EU) are also making the two sets of entities much more similar over time. In an article published in the *International Regional Science Review* (26, 1: 117 – 141, January 2003), it is argued that recent research advances are revealing that policy makers in small nations and regions can share important policy lessons. In particular, extensive recent research on industrial clusters, the determinants of economic growth and new regional governance structures is generating a number of important policy lessons. The mutual lessons being exposed by the research suggests strategic policy stances for smaller nation States and regions that significantly differ from those larger countries and industrial giant regions. The emergence of trading blocs such as the EU and the North America Free Trade Area (NAFTA) is also steadily reducing the power of nation-States to regulate their trade and mobility regimes. Regions are now learning some of the hard lessons that micro-States long ago learned, for example, that one simply cannot turn to the nation-State to protect a declining industry or to put in place protectionist policies to enable a new sector to be established. Similar comments apply to the effects of trade reform through the efforts of the World Trade Organization (WTO) and the various other bilateral and multilateral agreements. These reforms most heavily affect the larger nation-States and hence their constituent regions. Micro-States have never been able to enjoy significant benefits from protectionism. Another rather paradoxical trend reinforcing the similarities of some regions with micro-States is the regional devolution process in Europe. The advent of the EU has led a number of highly centralised nation-States, especially Spain, the United Kingdom and France, to institute major devolution programmes. Interestingly, the powers devolved have been mainly industrial policy powers together with some limited fiscal policy powers. This process is making these particular regions more similar to micro-States in terms of industrial policy-making powers, than in the past.

For micro-States, like the Caribbean countries and similarly smaller regions, there is the inherent disadvantage of small capital and labour stocks. In addition, the tendency to import most if not all technology, along with extra labour and capital, should there be rapid growth, poses a serious dilemma. The evidence from regional policy is that two types of supply-side policy in particular are worth developing: better education and training to enhance human capital in the labour supply (despite the ever present danger of this draining away through out-migration); and technology transfer initiatives.

The convergence process can be speeded up by appropriate policies, but it will remain slow. Policy makers will need to be patient and be prepared to sustain convergence-enhancing initiatives over many years. Modern regional policy recognises that benefits, particularly in regions with poor past records in these areas, will take decades to emerge. These have been hard lessons to learn at the regional level and, as is often the case, political pressures still conspire to lead to wild swings in policy.

There is no magic bullet approach that will solve the capacity-building problem. The issues involved are highly political and controversial. Very rarely, for example, are the perceptions of the people concerned taken into consideration. Vital ingredients to initiatives that would assist in development and policy implementation include:

- emphasizing the centrality of education and training;
- long-term support from governments and donor agencies;
- giving preference to the development of pragmatic approaches to policy formulation and implementation;
- building on existing initiatives largely led by non-governmental actors – NGOs, grassroots organizations; and
- ensuring that past lessons are incorporated in new capacity-building initiatives.

### **Some conclusions**

Present science and technology and industrial policies, where they exist (see Comparative Matrix below), in the region do not seem to deviate much from the long-established model of externally-propelled development. Whether in finance or know-how, the emphasis is on how to lure these resources into the region with minimal indigenous investment. Hence the policies have focused on incentives to foreign investors rather than on research and development and indigenous capacity building.

In so doing, policies have ignored, to a large extent, the agricultural base of the economy and the institutions and investments needed to transform that base from raw materials to value-added products. Governments still negotiate for market share for ripe bananas, sugar and other primary indigenous agricultural products on the international market.

Tied in with that problem is the early premise that the presence of cheap labour was a foundation for industrial activity. Thus, together with the incentives, the policies helped to perpetuate low-scale activities. Without research and development, no incremental gains were achieved either in product development or technology transfer to build capacity. Hence, there was the establishment of export-processing zones and free zones in the region. Since many of these industrial activities were alien to the local society there were no linkages with educational institutions that would enter into research and development arrangements or technology generation and/or adaptation to provide for indigenous technology motivation and entrepreneurship within the traditional skills and agricultural base.

There is an urgent need for programmes that would develop simple and accessible rule-of-thumb approaches for policy formulation and implementation which would facilitate development and establishment of robust and effective policies. Finally, capacity-building initiatives should not only respond to the demands of those that can voice their concerns. Attention should also focus on the silent and disadvantaged groups as well. Issues of equity, gender, minorities, race and ethnicity should be incorporated in ongoing and planned capacity building initiatives. Empowerment of the disadvantaged and weak should be a common theme in all policy implementation initiatives. Lastly, the resource base of the region should be the

driving force for industrial development. Any other approach would be tantamount to playing catch-up, an activity that seems to elude most developing countries and regions.

### A Comparative Matrix of Policy in the Caribbean

Country	Policy		
	Industrial Policy	S&T Policy	Competitiveness Policy
Antigua & Barbuda	-	-	-
Bahamas	-	-	-
Barbados	-	-	-
Belize	-	-	-
Cuba	-	-	-
Dominica	X	X	X
Grenada	-	-	-
Guyana	Considering	IP	Considering
Jamaica	Y	Y	Y
Saint Kitts/Nevis	-	-	-
Saint Lucia	X	Considering	Not stated
St. Vincent & the Grenadines	-	-	-
Suriname	IP	X	X
Trinidad & Tobago	Y	IP – Dec 2004	IP - Dec 2004
United States Virgin Islands	-	-	-

– No response

Y – Yes

X – No

IP – In progress

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