

**TECHNOLOGICAL IMPERATIVES FOR INCREASED PRODUCTIVITY AND
COMPETITIVENESS
IN THE CARIBBEAN**

**Statement by
Sir Neville Nicholls, President
Caribbean Development Bank
to the Board Of Governors
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1. OPENING REMARKS

Mr. Chairman, Distinguished Governors, Members of the Board of Directors, Members of Parliament of Grenada, Members of the Diplomatic Corps, Observers, Guests, Vice-Presidents and other members of Staff of the Caribbean Development Bank (CDB), Ladies and Gentlemen and Representatives of the Media:

It is a great pleasure for us to be in Grenada again - to have these very important annual deliberations here for the third time, and we are deeply touched by the warmth of the welcome extended to us.

Grenada is renowned for its enchanting beauty and its warm and effervescent hospitality and these national characteristics have been clearly evident to all.

Mr. Chairman, I would like to take this opportunity to express publicly my appreciation of the confidence which members of the Board of Governors have placed in me by re-electing me to the Office of President of this Bank for a third five-year term. I am only too well aware of the difficult challenges which the leadership of this Bank presents but, I am confident that, with the same support and cooperation which I have received during the last ten years from the Board of Governors and the Board of Directors, these challenges can be successfully met.

Permit me also, Mr. Chairman, to acknowledge the very great contribution of the Bank's dedicated and hardworking Staff, at all levels, who during my first two terms have never stinted in their support and cooperation nor in the amount and quality of their work.

Mr. Chairman, we are also well aware of the dynamic and sincere manner in which you approached, not only your duties as Chairman of the Board of Governors but also the business of Caribbean development. We are, therefore, assured that our deliberations here under your Chairmanship over the next two days will be very fruitful.

Today, I am very pleased to join previous speakers in welcoming to this Bank the People's Republic of China and to express the wish that the richness of China's great history, its wide experience, its appropriate technology and considerable resources will help to accelerate this Region's development.

2. INTRODUCTION

Mr. Chairman, since CDB began operations in 1970 it has provided approximately US\$80 million (mn) in financing to Grenada up to the end of last year. This, we believe, has contributed in no small measure to the physical development so evident in this country. However, the projects and programmes on which the Bank is now working will, I am sure, deliver a higher level of assistance to Grenada, Carriacou and Petite Martinique over the coming years.

The most recent approval, Mr. Chairman, of more than US\$6 mn came earlier this week and will be utilised for transportation infrastructure in the three islands. another loan US\$3.5 mn for the Grenada Development Bank was among CDB's lending activities in 1997 - a year during which gross financing approvals were comparatively low at US\$87.4 mn - down from US\$104.8 mn in 1996. Cancellations reached unusually high levels in 1997 - although for good reason, as the Bank sought to rationalise its loan portfolio.

However, disbursements at US\$63 mn showed a marked improvement on the previous year's level of US\$52.4 mn; we trust that this vindicates the Bank's

proactive strategy for speeding up project implementation.

We are pleased, Mr. Chairman, with the speed with which some of our more recent projects are being implemented; and there is evidence also to show, that, in keeping with the policy directions given by our Governors and our Directors, a stronger intervention in the social sections is being very clearly reflected in the Bank's operations.

There was much in 1997 to give hope of improved understanding and cooperation between CDB and the private sector, and indications are that more private enterprises will be approaching the Bank for financing. This will increase the urgency for a decision by CDB on the most appropriate mechanisms and instruments to be used for channelling financial resources to the private sector.

Details of these matters and of the economic performance of the Bank's Member Countries are to be found in the Annual Report 1997, copies of which have been provided to Governors and other participants.

With that brief general introduction, Mr. Chairman, I am now pleased to turn to the substance of this Statement on a theme, the importance of which has been repeatedly emphasised by you both during your visit to the Bank's Headquarters last August, and through your responsibility to the CARICOM Heads of Government for the promotion of Science and Technology (S&T) and Human Resource Development in the Region.

I, therefore, now present to this distinguished assembly some thoughts on the topic - **"Technological Imperatives for Increased Productivity and Competitiveness in the Caribbean"**.

3. TECHNOLOGICAL CHANGE DRIVES PRODUCTIVITY AND COMPETITIVENESS

Mr. Chairman, the circumstances in which Caribbean People must earn their living are now very different from those that prevailed, even as recently as 1987 when we last gathered in this country. Most of the changes that have taken place are linked to the enormous strides that have been made in technology during the last quarter of this century. In particular, this has been the case with Information Technology (IT), but it has been true as well for other branches of technology. To illustrate, the massive changes in IT have spurred the liberalisation of international financial markets; and those in process technology that have lead, for instance, to international sourcing of components, have accelerated globalisation. These two forces have greatly increased the competitiveness of the world economy with serious implications for our regional economies at a time when they are being buffeted by the consequences of the loss of protection in their traditional markets. The latter is itself partly a consequence of the abovementioned forces, but, no doubt, is also one of those changes in the strategic

significance of this area that have occurred since our Board of Governors last met here.

Mr. Chairman, economic history and analysis show that investment in physical and human capital are the main determinants of economic growth and development. The key to this effect is technological change. Technology constitutes the skills, knowledge, equipment, processes and attendant management procedures for providing useful goods and services. It accelerates productivity which has vast growth impact.

It is thus critical that the Borrowing Member Countries (BMCs) select more efficient technologies and acquire the accompanying skills for more successful business undertakings, both new and old. Such selection must aim at maximising the productivity of the scarcest factor of production. That means essentially, to maximise the productivity of capital and scarce skills. If our BMCs can achieve this, they could well be on the way to making significant reductions in unemployment and poverty.

The ultimate goal of development is to increase labour productivity, and thereby to improve the standard of living without absorbing too much of total factor productivity. But the best way to raise labour productivity is to maximise the productivity of capital and available skills until these two cease being the scarcest factors of production. That means that labour turns into the scare factor whose productivity becomes the objective of maximisation. This is the sequence by which labour incomes become high without creating undue pressure on prices and the balance of payments.

It is high productivity of all factors that enables an economy to compete without preferences and subsidies. The more competitive an economy becomes, the more it will be able to adjust to adverse changes and diversify its output. Cumulative technological change and capabilities have fundamental effects on quantity, quality and the mix of output. Most important, these effects provide value for money to keep and capture markets. The BMCs need to develop these characteristics more urgently, even if they were in a static world economic order.

4. GLOBALISATION HEAVILY PRESSURES THE TASK

However, Mr. Chairman, the task is made more urgent and harder by unrelenting and wrenching change in the world economic order. It is not necessary to go into details here, because the World Trade Organisation (WTO) matters are so tropical. Suffice it to say that globalisation and liberalisation of all markets with ever declining trade preferences, have come to stay whether the Caribbean likes it or not. But we must avoid becoming like the grass that is trampled when the

proverbial elephants fight for the spoils of the open markets on a so-called "level playing field", which is hardly guaranteed to be level after the fight.

When the WTO did not admit Caribbean banana producers to its hearing of the case, led by a non-producer against the European Union (EU) marketing arrangements, the evidence stood out that vital interest of small, weak countries will scarcely be other than incidental. It is an unfair world, but it is the only one we have to live in. The Region's prime response must be to become competitive through high productivity with more diversified economies. The means is quick technological progress.

It is of little or no use looking for aid as a means to this end. The diminution of aid is permanent. While aid donors are justifiably concerned about the poorest countries, they are now far too inward looking to be of dependable assistance to the Caribbean. Thus the Caribbean is broadly on its own in increasingly hostile waters. And the fast growing WTO all-inclusiveness will make it very difficult to join the second wave of latecomers in the development process. But this process has to be embarked upon with vigour, or the Caribbean could be increasingly marginalised and becoming something of a forgotten, even if idyllic, backwater.

5. ACCELERATING TECHNOLOGICAL CHANGE ADDS OVERLOAD

Mr. Chairman, as if the heavy pressures of globalisation and liberalisation were not enough, there is the quite abnormal phenomenon of an overwhelmingly rapid acceleration of technology. Thus, the key to the badly needed productivity growth, technology itself, is in a mode that can be regarded as overload for our BMCs.

While it took thousands of years from man's controlled use of fire to his inventing matches, it has been considered that the last 40 years may have given rise to more technological change by way of interventions and innovations, than occurred during the whole prior history of mankind. The high end of this spate of technological change is IT. Experts conclude that it now takes a little over two and a half years for the knowledge acquired by graduates in IT to become obsolete. So rapid is the change, and so demanding is the pressure to learn, adapt and apply knowledge and skills in this field.

This then in the milieu in which these small Caribbean countries of relatively low technology have to engage in the battle for survival and development. The frantic pace of technological change has given rise to tremendous urgency for capital investment and skills as well as management systems and processes to modernise radically, and diversify Caribbean economic activity in a hurry. Nothing less will do.

In my [Statement to this Board at its Annual Meeting in 1996](#), I pointed out that during the prior two decades, the Newly Industrialised Countries (NICs) had input half as much new capital per dollar of additional output as did CDB's BMCs. That emphasises the relatively low productivity of capital in the BMCs. But labour productivity has also performed poorly. One of the two largest BMCs showed constant prices, Gross Domestic Product (GDP) per worker falling slightly from 1973 to 1993. The other showed it falling by over one-quarter. In the same period, the level for Mauritius rose by around 50% and that for Singapore by over 100%. These two small countries were no better off than the BMCs of CDB in the 1960s. Yet they achieved sustained full employment while moving increasingly to automation because of higher labour costs. Resistance to the inevitable technological change is thus unwise even though some firms and jobs may go to the wall and attract more attention than those that gain. If the adjustment is not embarked upon positively and promptly, the situation will only worsen as the technological gap widens and potential economic diversification and modernisation recede rapidly while other countries grab the opportunities and capture markets. For it must never be forgotten that the Caribbean must capture export markets or perish, for even our own markets that are already too small, have now got to be open to foreign competitors.

6. SOME CRITICAL ADJUSTMENT OPPORTUNITIES

Mr. Chairman, in spite of the small size and technological limitations of our BMCs, there are some generic opportunities available to them. A few of these which may fit Caribbean needs will now be briefly mentioned although it is known that some of these are already being exploited by some of the Region's more enterprising businesses.

First, is the rise of new production modes. Mass production in vast factories still dominates world industry. But modular production in various locations at scales suitable to small populations has risen fast. Just-in-time delivery and outsourcing to economise on inventories and cost can integrate small-country production into business operations of large enterprises in larger countries.

Multinational Corporations which control most of the world trade, have little or no regard for national or sovereign boundaries. And their loyalty is to profits. They look for locations with appropriate skills and infrastructure that provide relatively low-cost factor inputs and products. Efforts of our BMCs will be sorely tested by very low-cost populous countries. Our BMCs will not have much change in the lower skills end of these opportunities, but in the intermediate skills they could find some scope.

Second, there is a **rapid rise of niche market potential**. This offers opportunities to modernise existing Caribbean production in small industries into high-value customised products suited to small producers, even in traditional areas like the apparel and wood-working industries. Integrating micro-electronics into mechanical machines could help to invigorate the furniture and craft industries, providing reliable standards and quality with strong export competitiveness, especially if the Region succeeds in capturing and incorporating the distinctiveness of the type of skills that are becoming endangered when our older craftsmen die. The prime requirements are flexibility, speed and high quality to beat competitors who are already in these activities and know the markets. The application of electronic reservation systems in the Region's tourist industry is a variant of this approach, and it has helped significantly, the growth of that industry. There is also the case of a technology firm in the petroleum sector of one of CDB's BMCs whose initial operation was to solve an entirely domestic problem. The firm achieved that but has acquired so much expertise that it has established itself in a niche in the Texas oil industry.

Third, Mr. Chairman, is the **rise of knowledge-based production** that can open up new activities to add to the traditional ones just discussed. This is the area of IT-based services. It offers scope for economic diversification. But it could take more time than the traditional activities for adjusting to its more demanding skills. A number of services of this nature arose in some of the BMCs over the last few years. But these are mostly at the low-value end of such services. Given the available skills, it is a good level to start provided the Region takes the necessary steps to enable and promote transition to the high-value end. If not, the populous countries with the low wages will soon become too competitive for the expansion of present day types of these services by the Region.

Much more can be done on computer components which is where the NICs started to build and even to reach world dominance. Moreover, there is scope for the application of inventive intellectual skills in the production of computer software. This is high skill, high value and even labour intensive. There is an intellectual tradition in the Region that, given the right orientation and stimulation, should open up significant export earnings and enable a build-up of profitable intellectual property rights. And there is the example of Caribbean success with the early database search engine, "Archie", produced by one of the Region's young men.

In order for significant attainment of the potential opportunities raised, and others of similar nature, there are some critical requirements that must be met by government, business and labour, and I now turn to these.

7. POLICY REQUIREMENTS FOR THE TASK

Mr. Chairman, the foremost requirement for the task ahead is to create and sustain **investment-friendly macroeconomic policies**. Low investment means slow technological change. That would ruin the chances of achieving the critical adjustment. This demands that our BMCs pursue appropriate policies to foster saving and investment for rapid capital accumulation and hence rapid technologically-induced productivity growth.

Doing new things in business increases risk. The policies must encourage risk-taking of the higher order. There must be high confidence that risk-taking will not be impeded by inflation, fragile balance of payments and currency instability. The prime indicator that these adverse factors could arise, is the fiscal deficit, which must not induce unreversed money creation nor unsustainable foreign borrowing. Neither should it crowd entrepreneurial ventures out of the market by high interest rates to protect the exchange rate and meet public sector borrowing needs. In addition, the rewards for risk-taking must not be unduly diminished by taxes nor lost by the failure of poorly regulated financial institutions. Some of our BMCs have shown that these can all be sustainably accomplished by strong political will.

There must, however, be **microeconomic policies** that complement the macroeconomic ones. Strong among these will be the rule of law and the sanctity of contracts. Our BMCs have a good tradition for these on which to build. Modernisation of the company legislation, including bankruptcy provisions, is needed in many BMCs. And special laws to induce new activities should always be in the minds of our policy makers. The economic and social infrastructure will need upgrading to be world class at competitive cost. The humbug of red tape and unfruitful bureaucracy must go.

Caribbean business houses, Mr. Chairman, are generally too small to have the financial base that provides resilience to foreign competition and market obsolescence while bearing the risks of significant innovations. To foster the development of larger and stronger businesses, Governments should ensure that their competition policies encourage rather than impede the evolution of business conglomerates. And the Region needs a more friendly approach to foreign direct investment which, in any case, has certain rights of national treatment under WTO rules. Such enterprises bring markets, technology and management and can help to develop the skill base of the host country.

Mr. Chairman, a **conducive labour market** is critical especially to new business growth. Labour is entitled to fight for its rights. But style is important. However, the right to work of the host of unemployed persons, should not be unduly prejudiced by the exercise of their rights by those who have jobs. At the same time, business has the obligation to be fair in the terms and conditions of employment. The Caribbean needs a new stance in all of this. It must be based on mutual respect and cooperativeness of the social partners.

In the medium to long run, little will be achieved even with these policies without **a sound programme of education and training** oriented to evolving a new breed of producers and skilled workers. Technological advance needs education and training emphasising S&T. Even adoption of advanced technology requires minimum capability to assess, procure, assimilate and operate it effectively. More is needed to adapt and innovate through research and development which should help the Region to avoid being locked into appropriate technology. So our BMCs need a very strong focus on S&T education and training.

Data in Social Indicators of Development suggest that this focus has started in most BMCs. The percentage of S&T tertiary students in the BMCs has risen markedly in most. Some rose from around 20% twenty to thirty years ago, to over 40% in the most recent year. But in one larger BMC, the trend has unbelievably declined to below 20%.

At the secondary level, the S&T curricula have to be upgraded urgently because most of the skilled persons needed for technological advance, will not be technologists but skilled operatives. A practical bias must be infused; but business has a role here. History shows that technological advance will need heavy training by businesses at all skill levels. And in the final analysis, it is mostly these people who will be able to identify problems to be solved on the shop, floor, and thus lead to research and development efforts, which will now be addressed.

8. RESEARCH AND DEVELOPMENT

Mr. Chairman, it is well accepted that knowledge is power. In recent years, S&T knowledge has soared and the associated power has left the Caribbean far behind. Our countries must now work very hard to prevent the gap from widening rapidly. Each Caribbean country has too little of human and financial resources to cope on its own for effective Research and Development (R&D). They would be better placed in a system of cooperation and coordination of the R&D work. Otherwise, they will continue doing too little which is as unrealistic as doing nothing.

Indications are that the developed countries are spending around 2.5% of GDP per year on R&D. A recent article suggests that EU spending for R&D could exceed \$112 billion a year, or be nearly five times the combined current GDP of our BMCs. The Caribbean cannot hope to match those expenditures even in relative terms. But the situation now demands that a much greater effort be put into R&D by both public and private sectors.

Public sector R&D or S&T institutions in the BMCs have had inadequate impact, most likely because there are no comprehensive S&T policies and they lack sufficient funds for overhead and actual R&D work. There is low impact because

of the uncoordinated low level effort. The University of the West Indies (UWI), in collaboration with CDB, is now working on a proposal to establish a Regional Research Funding Agency that could sponsor competitive research proposals for peer-reviewed research. It could strengthen research funding and coordination in the Region. Its status could also cause it to gain access to information on research that is being done elsewhere in the world. That could be a significant advantage to the R&D work of the Caribbean. Thus, it has great merit.

However, while basic or pure research is greatly needed, emphasis on it should never overwhelm applied research as is the general tendency in developing countries. If technological change is to be effective in driving economic progress, then problem-solving-oriented applied research leading to technology improvements at the production stage must become dominant. For this to occur, business must not only assume some of the cost, but also cooperate with, and be prepared to take their technological problems to the research institutions. Where this is unlikely because of small size and of the low level of technology in business, R&D work must be brought to the notice of potential users to make relevant technology of any origin familiar. That would call for the kind of technological or industrial extension service that is familiar in agriculture in our Region.

While public R&D is like a subsidy, it is the only type of subsidy that the WTO does not proscribe broadly, and in fact encourages. It is a big means of subsidy in developed countries, and the Caribbean must imitate what is in its best interests. But it can be kept affordable if tax policies encourage business R&D more than they now do.

IT is the high end of the technology spectrum. It is gradually spreading in the BMCs, but its diffusion is mainly in routine activities like accounting and office procedures. Business extension services could help to show the profit potential of other uses starting with simple things like gaining market information. If this can be done, an IT culture could start permeating business. That could lead to a snowballing effect, particularly if public R&D institutes pioneer and pave the way for such development. In this regard, it would be of significant importance if, in fact, the University of Technology in Jamaica, were enabled to pursue an idea which is under consideration at that University, to start a programme for the incubation of high technology industry. This idea deserves serious support and CDB is examining it for possible assistance. This brings me to a brief discussion of CDB's role in our BMCs effort in this area.

9. CDB'S ROLE IN THE EFFORT

Mr. Chairman, CDB has long recognised and supported issues surrounding

technological progress in its BMCs. That is why it introduced programmes of education, training, technical assistance and policy dialogue alongside its project lending. Most Governors are familiar with these programmes. Thus, only a few will be mentioned here.

In 1972 CDB introduced its Student Loan Scheme emphasising tertiary level technical and vocational education in its Less Developed Member Countries. Later, it introduced programmes for technical and vocational schools and curricula development programmes. More recently, we added basic education at primary and secondary levels (including some of the More Developed Member Countries), and the UWI distance learning project which utilises electronic delivery. CDB's training courses in the project cycle have helped to infuse rigour and computer capability in investment decision-making. Its project-related and general technical assistance are helping to build technical knowledge, skills and institutional capability. The Caribbean Technological Consultancy Services has provided technological information and shop floor problem-solving at the same time as it builds the hands-on consultancy skills of the Region's suppliers of the technical services. CDB's very successful support for electricity projects will be found very useful to the technological demands that lie ahead.

CDB will upgrade or change the mix of its programmes as the need is perceived by Bank Staff and the BMCs. But it cannot move faster than the BMCs are willing and able to do. and it has to be mindful of the constraints on the volume and use of its resources. With these in mind, it is willing to consider support for R&D to be undertaken by appropriate regional or national institutions in acceptable circumstances. In this regard, the Bank is establishing an Economic Research Unit whose work should provide insights as to some activities to be examined for support and for policy dialogue with its BMCs.

10. CONCLUSION

In conclusion, Mr. Chairman, the tasks ahead will be difficult for both the BMCs and the Bank. But they are not impossible. In the increasingly hyper-dynamic world, we must help our people to become more receptive to change than they are prone to be. New opportunities must be grasped with innovative flexibility rather than dogged resistance to change which will always cause some disruption to someone. Society must be helped to see reduced economic opportunities for what they really are and to let go before it is too late unless such reductions can reasonably be reversed by productivity gains. We must move quickly towards the frontiers of technology that provide high value goods and services.

In this regard, the inadequate state of our technology demands that there be some leap-frogging of other technologies to IT in order to try and achieve modernity

and competitiveness. More niches for small countries will be opened up by IT than by any other technology, and IT can be retro-fitted to existing production technology to upgrade the overall technological base. The evolution of telecommunications as a major base for link with IT has shown the tremendous potential and pervasiveness of IT in the creation of business opportunity. This is also because IT compresses time, overcomes geography and alters structural business relations as no other technology does. Moreover, the rapid growth of mechatronics (i.e. computer controlled mechanical and electronic blends), and of study courses even at the matriculation level in that area in some advanced developing countries, show that the BMCs must promote R&D in IT and how it can be blended with other technology. R&D work must also find its way into the classrooms and be pushed on the shop floor.

Mr. Chairman, I think that if over the next decade we make a concerted drive to use technology to help us raise productivity in a whole range of economic activities, some traditional and others more novel, it will help to give us the necessary flexibility to adapt to the changes in our global marketplace that now seem to threaten to overwhelm us. We must move to higher technology with zeal, for there is not much choice if we are to reduce our unacceptable levels of unemployment and poverty. Let us start now, Mr. Chairman. CDB is willing and ready to play its part.

Thank you.