

# WEALTH CREATION & SUSTAINABLE DEVELOPMENT WITHIN THE REGION, INCLUDING THE ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT

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## Introduction

The introduction to Thomas L. Friedman's book "The Lexus and the Olive Tree" (1999), summarizes Friedman's argument about Globalization as follows:

"Globalization is not just a phenomenon and not just a passing trend. It is the international system that replaced the Cold War System. Globalization is the integration of capital, technology, and information across national borders, in a way that is creating a single global market and to some degree, a global village." In deed, Globalization is a phenomenon that cannot be denied, but the fact of the matter is that Globalization as it exists today, is a product of science and technology, hence any meaningful understanding or explanation of social and economic development must examine the impact of science and technology. Donald Light and Suzanne Keller (1989) suggest that "the scientific and technological advances of modern times have transformed our lives." In the book Assault on Poverty (1997) The Panel on Technology for Basic Needs states that scientific advances and technological innovation are at the root of this global transformation.

This paper seeks to examine the topic of wealth creation and sustainable development in the Caribbean, with special attention to the environment and natural resource management. This is done in the context of the conference theme which is, "Science and Technology for Economic Development: Impacting the Caribbean Single Market (CSM)." The focus of the paper is in recognition of the important relationship that exists between science and technology and development.

## Definition

Before embarking on a discussion of the relationship between science and technology and development, it is necessary to define each of these terms. Light and Keller define science and technology as follows:

**Science** is "systematic pursuit of reliable knowledge about natural phenomena and about the social world." **Technology** is the "application of knowledge (scientific or otherwise) to the solution of practical problems." **Development** is defined as the progressive advance from a lower or less complex state to a higher or more complex one.

## Historical Perspective

Globally, science and technology have been growing at an extraordinary pace over the past 300 years. Two main theories have sought to explain this massive growth. The Functional Theory explains it on the basis of "its value to the smooth running of society". According to this theory, science provides the reliable knowledge needed to control the natural and social order, hence people are better able to achieve

their goals. The Power Theory explains the growth in science and technology on the basis of “its utility to those who control the social order”. It contends that powerful groups promote science merely to enhance their position and promote their own interests. The various countries of CARICOM recognize the importance of science and technology and have established the Caribbean Council for Science and Technology. Its purpose is to promote cooperation between member countries.

Throughout colonial days, science and technology was seen as tools to ensure that the colonies produced for the benefit of the resident masters and the mother country, thereby ensuring stability, from the perspective of the colonial powers. Because of the low status of the slaves and ex-slaves, science was treated as though it existed for the exclusive benefit of the masters. When technology was introduced, it was usually low-end technology geared towards agriculture and light manufacturing, again primarily aimed at maintaining a stable flow of sugar and later bananas to the mother country. Despite the forgoing, from colonial days, Jamaica had an impressive record with science and technology. For example, the establishment of botanical gardens in the 17<sup>th</sup> century, and a hydroelectric power system and railroads in the 19<sup>th</sup> century. Jamaica was the first country in the western world to construct a railway, and a telephone system was established in the early 20<sup>th</sup> century (Ventura & Henry, 1997). By the 1950s Jamaica had established an extensive record in agricultural research and cattle breeding. In post independence Caribbean, there has been a significant shift towards ensuring that science and technology are used to serve the interest of the citizens of the region, but although there is more emphasis on indigenous technologies, the countries continue to be prime users of imported technologies.

The Caribbean is taking steps to adjust to the demands of the age of information technology, but unfortunately, there is a tendency to continue the focus on low-end technologies, thereby limiting the ability to maximize development. Low-end technology leads to low-end jobs, and this is evident in the focus on tourism as the main engine of growth. The fact is that the overwhelming majority of jobs created in the tourism industry, are service jobs that pay very low wages. The same thing is evident in the focus on call centres rather than on the building of computer hardware and software.

## **Wealth Creation**

Currently, economists prefer to talk about wealth creation rather than poverty eradication. This approach can be rather misleading. The nation can show tremendous growth in overall wealth but no noticeable change in poverty or the level of inequality. It has been adequately pointed out that the benefits of increased production and economic growth do not automatically trickle down to sections of the society, especially to those who are most in need (Ventura & Henry 1997; Salmon 2002). It means then, that by focusing on wealth creation, we could ignore the continued existence of poverty. With that caution, I will now proceed to discuss the role that science and technology can play in wealth creation and sustainable development.

If the Caribbean region is to experience the desired socio-economic development, it must improve and expand its use of science and technology. There are notable examples of countries that have benefited from increased emphasis on science and technology. Ireland's economy is changing in line with international trends and through the use of science and technology, the manufacturing sector continues to contribute significantly to the country's economic growth. The Tribune Chronicle (22/10/06), reports that Leaders in Youngstown Ohio, are looking to new technology to support the changing economy. This automotive town is suffering because of the down-turn in the industry. The Congressman and the planning director for the area, point out that there is a bright future in high-tech development by capitalizing on nearby educational facilities like Kent State University and Youngstown State University. The Congressman further states that he intends to direct federal funds to research efforts that can have commercial benefits and create private sector jobs. The Nigerian Minister of Science and Technology

called on the science and technology sector to be prepared for the challenges posed by the 21<sup>st</sup> century. He pointed out that given the global trend, “where science and technology have become the engine for socio-economic development, the nation could not afford to be left behind. (The Tide Online, Oct. 21, 2006). People’s Daily Online (22/10/06), points out that science and technology are boosting economic development in Africa.

## **Sustainable Development Defined**

The concept, Sustainable Development as used in this context, refers to development that is aimed at meeting the needs of the present populations of the Caribbean, while at the same time enhancing the probability that future generations of the region will be able to meet their needs. From a practical point of view, it requires policies or commitments of governments to pursue social and economic development that does not jeopardize future generations (Toure, 2002).

It is important to recognize that although Sustainable Development means the same for all countries throughout the world, the approach employed in the Caribbean must, of necessity, be different from that employed in general. This is so because the countries of the Caribbean are small compared to most countries. The unique problems faced by small countries have been delineated in Agenda 21 of the 1992 United Nations Conference on Environment and Development (UNCED). They include the following:

- Small size
- Isolation from labour markets
- Ecological fragility
- Geographic dispersion &
- Limited resources

Trinidad and Tobago with its oil and natural gas reserves is forging a path in increased reliance on science and technology. When bauxite was discovered in Jamaica, the country missed an opportunity to move towards higher-end production, instead it merely exported the raw material for refinement in North America. The Caribbean must follow the example of Asian countries and become producers of high-tech rather than continuing to be consumers of high-tech produced elsewhere. The region must search for opportunities to apply a value-added approach to its long to medium term strategies. The size of the countries in the region should not be an impediment to capitalizing on science and technology to enhance socio-economic development. Let us not forget that for several centuries, the relatively small British Isles was a world leader, and currently the small twin Island of Hong Kong is an economic giant.

## **The Environment and Resource Management**

It is now commonly agreed that there is a direct link between environmental policies and practices on the one hand and social and economic development on the other (Elvis, 1994). However, in actuality, it is only relatively recently that we began to acknowledge that link (World Bank, 1993). This link is most evident in the Caribbean region, where the cost of environmental degradation manifests itself in:

- Harm to human health
- Decreased economic productivity
- Reduced forests

As is the case in other parts of the world, in the Caribbean, there is an intricate relationship between economic growth and the quality of the environment, and many environmental problems have economic causes. There is an urgent need to effectively manage the environment and resources so as to ensure sustainable development. Matters related to efficiency and production are determined by economic policies and the state of efficiency and production affect the environment negatively and/or positively (Alleyne, 1993).

The Caribbean faces a host of environmental problems, most of which are related to the stage of economic development in the region. The countries of the region all acknowledge the relationship between the environment and sustainable socio-economic development, and to varying degrees, are using science and technology beneficially. In Barbados a leading scholar has called for the harmonizing of economic and environmental policies, and the Government has responded positively, by developing a National Action Plan aimed at dealing with environmental issues. In Jamaica, the Government in an effort to enhance sustainable social and economic development, amalgamated several agencies dealing with land use and the environment, thereby creating the National Environment and Planning Agency (NEPA). Similar activity is taking place in St. Kitts and Nevis, Grenada, Antigua and Barbuda, Trinidad and Tobago, Guyana and Belize to name only a few. In an effort to forge the most desirable link between environmental policies and sustainable development, the countries of the region are forced to contend with the fact that because of their small size, any land-based development activity, has a direct impact on the coastal marine environment. The region is in the process of sorting out the short-term trade offs that are desirable, while at the same time developing policies and strategies that will increase the probability that in the long run, socio-economic development and environmental protection will prove to be complementary. In some instances the effort is inadequate; for example, Belize has taken steps to protect its natural environment, but the country's overall economic development strategy does not, in practice, include a strong environmental component (Barry, 1995). One significant challenge for the region, is how to ensure socio-economic development without overexploiting the existing resources.

For these small countries, the negative effects of development can jeopardize sustainability, but such jeopardy can be significantly mitigated by the use of science and technology. Guyana and Jamaica the countries with significant mineral deposits of bauxite/alumina, must contend with the consequences of mined-out areas, toxic red mud and land and forest degradation. Jamaica has instituted a policy for bauxite land restoration, but according to P.E. Williams et al (1997), Guyana has not yet promulgated such a policy. Trinidad and Tobago with its significant oil deposits is experiencing land degradation from oil well drilling, and marine pollution from off-shore drilling and oil transfer (Elvis, 1994). Trinidad and Tobago, Guyana and Surinam are continuing to exploit petroleum reserves and forest resources without putting in place the appropriate regulatory mechanisms. With regulatory mechanisms lagging behind exploitation, the long-term socio-economic development of these countries is being placed in jeopardy.

Countries such as Jamaica, Barbados, Antigua and Barbuda, St. Lucia, St. Vincent and the Grenadines, the Bahamas, and the Dominican Republic, which depend on tourism, are proceeding with the development of the tourism industry, but often to the detriment of the environment. In Antigua and Barbuda, for example, the ecological balance is disrupted when significant deforestation of mangroves takes place, only to be replaced by hotels and marinas, to meet the needs of tourists. In Barbados, several hotels are in an increasingly precarious position because of beach erosion related to the fact that the hotels were located too close to the high-water mark.

## **Conclusions and Recommendations**

The development of the region is important to the quality of life of its people. Social and natural scientists must be engaged at an intense level to employ science and technology in a way that will benefit the respective countries. Although one can point to many instances in which science and technology have been used to enhance development, there is an urgent need to significantly intensify such efforts. The region must make a concerted effort to increase its production of science and technology that can meet its development needs, and at the same time be exported to other parts of the world. In order to utilize science and technology for the benefit of the region, I propose the following:

1. The establishment of an innovation centre, complete with young, bright design engineers and social scientists, funded and managed through a cooperative agreement between the members of CARICOM. This could be spearheaded by the Caribbean Council for Science and Technology.
2. Provide incentives for greater cooperation between scientists in the region.
3. Reduce the barriers to obtaining patents
4. Greater involvement of the private sector in funding research. For example major companies could contribute 1% of profits to scientific research
5. Each government in the region should contribute a percentage of GDP to scientific research, and could have a competitive process for providing funding to legitimate entities.
6. Given the high level of poverty in the region, there is need for research into the socio-economic and environmental cost of poverty.

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