NIGERIA'S INDUSTRIAL DEVELOPMENT, CORPORATE GOVERNANCE AND PUBLIC POLICY

Editors
Ndubisi I. Nwokoma
Wakeel A. Isola
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Essays in Honour of Michael O. Adejugbe
Professor of Industrial Economics

Edited by

Ndubisi I. Nwokoma
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Abstract
This paper discusses some possible strategies that could be included into emerging nations development plans to ensure a green-growth manufacturing sector. These include: proper pricing of natural resources, strengthening of residuals management in industry (i.e. pollution control), financial incentives to promote environmental technologies, market-based instruments, institutional and property right reforms. Also, the paper reiterated that government, Private sector and NGOs are the major stakeholders in greening the manufacturing sector. These stakeholders have critical roles to play. For governments, this would include leveling the playing field for greener products by phasing out antiquated subsidies, reforming policies and providing new incentives, strengthening market infrastructure and market-based mechanisms, redirecting public investment, and greening public procurement. For the private sector, this would involve understanding and sizing the true opportunity represented by green economy transitions across a number of key sectors, and responding to policy reforms and price signals through higher levels of financing and investment. The study further review adoptable green growth strategy practiced in the United States, Japan, Germany, Brazil, China, Malaysia, South Africa, and Philippines. Also, a comprehensive green growth strategy for manufacturing sector was presented, while the paper concludes with the major preconditions for green growth manufacturing sector take-off.

Keywords: Manufacturing Sector, Inclusive Growth, Green Growth Pre-Conditions, Emerging Nation, Policy lessons, Green Growth Strategy

1.0 Introduction
The concept of a “green economy” does not replace sustainable development, but there is now a growing recognition that achieving sustainability rests almost entirely on environmental balance inclusive growth (Mazur, 2012). Decades of creating new
wealth through a “brown economy” model have not substantially addressed social marginalisation and resource depletion, and we are still far from delivering the Millennium Development Goal 7 on environmental sustainability. Sustainability is still a vital long-term goal, but we must work on greening the economy to get us there, especially key sectors like the manufacturing sector. To make the transition to a green economy, specific enabling conditions will be required. These enabling conditions consist of the backdrop of national regulations, policies, subsidies and incentives, and international market and legal infrastructure and trade and aid protocols (OECD, 2012). At present, enabling conditions are heavily weighted towards, and encourage, the prevailing brown economy, which, inter alia, depends excessively on fossil fuel energy.

UNEP (2011) defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. In a green economy, growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. These investments need to be catalysed and supported by targeted public expenditure, policy reforms and regulation changes. The development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and as a source of public benefits, especially for poor people whose livelihoods and security depend on nature.

In contrast, enabling conditions for a green economy can pave the way for the success of public and private investment in greening the world’s economies. At a national level, examples of such enabling conditions are: changes to fiscal policy, reform and reduction of environmentally harmful subsidies; employing new market-based instruments; targeting public investments to “green” key sectors; greening public procurement; and improving environmental rules and regulations as well as their enforcement (OECD, 2012). The research question however is - why a greening manufacturing sector? While developing countries like Nigeria need to expand their industries, unsustainable economic growth is resulting in resource depletion and severe environmental degradation. In many countries, production and consumption patterns are outpacing the renewal capacity of natural resources and the capacity of government to manage waste products. The greening of industries by government is essential as a proactive way to decouple environmental pressures from economic growth.
It is in this regard that this paper seeks to motivate policy makers as a background paper to create the enabling conditions for increased investments in a transition to a green economy with respect to the manufacturing sector. Firstly, this paper attempts to make an economic case for shifting investment, both public and private, to transform key sectors that are critical to green the global economy. It illustrates through examples of good practices around the world, how additional employment through green jobs offsets job losses in the process of transiting to a green economy. Secondly, it shows how a green economy can reduce persistent fall in productivity across a range of important sectors, especially the manufacturing sub-sectors. Lastly, it provides the framework on policies to achieve this shift: by reducing or eliminating environmentally harmful or perverse subsidies, addressing market failures created by externalities or imperfect information, through market-based incentives, appropriate regulatory and legal framework, green public procurement, and stimulating investment.

Following the above backdrop, the paper is structured into five major sections. Section I presents the introduction while the current state of Nigeria’s manufacturing sector is captured in section II. Section III reviewed adoptable good manufacturing practices around the world and the brief overview of policy lessons inference is contained in section IV. Section V of the paper presents a comprehensive analysis of green – growth strategy for the manufacturing sector and the conclusion and suggestions for green growth manufacturing sector take-off in emerging nations like Nigeria are contained in section VI.

2.0 Current State of Nigeria’s Manufacturing Sector
The Nigerian manufacturing sector has experienced significant structural changes over the years despite being faced with myriad of problems. The factors that influenced the structural changes and performance of the manufacturing sub sector since independence include government intervention, low technological development, inward-looking strategy, and protectionism. The main objectives set by the industrial planners in Nigeria include the desire to achieve increase in the share of manufacturing, contribution to the Gross Domestic Product (GDP), replacement of imports with locally produced goods, innovations, industrial disposal and employment generation. The high import dependency was more pronounced in the heavy capital intensive industrial sub-groups, steady output growth average 17 percent in the 1970s, while its share in GDP increased from 5.4 percent in 1977/78 to a peak of 13 percent in 1982. In 2000 the growth rate declined to 0.6 percent. The 2006 CBN report reflected a growth rate of 1.8%.
However, the Nigerian manufacturing sector has begun to experience statistical growth in recent years. It is an important point to make, in spite of the cynicism towards statistical expression of performances of economic indicators in Nigeria. But part of the economic transformation that is taking place in the country is that public and private sector institutions are now producing analytics for better understanding of what is going on in the economy. More systematic approaches to data-gathering are helping to provide reliable information, which guide economic and investment decisions, in line with the trend in the advanced and emerging markets, where regional, national and sectoral data are crucial in understanding the state of the economies and the performance of their industries.

According to the National Bureau of Statistics (NBS), the performance of the manufacturing sector has been strengthening. The sector grew by 8.41 per cent in Q1 2013. It was a performance that even bettered the impressive growth of 7.70 per cent in the last quarter of 2012. This upswing in the performance of one of the sectors that hold the ace for Nigeria’s economic transformation was corroborated by researchers at FBN Capital, one of the leading investment banking and financial advisory groups in Nigeria. FBN Capital’s Purchasing Managers Index (PMI) has maintained a reading above 50 points since the “headline reading” of 59.6 per cent at its launch in April 2013. The PMI methodology indicates 50 points as flat performance; a reading above it is growth, while lower reading indicates contraction.

Presently, the Nigerian manufacturing sector currently constitutes 10 per cent of our GDP. This is significant for a frontier market, and at this stage of Nigeria’s development. The sector accounts for about 12 per cent of employment in the formal sector. In spite of the decline in the sector a few years ago, the consumer goods sub sector has always been vibrant. After decades of domination by multinational food and beverage, recent growth in manufacturing has seen strong contribution by indigenous manufacturers, who have come into fortune because of the policy support.

A number of reforms are reshaping the manufacturing sector in Nigeria. The NBS has more recently attributed the growth in the sector to implementation of the power sector reforms. The full effect of the reforms is a promise than what we currently experience. It is therefore expected that the era of more stable grid-electricity power supply, which Nigeria now has on the horizon, would ensure that products manufactured in Nigeria move towards price-competitiveness. It will also drive other efficiency factors. The present administration has pressed on with addressing infrastructural deficiencies. As a first step in the rail transportation, some of the old rail lines have been revamped and are now operational. This and some proposals for
Nigerians Industrial Development...

workforce education and development, lowering structural costs, innovation and technology (Estrada 2005).

- Huge investment in R&D, especially from the private sector, active protection of intellectual property rights, the presence of high-quality scientific research institutions and extensive R&D collaboration between universities and industry have also served to promote innovation in the manufacturing sector.
- Nearly 30% of U.S. industrial R&D takes place in sectors outside of manufacturing, such as computer services, software consulting and research labs. This broad distribution of U.S. industrial R&D activity across multiple sectors is an economic advantage that helps to drive productivity in manufacturing.
- Technology has enabled the carrying out of routine and dangerous work by robotic and other equipment. This has increased HSE factors and, between 1994 and 2004, the rate of occupational injuries has been cut in half, from 12 workers per 100 workers to less than six.
- U.S. manufacturers have also introduced a variety of innovative technologies, new business processes and enlightened management techniques to encourage greater efficiency in the industrial use of energy.

3.2.2 Japan
Japan is a world leader in manufacturing productivity - 20 percent higher than in the US - a key reason for its trade surplus with the world. It is also a growing leader in key industrial sectors such as the auto industry (Vision 20:2020). Japan is facing a declining workforce, an aging population, and the loss of its “manufacturing culture”. In order to develop its human resources as a key to global competitiveness the government is moving quickly to build strong alliances with universities to develop intensive new curricula in science and technology and to conduct joint research on new technologies.

3.2.3 Germany
Manufacturing firms are currently the engines of growth in the German economy and German manufacturers have adapted well to globalisation by becoming specialised and gaining recognition as global market leaders in their key niches. With niche markets in emerging economies, like China and India, German manufacturers are strategically positioned to offer precisely the range of products these countries need to continue industrialising. Germany has a higher level of industrial competency and substance than its peers because of its focus on the industrial core base and the diversity of its manufacturing industries. A stable macroeconomic environment has contributed to the ability of German manufacturers to remain globally competitive
and the strong legal system and stable political, economic and social conditions have served to promote growth of the sector over decades.

3.2.4 Brazil
Multinational and corporate investors are attracted to Brazil because of its size, its growth rate, and because of the trend of improving macroeconomic stability and an increasingly deregulated environment. There is a high level of spending in acquiring outside knowledge, and the absorption of techniques embodied in machinery and equipment vis-à-vis internal R&D. The Brazilian places importance on acquisition of foreign technology through licensing, purchasing know-how, patents, brands, trademarks, consulting services, and technology transfer agreements. Based on the recent industrial policy, the government provides a line of credit via the Brazilian Development Bank for investment in innovation, capacity expansion and exports with emphasis on biotechnology and nano-technology.

3.2.5 China
China has experienced spectacular economic growth, quadrupling its GDP PPP to become one of the fastest growing economies in the world (CIA Factbook, 2005). Much of this growth is driven by manufacturing. Today, China has become the manufacturing centre of the world and export of manufactured goods rose at a rate of 15 percent per year to about $730 billion in 2004 (EIU Country Report, 2006). The Chinese government has led investment in the manufacturing sector by giving preferential loans to targeted industries. In recent years, the government has promoted growth in the value added manufacturing industries such as electronics and automotive components with tools such as: public research, trade protection, sector-specific financial incentives, selective government procurement, and control of foreign participation, relaxed antitrust regulation, and the provision of training and education for sector-specific skills (Linden, 2003).

3.2.6 India
In India, local and foreign investments in areas ranging from R&D to manufacture of consumer durables, electronics, automobiles, textiles and services are encouraged. There is a proliferation of active industrial R&D centres of trans-national corporations involved in hardcore research for the industrial sector. These building blocks of innovation provide a strong knowledge base for Indian manufacturing that will have a sustained long-term impact on the productivity of that sector. Existence of an open society, a strong technology base, democracy, diversity and an environment that allows experimentation have worked together to encourage sector growth.
3.2.7 Malaysia
A key source of industrial growth in Malaysia is science-and innovation-based activities that are sustainable and support long-term growth of the economy. Industries in Malaysia are mainly located in over 200 industrial estates or parks and 18 Free Industrial Zones (FIZs) developed throughout the country. New sites, fully equipped with infrastructure facilities such as roads, electricity and water supplies, and telecommunications, are continuously being developed by state governments as well as private developers to meet demand. These industrial clusters are supported in the manufacture of higher value-added products through the application of advanced manufacturing technology. Specialised parks have also been developed in Malaysia to cater for the needs of specific industries. Examples of these parks are the Technology Park Malaysia in Bukit Jalil, Kuala Lumpur and the Kulim Hi-Tech Park in the northern state of Kedah which cater for technology-intensive industries and R&D activities.

3.2.8 South Africa
Although agriculture and, later, mining have historically dominated South Africa's economy, manufacturing is now the most productive sector. Prior to the 1920s, South Africa depended heavily on imports, until the government started encouraging local manufacturing through the establishment of state corporations to produce electricity (in 1922) and steel (in 1928) for manufacturers' use and through tariffs designed to protect local industry. From then onwards SA government tightened its control over imports and since then, most growth in manufacturing has been in heavy industry, led by the local iron and steel. Government programmes in the 1990s encouraged more labour-intensive manufacturing enterprises to ensure manufacturing industries created jobs for new entrants to the labour market. Most private manufacturers moved toward machinery and technology to cut labour costs, both to keep up with foreign producers and to avoid confronting an increasingly militant, organised labour force.

3.2.9 Philippines
The general strategies include the integration of environmental considerations in decision making, proper resource pricing, property rights reform, conservation of biodiversity, rehabilitation of degraded ecosystem, strengthening of residual management (pollution control), control of population growth and human resources development, inducing growth in rural areas, promotion of environmental education and strengthening of citizen's participation.
4.0 Lessons from Adoptable Good Practices
Several lessons emerge from the review of good practices on green growth manufacturing sector. One of the lessons is the fact that the provision of infrastructures such as electricity and steel for manufacturers' use is key to a green growth manufacturing sector. Another lesson is in the area of acquisition of foreign technology through licensing, purchasing know-how, patents, brands, trademarks, consulting services, and technology transfer. Thus, it is important that government place high priority on spending to acquire outside knowledge, and the absorption of techniques embodied in machinery and equipment vis-à-vis internal R&D.

In addition, huge investment in R&D, especially from the private sector, active protection of intellectual property rights, the presence of high-quality scientific research institutions and extensive R&D collaboration between universities and industry are needed to promote innovation in the manufacturing sector. Also, tariffs redesigning to protect local industry is one of the more revealing lessons learned. There is now a compelling need to overhaul the traditional concepts of development, with its exclusive focus on economic principles and the political economy of natural resources.

5.0 Comprehensive Green-Growth Strategy for the Manufacturing Sector

5.1 Introduction
This section of the paper proposes and discusses a framework for a green-growth manufacturing sector in emerging nations such as Nigeria that can be incorporated into the long term development plans. This framework ensures that the needs of the economy in terms of the manufacturing sub-sectors are met efficiently and sustainably.

5.2 Strategies for Achieving a Green –Growth Manufacturing Sector
Strategies for achieving the targets set for the green-growth manufacturing sector is hinged on efficient infrastructural services such as electricity, water supply, roads, railways and ports; as well as on sound macroeconomic management and other specific sectoral policies that feed into the manufacturing sector. One major strategy is institutional and policy reforms required to address the major challenges facing the manufacturing sectors. The institutional challenges that address the policy reforms are of two folds: Institutions for the development of Small and Medium Scale Industries (SMIs); and Institutions for building local technological capability for industrial production. The institutional reform for the development of SMIs is currently anchored on SMEDAN, while institutional reform for building local
technological capability remain relatively undefined apparently due to lack of emphasis on technological innovation as the engine of growth.

The challenge of institutional reform for making industrial production competitive in Nigeria should adopt a system of innovation approach whereby all institutions and economic agents that contribute to production interact with each other to promote technological learning and competence building at the firm level (Adeoti, 2002). The example of institutional reforms to promote rapid industrialisation by South Korea and Japan, and lately, China could serve as reference for Nigeria. South Korea learned to industrialise by extensive reverse engineering facilitated through active support of industry by Korean Institute of Science and Technology (KIST), which is the major institution focusing on strategies for technological acquisition. The Japanese Ministry of Trade and Industry (MITI) was also an institution that served as a major instrument of technology acquisition through implementation of incentive regimes that enabled industry to embark on reverse engineering and technological upgrading that resulted in an unprecedented pace of technological and economic catch-up. Recently, China has debut as the new dragon speeding up the pace of economic growth through institutional reforms based on a conceptualisation of economic policy as an innovation policy. The development of China’s industrial technology has been a major focus of the new institutions that guide China’s emerging market economy. The current efforts of SMEDAN to network with institutions that support SMIs should be advanced and enlarged in scope to include institutions and agents that have evident capability for local R&D in industrial technology. So far, SMEDAN has focused largely on small and micro enterprise development. It is thus an imperative for the Vision Plan (NV 20:2020) to crystalise out of existing institutions for industrial development a major institutions akin to KIST or MITI that can take up the bold challenge of a strategic approach to industrialisation based on local technological capability development and competence building activities in small, medium and large enterprises.

Policies and strategies for accelerating manufacturing sector productivity that will reduce the negative impact of manufacturing activities (such as carbon-monoxide emissions) will have to focus on achieving sustainable growth with resilience. The thrusts will be to shift the growth strategy from input-driven to one that is knowledge-driven in order to enhance potential output growth, accelerate structural transformation within the manufacturing and services sectors, revitalise the agriculture sector and strengthen socio-economic stability. The strategic plan for a green growth economy will place a greater focus on private sector initiatives while the public sector will undertake a facilitating role through the provision of a conducive institutional framework and quality service.
In order to enhance Nigeria’s manufacturing sector competitive edge and to foster a green growth manufacturing sector, special emphasis will be given on increasing productivity and efficiency through human resource development, encouraging R&D activities as well as utilising the latest technologies, particularly ICT. A large-scale adoption of green growth and sustainable development strategies in the manufacturing sector has the potential to unlock new growth engines and spur national economic growth. In this context, well-designed structural reforms to improve framework conditions for green investment and innovation, coupled with appropriate technology transfer mechanisms, can help drive economic growth. These reforms can contribute to macroeconomic stability and resilience. If properly managed, they can help ensure that broader objectives of poverty alleviation, health, education and other pressing priorities are achieved.

According to Sackey (2011), incentives for innovation, greater efficiency in the use of natural resources, reducing waste and energy consumption can enhance productivity and also contribute to addressing core development challenges such as poverty and resource scarcity gaps. The elimination of wasteful and environmentally harmful public spending and appropriate pricing of pollution and natural resource use, can both create incentives for green investment and innovation as well as generate much-needed fiscal space, through reduced government expenditures and additional government revenue. Clear environmental policies can provide greater predictability and stability for markets and boost investor confidence, while stimulating demand for cleaner technologies, goods and services can open up new markets.

It is instructive at this juncture to highlight the possible appropriate strategies that can be adopted or designed into the Vision Plan of the government that will address the carbon intensity without compromising inter-industry linkages, productivity, growth, quality, and employment. Some of these strategies include the following:

- **Proper Pricing of Natural Resources**
  The most widespread opportunity for improving resource management is to treat natural resources as truly scarce, not as if they were free. This is done by proper pricing based on the cost of replenishment, increasing their supply and providing appropriate substitutes. In essence, this strategy aims to correct the gross underpricing of natural resources (e.g., logs, minerals) that is substantially responsible for the wasteful extraction and utilisation of these resources.

  The question of who pays for damages to the environment should be part of more wide-ranging policy reforms regarding the pricing of the country’s natural resources especially those that have to do with the manufacturing sector. It has become obvious
that natural resources such as timber and minerals are grossly underpriced. Under priced in the sense that those given the right to exploit these resources for profit pay very little of the significant damage costs to society. They also share with the rest of society very little of the "rents" they get out of exploiting these resources ("rent" represents the surplus after all cost and reasonable profits are paid). The rents from the exploitation of natural resources are huge, and they have gone to only a few. To attain sustainability, the government should recover the full economic rent for natural and environmental resources.

A component of the needed price reform strategy involves charging a price on those environmental resources (e.g., air, water) which have until now been regarded as free resources and which have thus been polluted freely and indiscriminately through industrial activities. At present, polluters continue to view the environment as a mere sink, for which they pay nothing. This concept should be changed. A social price should be assigned to these otherwise free resources. The polluter must then learn to internalise this price within his profit-oriented decision-making process. If there is pollution, the polluter must pay for the consequent social costs. The choice can be made between cutting down on pollution by investing in pollution control devices or cutting down directly on pollutive aspects of an activity. In effect, the polluter regulates his own behaviour within the context of an environmental pricing system. The system is based on the so-called "polluter pays" principle.

Relevant to the successful Implementation of such pricing mechanisms is the development of capabilities in environmental economics and the conduct of measures in this field. In addition, there is a need to set up support funds and incentives for those (especially manufacturing industries) willing to shift from pollutive or destructive technologies to those that are environmentally protective.

- **Strengthening of Residuals Management in Industry (Pollution Control)**
  The most commonly applied instrument for pollution control is "end-of-pipe" control systems that treat or attempt to limit waste products with standards and limits on the permissible emissions rate. Residuals management, however, looks at the pollution problem within a more comprehensive framework of materials policy which includes resource recovery, recycling, and appropriate by product design that save on materials and energy. A move should be made towards adopting recent innovations in industrial process designs which are aimed at reducing waste streams, especially as increasing restrictions on disposal becomes more necessary. Reformulating products, developing saleable by-products from residuals, and redesigning or combining processes are some innovations that have often been found to reduce wastes and costs as well.
In Nigeria, resource recovery should prove highly economical because materials and energy costs are quite high relative to labour costs. Paper, glass, metals, plastics, oils and other materials could be recovered from waste streams and recycled by networks of workers. In addition to and in support of technological innovations is the strengthening of enforcement of appropriate pollution control laws. Other policy instruments such as the use of economic incentives to encourage pollutive firms to install pollution control facilities and collective actions such as the installation of central collection and treatment facilities for wastewaters are needed to supplement current enforcement efforts. These are especially important given the relatively small capital base of enterprises involved. More conciliatory forms of pollution regulation involving persuasion and information dissemination aimed at altering polluter as well as end-consumer behaviour should also be implemented to cause positive change in business attitudes towards the environment.

- **Financial Incentives to Promote Environmental Technologies**

Financial instruments such as R&D subsidies, grants, and tax breaks are not only important for the creation of new and emerging technologies, but also for supporting the adoption and adaption of existing technologies. Most governments in developed countries provide direct grants or tax credits to support R&D carried out by businesses. Such support is justified by market failures and the benefits accrued to society in terms of additional “knowledge spillovers”.

Direct support for private R&D occurs through a variety of instruments such as tax breaks for volume and increments in R&D, equity support measures such as venture capital funds, direct government grants, etc. Whilst these instruments all impact on innovation to some degree, their effectiveness largely depends on their design and methods of implementation. Indirect financial incentives, particularly tax measures, can be used to promote the uptake of new environmental technologies. For example, a scheme in the Netherlands allows for accelerated depreciation of investments and facilities; and the Canadian province of Quebec provides a 20 per cent tax credit for environmental technology investments (OECD, 2000).

Therefore, Nigerian Government can facilitate the growth of green enterprises and service industries through equity support measures, such as specialised venture capital funds that provide seed capital, green funds to guarantee bank loans, and investment guarantee funds, etc. Government support, however, generally tends to be more broad-based, targeting general business start-ups rather than specific enterprises developing environmental technologies, products, or services (OECD, 2010). One example is the Carbon Trust, set up by the UK government in 2001. In addition to providing a range of services for reducing businesses’ carbon emissions, they offer
venture capital funds to support emerging clean energy technology businesses that demonstrate commercial potential (OECD, 2010). A good example is the case of India as shown in Box 5.1.

- **Property Rights Reform**

  Natural resources have a tendency to be exploited as free resources by individuals even though they are in effect scarce resources. This is the case for "open access" resources in which there is a strong tendency for misuse and depletion. It is difficult for an individual producer such as a shifting cultivator or an artisanal fisherman to conserve an open access resource and unilaterally regulate his exploitative efforts, since from his perception anything that he conserves will only be taken up by others (OECD, 2010). This is the famous "tragedy of the commons." Therefore, self-regulation in the exploitation of natural resources can be achieved by assigning secure access rights perhaps even private ownership over these resources to responsible individuals and communities. Through secure access rights, the individual or community establishes a lasting tie with the resource and a long-term stake in its protection for sustained-productivity.

  The need therefore is to develop creative and secure instruments such as forest stewardship contracts, small-holder timber concessions, artificial reef licenses, community forests, community fishing grounds and mining cooperatives to ensure equitable access and tenurial security in the utilisation of natural resources. It has to be noted, however, that an essential condition for transferring control over resources or distributing resource rights is for recipient individuals or communities to demonstrate the capacity for the sustainable development of such resources.

  A range of policy options are available for addressing green growth constraints in the manufacturing sector. These are summarised in Table 5.1. Policy should take advantage of any overlapping objectives and ancillary benefits to capture potential synergies (Karousakis, 2009). In addition to the choice of policy instruments and objectives (e.g. whether a tax or a technology standard or infrastructure improvement is over boosting (R&D), it is also important to consider issues related to how policy is implemented. Across the range of issues to be considered, policy initiatives should, in general, be designed on the basis of the following criteria: cost-effectiveness, adoption and compliance incentives, and ability to cope with uncertainty and provide a clear and credible signal to investors (de Serres, Murtin and Nicoletti, 2010).
**Box 5.1: Financing SMEs in India**

The Small-scale Industries (SSI) sector plays a significant role in the Indian economy. With about 3.4 million registered SSI units in the organised sector, the sector is the second largest employer after agriculture, and contributes over 41 percent of the total industrial production. At the end of March 2000, it employed about 19 million persons. Traditionally, India has two sets of financial institutions that assist the SSI sector: (a) commercial banks which provide mainly short-term working capital, and (b) Development Financial Institutions (DFIs), which extend long-term credit for capital investments. To overcome some of the financial constraints facing SSIs, the DFIs and commercial banks have introduced some innovative support mechanisms. Reflecting India’s emphasis on technology and quality management, a special financial scheme known as the “Technology Development and Modernisation Fund” is jointly operated by the Small Industries Development Bank of India (SIDBI) and the Government of India. Concessional loans are provided for technology upgrading, modernisation, quality control and environment management projects in the small-scale industrial sector. Sector specific technology funds viz., leather, textile and jute are also available. SIDBI, the Government of India and the State Bank of India run Integrated Technology Upgradation and Management Programme called “UPTECH” programmes for technology development in identified clusters. Assistance is provided for setting up technology parks and incubation centres, which have mainly been picked up by technology incubators related service providers. SIDBI has set up a technology bureau for small enterprises for exporting and importing technologies and for assisting in setting up joint ventures.

Source: Narain, 2001

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<td>1</td>
<td>Inadequate infrastructure</td>
<td>Taxes, Tariffs, Transfers, Public-private partnerships</td>
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<tr>
<td>2</td>
<td>Low human and social capital and poor institutional quality</td>
<td>Taxes, Subsidy reform/removal</td>
</tr>
<tr>
<td>3</td>
<td>Incomplete property rights, subsidies</td>
<td>Review and reform or remove</td>
</tr>
<tr>
<td>4</td>
<td>Regulatory uncertainty</td>
<td>Set targets, Create independent governance systems</td>
</tr>
<tr>
<td>5</td>
<td>Information externalities and split incentives</td>
<td>Labelling, Voluntary approaches, Subsidies, Technology and performance standards</td>
</tr>
<tr>
<td>6</td>
<td>Environmental externalities</td>
<td>Taxes, Tradable permits, Subsidies</td>
</tr>
<tr>
<td>7</td>
<td>Low returns on R&amp;D</td>
<td>R&amp;D subsidies and tax incentives, Focus on general-purpose technologies</td>
</tr>
<tr>
<td>8</td>
<td>Network effects</td>
<td>Strengthen competition in network industries, Subsidies or loan guarantees for new network projects</td>
</tr>
<tr>
<td>9</td>
<td>Barriers to competition</td>
<td>Reform regulation, Reduce government monopoly</td>
</tr>
</tbody>
</table>

Source: Adapted from Karousakis, 2009
6.0 Conclusion and Policy Suggestions

The foregoing analysis has thrown up several key factors that need to be in place in order to promote a green growth manufacturing sector.

1. Adequate infrastructure must be provided. Currently, the costs of doing business in Nigeria are very high due to inadequate infrastructure (including power, telecommunications, transportation etc.) and other constraining factors. In addition, high fuel costs, security costs, business registration costs, interest rates, exchange rates and multiple taxes from the various levels of government have resulted in increased unit price of manufactures and low capacity utilisation rates. Inefficient management and poor administration of ports have encouraged smuggling and dumping of poor quality and sub-standard goods. Government needs to put in place adequate infrastructural facilities and more efficient institutional framework to bring about substantial reduction in the costs associated with operating in the Nigerian manufacturing industry. It is essential to enthrone the practice of private - public partnerships in the process of energising the manufacturing sector.

2. Macroeconomic stability must be maintained. The Government is expected to face the challenges of depreciating foreign exchange rates, rising interest and inflation rates squarely and come to the aid of private sector investors.

3. Participation in export markets should be made easy. Empirical evidence has shown that rapid income growth often is associated with expansion of manufactured exports (Albaledjo 2003). Government needs to diversify foreign exchange earnings and revenue base by providing workable incentives that will enhance Nigeria's access to global markets and encourage exports of Nigerian products.

4. Local content should be increased. Pioneer manufacturing incentives and tax exemptions for raw materials development and use should be introduced to encourage innovativeness for production of high-end local products. There is also need to revisit government new tariff policy (i.e. the recently introduced 2008 – 2012 Nigerian Customs Tariff Book) as it is not local manufacturer friendly and could lead to closure of more manufacturing firms. The low duty attached to imports has encouraged importation of sub-standard goods which are often cheaper than domestically produced ones.

5. Capacity building should be emphasised. Quality improvement in vocational and higher technical education is particularly necessary. Access to skilled, low cost labour will be a source of comparative advantage to manufacturers in a
highly populated country as ours and would address the severe shortage of the necessary skills required for a globally competitive manufacturing sector.

6. Government must try to reduce all its activity induced costs. Reduction of manufacturer’s costs (including domestic indirect taxes, import duties, interest rates, etc.) could have a positive effect on product end-costs and thus increase domestic demand. The FG needs to put in place adequate facilities and more efficient institutional framework to bring about substantial reduction in the costs associated with operating in the Nigerian manufacturing industry. It is also essential to enthron the practice of private-public partnerships in the process of energising the manufacturing sector.

7. Manufacturing companies must create more opportunities for “chance to meet the prepared mind” by investing a certain percentage of their annual turnover on R&D. Partnerships between industry, government and research institutes/universities need to be encouraged. This will lead to the leveraging of R&D and technology advances in manufacturing of innovative products and services specifically geared towards the domestic market.

8. The establishment of industrial clusters; Free Trade Zones (FTZs) and Export Processing Zones (EPZs) with desired incentives will help both SMEs and large manufacturing enterprises in Nigeria sustain their performance and growth, boost their export capabilities and increase their participation in rewarding export markets. This will also encourage the pooling of resources, advance technology use and help reduce cost of production. Industrial clusters should be planned and developed to take advantage of sources of raw materials. This will also serve to eliminate the costly transportation of raw materials from the source to the various locations of down-stream industries.

9. Given the high cost of commercial funds in our environment, there is need for government to put structures in place to provide low cost funding support to core base industries. Adequate financial support services and a more efficient institutional framework are also required to bring about substantial reduction in the risks associated with financing in the manufacturing sector. The banking sector must be more responsive by introducing mechanisms that will deliver appropriate financial support, especially to SMEs in the manufacturing sector. Venture financing and partnerships/alliances should also be encouraged.
Nigerians Industrial Development...

References


This book is a compendium of essays in honour of Michael O. Adejugbe, the renowned Professor of Industrial Economics and former Head, Department of Economics as well as Dean, Faculty of Social Sciences, University of Lagos, Nigeria.

It provides very useful analytical and empirical insights into Nigeria's industrial development and the resultant corporate governance and public policy in this regard. The quest for the growth of the country's industrial sector has been in the front burner of government policy since independence with various efforts and policy guidelines rolled out over the years. The book articulates all these, both from the historical perspective as well as the in-depth analysis of various aspects of Nigeria's industrialization efforts. It also proffers solution on the way forward, particularly in this era of green industrialisation. The 36 chapters in the book address these issues as well as propose public policy measures to enhance the growth of the industrial sector as well as macroeconomic stability in the country. The book is divided into five parts. The first part is the introduction followed by part two which contains papers on industrial development. Part three focuses on public policy and industrial growth in Nigeria while part four addresses issues on the macro economy and industrial corporate governance. Finally, part five contains papers on infrastructure and other development issues, as they relate to industrialisation.