



TO: Nigeria National Stakeholders Working Group

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SUBJECT: Memorandum on International Best Practice in Development of Local Content in the Energy Sector

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EXECUTIVE SUMMARY

The Federal Government of Nigeria has committed itself to increasing the economic benefits from its domestic oil and gas development. In spite of the perception that Nigerian industry does not have the capacity to succeed in the petroleum sector, objective outside analysts argue that Nigeria can increase the quantity of local content if it builds its capacity around certain candidate technologies. Expanding local content, or creating “value added”, means that companies with ownership and/or infrastructure in Nigeria conduct manufacturing and service production in the country. This can be achieved by either stimulating the development of indigenous companies or encouraging foreign investments and participation to build industrial capacity in a viable and sustainable manner.

Nigeria’s main obstacles to development of local content are its thin industrial base, the lack of adequate power, water and other infrastructure to support an expanded manufacturing base, cumbersome bureaucratic obstacles to development of small and medium sized enterprises, and under developed capital markets. The challenge for the government is to create the proper framework within its current economic, political and industrial constraints. A first step has been the establishment of an official goal of 45 percent local content by 2006 and 70 percent by 2010 in the oil and gas industry.

While there are differences in history and industry structure in the various producing countries, there are common elements of success that can inform the Nigerian effort. This paper reviews the experience of the United States (U.S.), the United Kingdom (U.K.), Norway, Brazil, the Atlantic Canadian Provinces, and Trinidad and Tobago. An analysis of the elements of the local content programs in each country shows that successful national policies have all had critical vocational training and small and

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medium sized enterprise support programs, transparent and independent regulatory oversight, and some form of preference for local industry and workers that also sets standards for sustainable commercial success.

Joint ventures in which local personnel actively work alongside those of the international oil companies have proven especially effective at transferring technology--the skills and operating practices of the oil industry--and business acumen. Government support for local companies in the form of research and development (R&D) assistance, including requirements that international companies engage in research in the host country, has been an important factor in building internationally-competitive local companies as well as labor skills.

To increase the likelihood that Nigerian economic targets will be met, the government should embrace a number of the strategies and mechanisms used by other producing countries. Nigeria should develop and implement a comprehensive framework to achieve an increase in local content with measurable, realistically achievable milestones. The framework should include the following elements:

- 1) A formally elaborated policy, with a basis in law, including an unambiguous definition of what constitutes local value added, realistic targets, an implementation plan and schedule and clearly defined evaluation measures.
- 2) Creation of a dedicated and independent government authority responsible for monitoring and enforcing compliance.
- 3) Creation of a public outreach and analysis office to develop a registry of competent and qualified local vendors and to work with the domestic and international industry and other stakeholders in the economy to help facilitate joint ventures and other mechanisms for cooperation.
- 4) Implementation of a capacity building plan to educate and train workers and to support the business development of local companies. Promotion of in-country technology development would be a critical adjunct.
- 5) A strategy to identify and support the most likely opportunities to build and expand domestic capability and employment.

Specific tools, opportunities and cautions with regard to local content policies are also advised.

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I. INTRODUCTION

Nigeria is in an enviable position in the world today with its resources of light sweet crude--the most sought after oil in global trade--and vast natural gas resources ready for market just as the global trade in liquefied natural gas (LNG) is expanding. The challenge for Nigeria is to use that market advantage to broadly transform its domestic economy as well as to increase the local content of the oil and gas sector.

There is a perception on the part of many, including some in the Nigerian government, that local industry from manufacturing to exploration and production has not evidenced the capability, technically or managerially, to succeed in the petroleum sector.² Others, including the findings of a comprehensive review of the potential in the Nigerian upstream sector by Intsok³, argue that with the right policies and support, Nigeria can increase the quantity of local content if it builds its capacity around certain candidate technologies.

Ensuring a critical mass of local commercial and labor participation, or “local content”, is a significant mechanism for a resource rich country to attain the full economic benefits from the exploitation of that resource. Local content can be defined in a number of ways,

² “Local Content Policy Requires Broad Industrial Base – Stakeholders”, Daily Champion, (October 19, 2004)

³ “Enhancement of Local Content in the Upstream Oil and Gas Industry in Nigeria” by Intsok, Norwegian Oil and Gas Partners (August 2003) <http://www.intsok.no/PHP/index.php?id=2986&download=1>. (Hereinafter “Intsok”) This study was commissioned by the Norwegian Agency for Development Cooperation and the Norwegian Ministry for Petroleum and Energy and executed through Intsok, Norwegian Oil and Gas Partners, within the context of a Memorandum of Understanding signed between the governments of Norway and Nigeria.

but all definitions focus on value added activities taking place within the producing country. The Intsok analysis offers a comprehensive description of local content:

Local content means value addition activities taking place in Nigeria. In this sense, a 'Nigerian' company is any company with ownership and/or infrastructure in Nigeria that allows it to conduct manufacturing and service production in the country. Local value addition will then be directly linked to the magnitude of manufacturing and service production that is taking place in Nigeria. Thus, two interrelated processes are required, that both will contribute to local capacity expansion. One is to stimulate the development of indigenous companies; the other is to encourage foreign investments and participation. These two processes are key to how local content is increased by the collective and collaborative efforts of both the oil and gas companies and the government. It takes both to build industrial capacity that will increase local content in a viable and sustaining manner.

To successfully expand local content, Nigeria has to have an understanding of the needs of the petroleum sector and an objective baseline assessment of its own domestic capacity, both human and industrial/enterprise capability.

II. STRUCTURE AND TRENDS IN THE INTERNATIONAL OIL INDUSTRY

The oil and gas industry structure has changed significantly over the past 30 years. In the 1970's, there were many international oil and gas producing companies (IOCs) and independent service and supply companies. The technologies deployed by the industry were also comparably rudimentary. As the industry began developing unconventional fields onshore and moving into deeper offshore waters, more sophisticated and specialized technologies and practices had to be developed to reduce risk and constrain costs. The skill sets required for workers in the industry increased in complexity as well.

Consolidation beginning in the late 1990's has led to an oil and gas industry that is largely characterized by a small group of IOCs and integrated clusters of supply and service companies. In recent years, industry analysts and investors have maintained constant pressure on these companies to hold down and reduce costs, to which the major oil and gas companies respond by engaging in aggressive supply chain management. The IOCs outsource major activities to a single or small group of specialized subcontractors with proven capability to provide customized services and excellent quality control records.⁴

As the industry has moved into deeper waters, the technical capabilities and operational experience demanded have eliminated many smaller service companies from the business. With the increasing complexity of the technical challenges of deep water development and relentless cost reduction pressures on the international majors, it is very difficult for companies that are not already part of one of these closely knit international supply chains to break in. U.S.-based companies in the service and supply sector still dominate the industry.⁵ Even in the U.K., the local service companies are more likely to be divisions of U.S. or other international companies. However, different producing environments and circumstances have created opportunities for companies and professionals from various countries to develop specialized expertise.

⁴ "Exploring Issues Related to Local Benefit Capture in Atlantic Canada's Oil and Gas Industry," a discussion paper prepared for Petroleum Research Atlantic Canada, (April 18, 2004) at p.5 http://www.acoa.ca/e/library/reports/Capture_Rate/ (hereinafter "Atlantic Canada".)

⁵ www.rigzone.com

Deepwater and ultra-deepwater development have become major areas of industry expansion. While elements of the offshore production systems are designed specifically for each project, many aspects involve the use of equipment and techniques that are replicated from project to project. Certain shipyards have specialized in platform fabrication, for example. Experience gained in Brazil, described later, has been a source of competitive advantage for some companies seeking contracts in ultra-deepwater development.

Expanding global demand for liquefied natural gas (LNG) creates another growth area for new players. The upstream portion of the LNG value chain -- the natural gas production, gas treatment, liquefaction, condensate recovery and storage -- accounts for 45 to 65 percent of the capital investment. The Gas Technology Institute estimates construction of a liquefaction plant with annual production of 8 million tons of LNG at a cost of \$1.5-2.0 billion. Roughly half of that amount is for construction and related costs, 30 percent for equipment, and 20 percent for bulk materials.⁶ Much of the LNG liquefaction projects from engineering to construction can be handled by local companies and workers assuming adequate industrial capacity.

III. CURRENT SITUATION IN NIGERIA WITH RESPECT TO LOCAL CONTENT

⁶ The Global LNG Market: Status and Outlook, Energy Information Administration, DOE/EIA-0637 (December 2003) <http://www.eia.doe.gov/oiaf/analysispaper/global/lngindustry.html>

As the world's fourth largest oil exporter, Nigeria's proven oil reserves range from 25 to 35.2 billion barrels, with current production at close to 2.3 million barrels per day.⁷ Yet, after decades of significant petroleum development, Nigeria still relies on international oil companies and foreign contractors for 95 percent of this activity. The resource development has been carried out largely by the IOCs as operators in joint ventures with the Nigerian National Petroleum Corporation (NNPC).⁸ Other national oil companies have taken on the main role of operator, and in some cases (discussed later), have reduced or even minimized the role of the IOCs.

Nigeria's main obstacles to development of local content are its thin industrial base, the lack of adequate power, water and other infrastructure to support an expanded manufacturing base, cumbersome bureaucratic obstacles to development of small and medium sized enterprises, and underdeveloped capital markets. Compared to other countries with similar histories of petroleum development, Nigeria lags on almost all metrics from gross domestic product (GDP) per capita to local participation in the industry.⁹

An existing program to engage indigenous oil and gas producing companies has met with limited success, as those companies account for only 5 to 7 percent of total production. Even the government has acknowledged that indigenous companies have not succeeded

⁷ Oil and Gas Journal, <http://ogj.pennnet.com/datastats/datastats.cfm>

⁸ Energy Information Administration Country Analysis Brief, Nigeria, (August 2004) p.2 (Hereinafter "EIA Nigeria Country Brief") <http://www.eia.doe.gov/emeu/cabs/nigeria.html>

⁹ Intsok at p. 17; and World Bank, Nigeria at a Glance, www.worldbank.org/data/countrydata/aag/nga_aag.pdf; African Development Bank

at developing critical competencies under previous local content efforts that merely guaranteed licenses.¹⁰ Beyond operating companies, engagement of other indigenous Nigerian businesses and people in the oil and gas arena, such as drilling services, manufacturing and fabrication, and transportation services, has been limited as well. Official estimates vary, but local content is estimated at between 5 and 15 percent of the \$8 billion per year expended by the petroleum industry.¹¹

The challenge for Nigeria is how to increase local content while developing more basic industrial and commercial capacity. Simple mandates may increase corruption by creating incentives for “paper” Nigerian companies to win contracts. A carefully considered policy framework will have to incorporate increased training for Nigerians, create linkages across the economy, and provide quality, safe and sustainable local content over time.

One obvious hindrance to expanding involvement of local companies in the sector is the extremely low industrial base in Nigeria. Non-petroleum manufacturing is barely 5 percent of the economy.¹² The lack of basic industry is frequently cited as a major impediment to increasing procurement within Nigeria. Companies reportedly import

¹⁰ Mac Ofurhie, Director of Petroleum Resources is credited with acknowledging the failure of the 1992 Discretionary Allocation Policy, “Local Content Policy Requires Broad Industrial Base – Stakeholders”, Daily Champion (October 19, 2004) <http://allafrica.com/stories/200410190818.html> Others have argued those companies are at a competitive disadvantage as Nigerian businesses due to the lack of domestic infrastructure to support their needs.

¹¹ The government consistently reports local content at 5 percent, others have given estimates as high as 15 percent. There does not appear to be any consistency in how these estimates are made.

¹² Intsok p. 3. The domestic manufacturing capability is low even by African standards. African Development Bank, Structure of Output, Table 16. www.afdb.org.

items as simple as nuts and bolts for lack of domestic supplies; the steel industry is not set up for the kinds of precision fabrication and molding often required by the petroleum industry.¹³

The national infrastructure is in a distressed state, from inadequate roads to frequent power shortages.¹⁴ A large portion of the population lacks clean water supplies. For entrepreneurs, a complex and opaque legal infrastructure and cumbersome bureaucratic rules for things as simple as obtaining a business license undermine efforts to develop competitive businesses. This is compounded by an economic climate of double-digit inflation and immature capital markets.

Objective analysis¹⁵ of the requirements for enhanced economic activity, especially expanding local content, identifies the following critical elements:

- a stable and efficient overall economic and business climate in a country;
- adequacy and reliability of infrastructure;
- availability of capital markets; and
- education and training of the population.

¹³ “Local Content Policy Requires Broad Industrial Base – Stakeholders”, Daily Champion, (Oct. 19, 2004)

¹⁴ The Nigerian power sector, dominated by the state-owned National Electric Power Authority (NEPA), suffers from a chronic capacity shortage and frequent power failures. The magnitude of investment required to provide adequate and reliable power is daunting. From a current capacity of 6000 MW, supplying electric power consumption growth of 6 percent per year would require an additional 77,000 MW by 2020. NEPA has been slated for restructuring and eventual privatization as a transmission company, six independent generating companies and 11 local distribution companies. The restructuring has repeatedly been delayed due to the need to address the large debt burden on the existing assets, NEPA’s debt as of year end 2003 was equal to 4 ½ percent of GDP. (Nigeria: Selected Issues and Statistical Appendix, IMF Country Report No. 04/242 at p. 42 (Aug 2004)

¹⁵ Intsok at p. 3

As Nigeria is deficient in all of these areas, the challenge for the government is to create the proper framework within its current economic, political and industrial constraints. A first step has been the establishment of an official goal of 45 percent local content by 2006 and 70 percent by 2010 in the oil and gas industry. Significant task specific directives on local content have also been issued¹⁶:

- An expansion of the existing requirement for seismic data processing projects, including reservoir management studies and fixed platform surveys, to be sourced in-country;
- A requirement that all front end engineering and design work for upstream projects be conducted in-country by the end of 2005; and
- A requirement that floating production, storage and offloading integration work must take place in country by the end of 2006.

Various press reports quote IOC officials who claim that they already employ high levels of local content or will reach the government targets under their current plans. While there is evidence of some significant new sourcing taking place within the country,¹⁷ numerous press reports express frustration by local industry, including the Petroleum Technology Association of Nigeria (PETAN), as to the rate of progress and effectiveness of government policies.

¹⁶ “Nigeria Strengthens local content requirements” (March 30, 2005) www.Intsok.com

¹⁷ Exxon Mobil’s Erha project is using Nigerdock for buoy fabrication and the Willbros Yard in Rivers State for subsea equipment fabrication. “*NNPC Aims for 25 percent Local Content in 2005*”, *Liquid Africa*, (Jan. 24, 2005) and “*Long-Term Planning: A Development Imperative*”, *Africa News*, (Ap. 25, 2005)

Definitions of local content and mechanisms for verification have either not been developed, or not publicized. Also, it is not clear what (if any) actual enforcement authority exists to ensure compliance with the stated goals.

IV. COMPARATIVE INTERNATIONAL EXPERIENCE

While there are differences in history and industry structure in various producing countries, there are common elements of success that can inform the Nigerian effort. Several recent studies have analyzed the elements that contribute to a program's success or failure in a number of countries. In addition to Intsok, the Atlantic Provinces of Canada commissioned a detailed study "to investigate how to build on the experiences from past projects and enhance the economic benefits for the region as the oil and gas industry evolves and matures."¹⁸

Successful national policies possess 1. critical vocational training and small and medium sized enterprise support programs, 2. transparent and independent regulatory oversight, and 3. some form of preference for local industry and workers that also sets standards for sustainable commercial success. Joint ventures in which local personnel actively work alongside those of the international oil companies have proven especially effective at transferring technology--the skills and operating practices of the oil industry--and business acumen. Government support for local companies in the form of research and development (R&D) assistance, including the requirement that international companies

¹⁸ Atlantic Canada cited in footnote no. 3.

engage in research in the host country, has been an important factor in building internationally competitive local companies as well as labor skills.

United States

More oil and gas service and supply companies are domiciled in the U.S. than in any other country.¹⁹ This is a natural result of the fact the global exploration, production and service industry primarily developed and matured in the U.S. (and the former Soviet Union) over the past 130 years. In addition to its long history in the sector, the U.S. has an unusual land tenure regime. The federal government's control over oil and gas resources is limited to those areas under federal lands and offshore under the Outer Continental Shelf. The states own resources under state lands and in state waters immediately offshore.²⁰ Private citizens and companies own the remainder. The U.S. also has thousands of oil and gas producing companies, most of them smaller independent companies that have provided opportunities for many supply businesses to develop and thrive. Since the industry essentially developed in the U.S., there has never been a direct federal policy on local content in the oil industry.²¹

North Sea Experience

¹⁹ An informal survey of oil and gas industry suppliers in Atlantic Canada shows the U.S. share of the industry is 49 percent. The top three (U.S., U.K. and Canada) combined are home to 79 percent of the industry.

²⁰ State control of the offshore varies but is usually up to 3 miles from the coast line.

²¹ The Jones Act requires that cargo moving between U.S. ports be carried in a vessel that was built in the United States and is owned (at least 75 percent) by American citizens or corporations. Since Jones Act vessels are registered in the United States, general labor and immigration laws require that crewmembers be American citizens or legal aliens.

When serious oil and gas development began in the North Sea in the 1960s and 1970s, the only commercial offshore expertise was in the U.S. Gulf of Mexico. The harsher conditions in the North Sea required new technology, production systems and techniques. Those circumstances created an opportunity for new approaches on the part of the governments of the U.K. and Norway to ensure the development of local capacity. Policies and contractual terms evolved over time as indigenous industry developed the ability to provide services to the oil and gas industry.

United Kingdom

From the beginning, the U.K. government took a very hands-on and direct approach to development of its oil and gas resources including explicit policies to build local content. At the time oil was discovered in the North Sea, the U.K. was a leading industrial country with a well educated and technically trained workforce. The economy was well supplied with manufacturing, shipbuilding, and engineering firms.

While significant oil and gas production was new to the U.K., there were British companies with international expertise, including British Petroleum, which was partly owned by the government. To protect its economic interests in the North Sea, the government developed policies for awarding exploration and production licenses to companies to ensure that domestic companies and labor would participate in the development. Proactive government policies enabled domestic labor and industry to develop the specialized skills and capacity to service the offshore oil and gas industry.

The U.K. first established a discretionary licensing system that allowed the government to selectively choose which exploration and production (E&P)²² companies would be granted concessions.²³ While less economically efficient than an auction system, discretionary licensing gave the government more control over intricate details of each contract awarded including requirements for local participation. By the early 1970's, a number of factors, including several major new offshore discoveries which would significantly expand investment in the sector, prompted changes in British policy. At the time, there was growing political concern that British firms were not capturing a significant amount of work supplying goods and services in the expanding industry. U.K. local content was then estimated at 30-40 percent.²⁴ In 1973, under significant political pressure, the government enacted three measures to improve the amount of local content in the petroleum sector:²⁵

- the establishment of the Offshore Supplies Office (OSO);
- the introduction of an auditing procedure for monitoring purchases made by oil companies; and
- the provision of financial assistance to the U.K. supplies industry.

²² The terms international oil companies (IOCs) and exploration and production (E&P) companies are used interchangeably.

²³ Rather than offering leases for oil and gas development under a standardized framework as in the U.S., the government negotiated specific terms and conditions of each license.

²⁴ Kenneth W.Dam, *Oil Resources: Who Gets What How?* (Chicago and London: University of Chicago Press, 1976) p. 9. The public believed the British share of wealth from the North Sea had been given away to international oil companies – this despite the fact the government owned 48 percent of British Petroleum and Shell Transport and Trading was a U.K. registered company.

²⁵ This information is reported in much greater detail in Atlantic Canada on pages 30-33.

The OSO was an independent agency set up expressly to help domestic firms gain as large a share of the petroleum supply and service market as possible. In support of U.K. industry, the OSO was charged with promoting creation of new ventures to supply the market, developing the industry's capability to win orders, providing advice on joint ventures, and assisting companies with research and development needs.²⁶ The OSO also assisted the E&P companies in identifying U.K. suppliers of equipment and support services.

The E&P companies were required to submit quarterly reports to OSO for contracts awarded in amounts greater than £100,000 and greater than £50,000 for maintenance. The companies were required to list the contractors selected and those who competed but were not selected. The OSO used these reports to determine whether qualified U.K. contractors were overlooked. Over a twenty year period, the OSO would evaluate local contractors and, through a range of programs, help them upgrade their skills and competencies to remedy competitive deficiencies.

The introduction of an auditing procedure for monitoring purchases resulted in a Memorandum of Understanding between the U.K. government and the United Kingdom Offshore Operators Association (UKOOA) formalizing the auditing procedure and the concept of full and fair opportunity. A code of practice was promulgated that defined procedures which operators were required to undertake in the tendering and contract award process. In the monitoring procedure, the U.K. share was defined as "representing the value of contracts and main sub-contracts placed with companies which make a

²⁶ As reported in Atlantic Canada, p. 30.

substantial contribution to the U.K. economy through employment, manufacturing, or sub-contracting". This ensured that real value was being created in country through job creation or local procurement of goods and services, not just local incorporation. This was backed up by an implicit understanding that the companies working more closely with the U.K. supply industry would be looked at more favorably in the future.

There were no legal sanctions imposed on companies for failure to meet local content objectives, however, such companies could expect difficulties in future bidding rounds. While there was not an explicit metric employed for giving local firms an edge, the operators were at times pressured to accept bids from U.K. firms that may not have been competitive on purely commercial grounds.

In 1977, U.K. local content was greatest in supplying plant and equipment as well as general services for an average of 62 percent. Over time, as competencies developed, the overall percentage increased to 82 percent by 1986 with nearly 100 percent of post development operations--ongoing maintenance and production--locally sourced.²⁷ The local content was more in the form of value added than domestic ownership. A 1986 study by the University of Aberdeen found that many of the over 1000 oil-related companies in the area were local affiliates of foreign (mostly U.S.) supply and service companies that had set up U.K. operations to source material and labor from the local economy. Most of the locally owned companies tended to be in non-core oil and gas activities.²⁸ The study demonstrated that in such a technologically specialized and

²⁷ Atlantic Canada at p. 32

²⁸ Atlantic Canada at p. 7

capital intensive industry, it is difficult for start up companies to break into the business even with strong government support.

In the early 1990's, the U.K.'s entry into the European Union foreclosed much of the OSO's authority to monitor and maintain local content policies. Since that time, domestic content has declined to 60-70 percent and the government has shifted focus to supporting domestic companies in efforts to gain access to international opportunities.

The U.K. government's activist role of direct monitoring coupled with an extensive program for local capacity building paid off with significant expansion not only of local content, but with development of internationally competitive companies. There are currently over 1200 companies based in the U.K. offering a variety of services to the petroleum sector.²⁹

The U.K. model of monitoring local content and programmatic support for developing indigenous companies can be replicated by Nigeria. The government's engagement with the IOCs to clarify what is expected in the way of local content and in implementing policies to develop domestic capability has worked effectively. The second element is a critical component in ensuring a competitive domestic industry.

Norway

Norway took an even more proactive approach than the U.K. by establishing a national oil company, Statoil. With the creation of Statoil, the government set in motion a series

²⁹ http://www.rigzone.com/search/r/europe/united_kingdom/1.asp

of deliberate policies and mandates that essentially forced the international oil companies to develop the Norwegian industry as a condition, and byproduct, of their own operations.

As in the U.K., when oil was discovered in Norway in the 1960's, the country was economically stable with considerable industrial technical capacity, notably internationally renowned shipyards. The combination of its well developed economy and its technical capacity in other fields gave Norway considerable bargaining power in its relations with the private oil companies.

The Norwegian petroleum law, enacted in 1965, is based on the British model of structuring and awarding licenses through individual negotiations with the IOCs. This enabled the government to choose which international companies it would work with to maximize the resulting domestic benefits. In the beginning, preference was given to companies who would join with Norwegian interests. By 1967, government equity participation in offshore development was required. The percentage could be reduced if Norwegian interests were included as part of the group licensed to develop a specific field.³⁰

In 1972, the Goods and Services Office (GSO) was established by the Ministry of Industry. The goals and responsibilities of the GSO, similar to the U.K.'s OSO, were to monitor the number of Norwegian companies being awarded contracts throughout the procurement process. Statoil was created at the same time and policies that would ensure

³⁰ Dam, p. 56.

technology transfer and personnel training were imposed. Norway set a new precedent with the Statfjord field by leasing it to an operating group led by Mobil with the proviso that Statoil had the right to eventually take over as the operator. The producer group was required to cooperate in developing Statoil's expertise to the point it would be in a position to carry out the operator role on its own.³¹

According to Oystein Noreng, "International oil majors were placed in the role of technical assistants and joint teams were used to fast-track the Norwegian companies into fully-fledged operators. Consensus in Norway was that operatorship was needed to learn the tools of the trade and to be able to meet foreign oil companies as equals."³² Since development was at an early stage in the North Sea, the international oil companies provided Norwegian personnel on the job training at operations in other parts of the world. The trained professionals were then brought back home to "Norwegianize" the industry. By requiring joint operating ventures, Norway ensured the rapid transfer of knowledge, expertise and technology the Norwegian firms would not have otherwise had.³³

By the late 1970's the government also required the international majors to fund research and technology development at Norwegian institutions. Companies were required to conduct at least 50 percent of the research for technology needed to develop prospects in

³¹ Dam, pp. 60-66

³² Oystein Noreng, "Norway: Economic Diversification and the Petroleum Industry", Middle East Economic Survey, (Nov. 8, 2004)

³³ The Norwegian approach to joint ventures is distinct from programs, such as Nigeria's, that only involve equity or capital participation.

Norway at local institutions.³⁴ This requirement for cooperation on technology development was instrumental in developing Norwegian companies that today are globally competitive in various aspects of offshore development. (For Nigeria, this aspect of the Norwegian experience may be difficult to fully replicate since Norway already had a strong maritime industry and was able to take advantage of existing intellectual capital and academic institutions.)

There were downsides to Norway's aggressive local development effort, however, as economic activity that developed from the exploitation of oil and gas resources diverted resources from other areas of the economy. Growth of the domestic petroleum industry put pressure on wages in other sectors. It also made the economy of such a small country vulnerable to the swings in economic activity in the oil and gas sector, especially in the 1980's.

Local content in Norway today is roughly 50 percent. For a country with a small population relative to the size of the resource, that level of local content is probably as much as can be expected given the specialized nature of the industry. Perhaps as important as the local content metric is the success of Norwegian companies internationally.

In addition to establishment of a "local content" office within the government, the Norwegian model of active operating joint ventures and engaging the IOCs in the training of local professionals and companies could be an effective approach for Nigeria today.

³⁴ Noreng.

The focus on in-country research and technology development should also be replicated in Nigeria.

Brazil

Brazil nationalized its industry in the 1950's by creating a state owned oil company, Petrobras. Until the 1990's, Petrobras, with the engagement of local support and supply companies, was the sole developer of all Brazilian oil and gas. By virtue of these protectionist policies, the local content in the Brazilian petroleum sector has always been very high.³⁵

Brazil has been an oil producer since the 1930's, but increased its production significantly after the discovery and development of offshore resources began in the 1970's. Petrobras used some foreign contractors in the early years of offshore development. But, by the 1980's, the focus shifted almost exclusively to development of domestic technology using licensing agreements with international suppliers. By licensing technologies developed by other companies, Brazilian industry had access to state of the art technology it could then adapt to specific domestic requirements. Technological progress in the oil industry internationally has been an evolutionary process, by adapting proven tools and techniques to different circumstances and challenges. This approach worked well for the Brazilian industry. At one point, Petrobras held the world record for the well drilled in the deepest water. By developing the engineering plans for deepwater projects and using and adapting technology, the

³⁵ Malaysia, for example, has had a similar experience as Brazil. For additional information on Malaysia see Intsok and Atlantic Canada.

Brazilian industry has become a global leader in deep-water and ultra-deep water exploration and production.

The amount of local content varied from well above 90 percent to as low as 80 percent during the development stage of the domestic offshore industry, depending on Petrobras' need to reach out to international technology leaders. However, rigid government policies that protected the domestic supply and service companies and prevented outside participation contributed to delays and underdevelopment of domestic resources.³⁶

In 1997, national policy changed to partially privatize Petrobras and allow foreign companies to acquire concessions for oil and gas exploration and development. An independent agency, the National Petroleum Agency (ANP), was established to manage a competitive leasing scheme and to regulate the industry.³⁷ The initial lease awards were based primarily on upfront bonus bids with lesser consideration for local content. As local content declined to around 80 percent, the policy was modified to put greater weight on local content. Detailed local content percentages are specified – a minimum of 30

³⁶ Brazilian oil production declined between 1979 and 1983 before recovering in the late 1980's. U.S. Department of Energy, Energy Information Administration, Brazil Country Analysis Brief (Aug. 2004) <http://www.eia.doe.gov/emeu/cabs/brazil.html#links>

³⁷ On November 9, 1995, the Brazilian Congress amended the Brazilian Constitution, authorizing the Brazilian government to contract with any state or privately-owned company to carry out activities related to the upstream and downstream segments of the Brazilian oil and natural gas sector. Accordingly, this amendment eliminated Petrobras' government-granted monopoly. The amendment was implemented by the adoption of the Oil Law, which revoked the country's initial Oil Law of 1953. The new law also created National Petroleum Agency (Agência Nacional do Petróleo - ANP), charged with issuing tenders, granting concessions for domestic and foreign companies, and monitoring the activities of the oil sector, including establishing rights to explore for and develop oil and natural gas in Brazil. Brazil Country Analysis Brief. By the time Brazil opened up its petroleum sector, the economic efficiency and the transparency gains from a competitive leasing system were chosen over the earlier model in the North Sea of negotiating individual leases directly with the IOCs. Local content criteria are an explicit requirement of the leases.

percent in the offshore and 70 percent onshore. With the increased focus on local content, interest from international oil companies fell off rather significantly in subsequent lease sales.³⁸

Recent political exigencies even led to cancellation of bids for some deepwater platforms to enable local shipyards to certify their engineering and technical capabilities.³⁹ One significant, but not necessarily negative outcome has been that foreign investors have purchased equity in Brazilian firms as a way to increase local content in the formerly locally-owned service and supply industry. For example, firms from Norway and Singapore acquired stakes in Brazilian shipyards, and other U.S. and U.K. vendors set up or expanded businesses in Brazil.⁴⁰

While the international industry has become active in Brazil since restructuring, the dominance of Petrobras ensures that a large measure of local content will continue. Importantly, though, involvement of the IOC's has resulted in needed expertise and technology transfer--extended reach drilling, for example--from specialized firms with no previous presence in Brazil.⁴¹

³⁸ The weight attached to the percentage of commitment for the local content was 15 percent with the remaining 85 percent based on the bonus price. More recent auctions have seen a dramatic fall off in interest attributable at least in part to an increase in local content requirements to a minimum of 30 percent for offshore projects and 70 percent for onshore with the weight attributed to local content increasing from 15 percent to 40 percent. (Atlantic Canada at p. 46)

³⁹ "Petrobras Renegotiates the Political Tightrope", *Offshore Engineer*, (May 15, 2003) www.oilonline.com

⁴⁰ Atlantic Canada at p. 47

⁴¹ "Petrobras Renegotiates the Political Tightrope", www.oilonline.com

The Brazilian experience is in direct contrast with Nigeria's history. By keeping the sector closed for decades, Brazilian labor and companies were protected while they developed skills and capabilities. The lack of competition led to higher costs and some delayed technological development, but ensured the economic activity and spin off benefits from the petroleum sector were internalized. Nigeria has looked to Brazil to model changes to its leasing regime. The local content experience, however, may have limited applicability.

Atlantic Provinces of Canada

Oil and gas development in Western Canada has a similar history to that of the U.S. A number of the international oil companies have Canadian affiliates that have operated in the country for decades. By contrast, the Canadian government played a proactive role in the early development of oil and gas resources offshore the Atlantic provinces of Nova Scotia, Newfoundland and Labrador.

Exploration of Atlantic Canada had been carried out since the 1960's, but the discovery of the Hibernia field in 1979 made the potential for serious production apparent. The Canadian federal government, in cooperation with the provincial governments, implemented a number of measures to ensure the field would be developed with major Canadian ownership and local participation. The Hibernia field received a direct capital subsidy of over \$1 billion. In exchange, the project had to ensure major portions of the construction and operating expenditures and employment were received by Canadian,

specifically Newfoundland and Labrador workers and businesses, and that almost two million engineering hours would occur in the province.⁴²

Recent development has occurred without government largess in the form of subsidies; however, operators are required to submit a “Benefits Plan” to the provincial government before a plan can be approved for a field to be developed.

[T]he proponents are required to undertake, within the province, research and development activities and education and training, with first consideration being given to the residents of the province. In addition, the proponents, in acquiring goods and services for their projects, have to give ‘full and fair opportunity’ to provincial manufacturers, consultants, contractors and service providers. Furthermore, in satisfying their procurement requirements, the proponents have to ensure that first consideration is given to services provided from within the province and to goods manufactured in the province so long as those goods and services are competitive in terms of fair market price, quality and delivery.⁴³

The provincial governments, whose policies are closely modeled after those of the U.K., also have local content offices, the “Offshore Boards”, similar to the OSO. While the provincial Offshore Boards are responsible for monitoring and auditing the operators, they do not have authority to set explicit targets or to enforce levels of participation. They do, however, use detailed auditing standards to review operations and assess the value of local content.⁴⁴ The provinces have been quite successful at capturing local employment benefits: projects have ranged from a high of 85 percent at Hibernia to 57 percent at other operations. The local capture of total project expenditure has been less

⁴² <http://www.hibernia.ca> and Atlantic Canada at p. 12-18.

⁴³ Atlantic Canada at p. 14.

⁴⁴ Atlantic Canada contains a detailed description of the current procedure and an assessment of alternative methods for evaluation at p. 14-24.

successful. For Hibernia, the figure was 47 percent during the development phase, and 54 percent for ongoing operations. Local expenditures in other operations range from 27 percent to 51 percent depending on the project and the phase of the project.⁴⁵ For the most part, local expenditure and employment are greatest in the post development operations phase.

As described earlier, the Atlantic Provinces commissioned a detailed study to evaluate the success of local content policies and to seek recommendations for policies to ensure a successful transition as oil and gas development has matured. The review's key recommendation was to provide better information to the public regarding the types of expenditures by phase of activity. A web-based monitoring system was recommended to provide better information on expenditures and business opportunities. Recognizing the local benefits relative to the technological capacity of the region was also cited as an important factor for regional policymakers.⁴⁶

The situation in the Atlantic Provinces is somewhat difficult to directly compare to other national experiences since Canada has a long history of oil and gas development in the western provinces. The effort here was to increase the benefits to the local communities adjacent to the offshore fields where there is a lower overall industrial base and relatively little experience in the industry. Recognizing the regional disparities, the Canadian government provided a one-time subsidy to launch the Hibernia field. The Hibernia field

⁴⁵ Atlantic Canada at p. 25.

⁴⁶ This point was made to emphasize that it may not be realistic to expect higher levels of local capture given the local conditions and capacities.

resulted in considerable local benefits, but without such direct government intervention other projects experienced a lower but still relatively significant level given the industrial capacity of the region. The provinces have focused in particular on local employment, separating industry statistics on investment and jobs. This would be a good metric for Nigeria to focus on as well.

Trinidad and Tobago

Trinidad and Tobago (T&T) has been a small oil producing country for some time, but is rapidly becoming an important natural gas producer.⁴⁷ T&T has over 26 trillion cubic feet (tcf) of proven natural gas reserves which it has developed into an LNG and petrochemical industry.⁴⁸ Recognizing its potential future as a significant supplier to the North American market, the country has increasingly focused on its niche in the natural gas industry. Efforts are currently underway to expand local content with an emphasis on how best to gain the most value added from the production, use and export of its most prolific domestic natural resource.

The need for greater local content, including local ownership, had been extensively debated in the parliament and in the civil society for a number of years. Then, in 2004,

⁴⁷ Current oil production is roughly 150,000 b/d, but T&T is the largest exporter of LNG to the U.S.

⁴⁸ Potential estimates of natural gas resources are as high as 90 tcf. "T&T's increased natural gas production has transformed the islands into one of the major natural gas development centers in the world. Besides LNG exports, Trinidad has a large petrochemical industry, with nine ammonia complexes, six methanol units, a urea plant, and an iron and steel complex." U.S. Department of Energy, Information Administration (EIA), Caribbean Fact Sheet, (July 2004) at <http://www.eia.doe.gov/emeu/cabs/carib.html>

the government adopted a local content and local participation policy framework.⁴⁹ The stated intent of the policy is to “maximize the participation of its national people, enterprises, technology and capital through the development of locally owned businesses, local financing and human capabilities in the conduct of all activities connected with the energy sector, along its entire value chain, within and outside T&T.”

As in Nigeria, the government has recognized that its previous approach of insisting on preferences for local suppliers has not been successful. The new policy framework is fairly detailed in a number of areas. Local content and participation are defined to include ownership, control, decision-making and preferential access to financing. The international producers themselves are required to commit to contracting with local companies, not simply deferring to their own primary contractors to bring the local content to a project. The intent is to have companies manage their contractors as a portfolio with maximum opportunity to take advantage of local capacity. Education and training of workers and support for local businesses in developing “strategic skills” are key elements. The intent is also to focus on the development of businesses in areas that can serve other sectors of the economy, not only the petroleum sector. Finally, the government is to establish a database of the status of projects and opportunities for local suppliers. The concept is to provide an electronic clearinghouse for the operators to find local suppliers and vice versa.

⁴⁹ “Trinidad & Tobago Energy Sector Local Content & Local Participation Policy Framework” at <http://www.energy.gov.tt/>

The educational efforts, with government support, cover a range of areas--from expanding the geosciences program at the University of the West Indies (UWI) to the establishment of the National Energy Skills Centre/T&T Institute of Technology (NESC/TTIT). The academic programs all have collaborations with universities in the U.S. and Canada and with industry and professional societies. The NESC/TTIT, created in 1998, has a program focusing on theory, practice and management skills for technicians and undergraduate engineers. The regular curriculum is supplemented with a continuing education program of technical workshops.⁵⁰ The energy programs go beyond the upstream oil and gas business to include the needs of the downstream gas sector. For example, the National Gas Company of Trinidad and Tobago Limited (NGC) sponsored a training program in conjunction with NESC to train new welders and to upgrade welders' skills in anticipation of construction of a major cross island transmission pipeline.⁵¹

On the business side, the government has identified a potential \$2.7 billion in annual business across the economy that T&T businesses are losing to foreign competition. To close that gap, the Centre for Energy Enterprise Development (CEED) was been established to provide SME's (small and medium-sized enterprises) with the advice and

⁵⁰ "TITT at centre of energy sector", The Trinidad Guardian, (Aug 9, 2004) at www.LatinPetroleum.com

⁵¹ http://www.ngc.co.tt/News_Centre/Recent_Releases/welders%20upgrade.asp

tools required to become more competitive in the energy sector, specifically to help entrepreneurs capture supply chain niches.⁵²

T&T has had some success in becoming a hub of expertise in certain areas. Baker Hughes Inteq, a leader in directional drilling technology, has focused its research and development efforts in T&T and employs Trinidadians in its global operations. The company has been using T&T as an entry point for new technology introduction into the Americas. By making T&T the locus of directional drilling efforts, it has been able to establish a local content level of 85 percent.⁵³ Fortuitously, the country has also benefited from its proximity to the U.S. market in that the international LNG industry has focused the deployment of state of the art practices and techniques in the country.⁵⁴

Beyond the explicit policy directives, the government appears to have proactively engaged the business community in a fairly broad based effort of worker training, small business capacity building and technology development to supply local industry needs as well as creating export opportunities. A committee of forty business people was engaged to develop a strategic roadmap to lead the country to developed status by 2020.⁵⁵

An important element of the government's local content strategy is focused on

⁵² "Bridging that \$2.7 b Gap", The Trinidad Guardian, (Sept.16, 2004) at <http://www.guardian.co.tt/archives/2004-09-18/bussguardian17.html>

⁵³ "Treasure on the Caribbean Horizon", Offshore Engineer, (Sept. 01, 2004) at www.oilonline.com

⁵⁴ In contrast with Nigeria, T&T is a much smaller country and has been a politically stable democracy for many years.

⁵⁵ Nigel Cumberbatch, "A structured vision for the future", Trinidad Express, (Sep 12, 2004) at http://www.latinpetroleum.com/printer_3651.shtml and Nigel Cumberbatch, "Vision 2020 energy strategy tabled", The Trinidad Express, (Feb 5, 2005) at http://www.latinpetroleum.com/article_3952.shtml

development of the rest of the economy, to “create and support cluster developments with other industries that have a natural synergy with the energy sector and which may have the capacity to diversify and/or sustain the economy after the resource is depleted.”

T&T has not published actual data on current local content other than the macro information on goods and services supplied from outside the country. The government and the local business community appear to be committed to an expansion of the local industry, but the implementation is in the early stages. Commitments have been made, and are being carried out, to build capacity at both the individual and enterprise level. The emphasis on developing the natural gas industry domestically has been identified as a productive avenue for now. Actual enforcement mechanisms to ensure local content expansion, though, are not clear.

The history of the IOCs role in the country is similar to that of Nigeria. The focus on areas of growth for the domestic economy in the natural gas sector and supporting development of businesses that provide broad economic benefits is a good model for Nigeria, as is the emphasis on worker training and education and capacity building for local businesses, especially their active engagement in policy development..

V. LOCAL CONTENT STRATEGY FOR NIGERIA

Nigeria clearly requires a new strategy to expand the local benefits from its oil and gas development. The government, recognizing that calls for the IOCs to increase local content have not been successful, has set out some explicit requirements for domestic

sourcing of specific tasks and declared some ambitious overall targets. To increase the likelihood of meeting those targets, the government should embrace a number of the strategies and mechanisms used by other producer countries. This section of the paper will summarize the critical elements for such a framework and suggest specific tools for successful implementation.

First, it is important to note that while the oil and gas industry clearly dominates the Nigerian economy, a successful local content policy must be part of a comprehensive industrial and economic growth strategy for Nigeria as a whole. Such a strategy should include both a plan for domestic capacity building and infrastructure development to broaden the national industrial base, as well as a regime of expectations and obligations on the oil and gas industry operating in the country. The broader economic needs of Nigeria for improvements in infrastructure, a streamlined business environment and improved access to capital are well understood and will not be expanded upon here. However, without such improvements, it should be recognized that a local content program will not likely succeed.

The creation and expansion of local companies, with ownership and/or infrastructure in Nigeria that conduct manufacturing or provide services valued by the oil and gas industry can only happen in an environment that supports business development and the needs of those businesses. To that end, Nigeria should develop and implement a comprehensive framework for achieving an increase in local content with measurable, realistically achievable milestones. The framework should include the following elements:

- 1) A formally elaborated policy, with a basis in law, including an unambiguous definition of what constitutes local value added, realistic targets, an implementation plan and schedule and clearly defined evaluation measures.
- 2) Creation of a dedicated and independent government authority responsible for monitoring and enforcing compliance.
- 3) Creation of a public outreach and analysis office to develop a registry of competent and qualified local vendors and to work with the domestic and international industry and other stakeholders in the economy to help facilitate joint ventures and other mechanisms for cooperation.
- 4) Implementation of a capacity building plan to educate and train workers and to support the business development of local companies. Promotion of in-country technology development would be a critical adjunct.
- 5) A strategy to identify and support the most likely opportunities to build and expand domestic capability and employment.

VI. CRITICAL ELEMENTS

The policy must provide clear definition outlining methods to identify and quantify local content to ensure only those activities that add value and grow capability in Nigeria are included. The experiences of the U.K., Norway and Atlantic Canada provide good examples. Employment as well as direct and indirect value added should be considered separately. Employment is a straightforward metric, but should be distinguished from sourcing of goods and services from local vendors. The local labor and sources of inputs for those local vendors should be identified as well.

Given that the service and supply industry imports basic materials, an assessment of what those various items are should be made publicly available. The sources of supplies and the employment of the local vendors should be cataloged as well to ensure they are not mere paper companies fronting for imported goods and services. The distinction is critical to avoid over counting where local companies are sourcing goods and services from outside Nigeria. As other countries' experiences have shown, knowledge of industry needs and some mechanism for transparency in the procurement process are the first step for local vendors to succeed.

Targets for domestic content must be set at realistically achievable levels. If the targets are too high, waivers will be sought thereby undermining their very purpose. Absent waivers, excessively high targets will encourage corruption in the form of shell companies and hidden accounting to exaggerate local content. Further, over time it will be important to ensure local companies are forced to develop their own competencies in order to compete for contracts. A target set to guarantee business for all local vendors will not lead to quality and capacity improvements. Such a guarantee may enrich certain vendors while the policy is in place, but will not benefit the workers or the economy as a whole. The end goal should be to ensure local vendors are guaranteed the *opportunity* to apply and compete for contracts.

The objectives for local content development have to be translated into an obligation of some form for the IOCs. The implementation plan must specify which entities have

obligations to meet local content targets and across what business. Given Nigeria is a mature producing country, the IOCs already have extensive production and hold leases on properties yet to be developed. The strategies employed by other countries to make local content a factor in initial leasing may have limited applicability. Whether the goals are applied prospectively to all investment, new operations, or ongoing production should be clarified. Other countries have experienced higher levels of employment and local content once fields have been developed and are in the ongoing operations phase. Distinguishing between the different phases of the various IOCs projects, and the local capability to provide certain services, may facilitate a transition to greater local content with minimal disruption and cost.

A realistic schedule for meeting targets should be clearly specified for each entity. The policy should also recognize that there may be some areas of operations where local vendors are not available in the near term. Flexibility, as opposed to hard and fast timetables, will achieve better results. Training programs, supplier development and in-country R&D could be encouraged as early compliance mechanisms that will pay off with a significant multiplier over time.

Finally, the policy should have some long term objective against which growth and improvement may be measured. Beyond achieving a specific level of local content, such an objective might include development of expertise in a certain aspect of the oil and gas service industry, development of a domestic natural gas distribution system or expanded

refining capacity and utilization. The measurement should include spin offs to other parts of the economy.

The second critical element is the creation of an independent agency, similar to the OSO in the U.K., with the authority to monitor and enforce the local content policies. This entity should exist independently of the NNPC, the Department of Petroleum Resources (DPR) and the National Petroleum Investment Management Services (NAPIMS). The agency should be adequately funded from general revenues to fulfill its mandate and have strict conflict of interest strictures on management and staff. Due to its important auditing function, the agency should be staffed with qualified accounting personnel knowledgeable of industry practices. The authority should have the power to intervene in advance of licensing rounds to penalize, even eliminate, companies for failing to comply with the local content commitments.⁵⁶

Some mechanism to ensure compliance with local content goals over time is critical. However, policymakers must be realistic about specific mandates. Some of the current requirements announced by the government assert that 100 percent of certain operations be performed in Nigeria by a set date. The requirement that all seismic analysis be performed in country may delay certain projects while capacity is built up, for example. It might also result in overinvestment in a capability that is not fully utilized over time. Certain services, such as seismic analysis, are used by the industry at a certain stage of development. To provide those services in a cost effective manner, certain vendors have

⁵⁶ This is not to say local content should be a bid variable. Basing licensing awards on economics alone will minimize the potential for corruption.

developed specialized expertise that can be accessed electronically from many locations. That is not to say that Nigeria should not have a sophisticated seismic capability--there is already such capacity and expertise in the country--but perhaps it should not insist on the absolute maximum capacity for the reasons given. When the government chooses certain technologies, it forces the industry to invest in those areas at the expense of others that might be more advantageous. The government should be flexible in this regard, recognizing the dynamic nature of technology development in the offshore industry.

The third critical element has to do with the creation of a public outreach office as an interface between the IOCs and potential local vendors. This office should imitate the experience of other countries by establishing a registry of competent and qualified local vendors. Policy guidelines for encouraging IOCs to grant certain preferences to local vendors could be established.⁵⁷ The IOCs themselves already have extensive outreach and training programs. The office should track and analyze spending trends at each stage of production to provide baseline data for local companies to plan for opportunities, even starting new ventures. Given the state of information technology today, compared to the early days of the North Sea development, this would be a relatively straightforward yet important function.

Appointing a high profile director (with significant industry experience) of such an office could provide a major impetus for new ventures like initiating Norwegian style operating

⁵⁷ Some countries have had a rule of thumb in favor of selecting local vendors when a bid does not exceed the cost of a foreign vendor by more than a certain percentage.

joint ventures. This office should also work with existing industry programs to identify gaps and additional training and business development needs over time.

The agency should have authority to register and qualify local vendors, and work with the IOCs and local industry to establish minimum performance standards and ensure beneficiary companies continue to meet those standards. A rating system similar to feedback to a “Better Business Bureau” could be an informal mechanism for ensuring quality.⁵⁸ The performance and capability of indigenous companies benefiting from the local content rules should be monitored and made available to contractors. It is in the interest of the people of Nigeria as well as the IOC’s to ensure that contractors are competent to perform in a safe and environmentally sound manner.

The DPR (or NAPIMS) should be responsible for maintaining information on future plans for specific projects. These plans should include a breakdown of anticipated need and spending estimates in different categories. Widely available and transparent information on potential projects and business opportunities is critical for the local industry. The IOCs already have sophisticated internet based systems to post bid requests. The outreach agency should support and encourage these existing systems.

⁵⁸ The Better Business Bureau in the United States has a website that posts information on complaints about companies. Any complaints are described and the company’s actions to address the problems are detailed. This is a way for the public to assess qualifications and business practices. In the oil and gas industry, an objective operations and safety regulator is key to ensuring standards of best operating practices are maintained. Violations of safety and environmental laws and regulations are another metric to gauge competence.

The fourth critical element, the education and training of workers and capacity building for indigenous enterprises, has been a keystone to every successful local content policy in other countries. There is no question Nigeria has a core of highly qualified and accomplished people currently working in the industry. The challenge is to expand the educational opportunities so that more of the direct and indirect work can be carried out by Nigerians. In addition to expanded support for traditional university programs, a focus on technical training and ongoing continuing education would provide a flexible means to meet evolving labor needs. Coordination with the outreach office and industry directly are critical.

Nigeria should look to establishing programs that provide technical training in skills required in the energy sector broadly defined, but which are also transferable to other areas. A requirement for technology development within the country would add to higher end academic enrichment programs as well as expanded domestic competencies.

Business development support for indigenous enterprises is critical. Beyond the overarching need to create a more supportive business environment within the country, needs for service and supply companies may be as basic as good accounting practices and sourcing funds for working capital. For others, it may be looking for locals to develop supply industries from the ground up. The IOCs and major supply and service companies should be encouraged to work with educational institutions and government agencies to support an organized medium for sharing best practices in industry. The outreach agency

responsible for facilitating implementation of the local content policy could also be a channel for communicating best practice in the different areas.

Finally, in harmonization with elements three and four, the government should establish a process to evaluate and support development of local capacity in areas most likely to provide near term and longer term benefits to the economy. The Intsok analysis identified a number of areas where Nigeria has strengths; some of these areas are already being promoted in the recent local content directives. There are many construction, manufacturing, fabrication and operational skills in the oil and gas sector that could be channeled into improvement of the domestic infrastructure.

An additional opportunity that appears to be underemphasized is the potential for promoting spin-off benefits to other areas of industry and services that benefit the national economy independent of the oil and gas activity. Significant domestic employment and sourcing from these other local businesses helps build human capability within the country as well.⁵⁹

VII. TOOLS

The outreach agency should broker joint venture arrangements between the IOCs and developing Nigerian companies using Norway's example. Promotion of joint ventures in areas other than just oil and gas exploration and production would help transfer manufacturing, construction and commercial acumen throughout the economy.

⁵⁹ This could include fertilizer production and reinvigoration of the agricultural sector, for example. The employment multiplier for agriculture is much greater than for oil and gas. Also, the hospitality industry as there are relatively few hotels in Nigeria.

The outreach agency, in setting evaluation metrics, could set a guideline that indigenous company bids be given preference, provided their cost does not exceed foreign competition by more than a designated percentage. When evaluating compliance, the willingness of IOCs to follow the government's guidance should be considered.

Establishment of a capital fund for business start ups should seriously be considered. Nigerians who have gained experience working for the international majors could be encouraged to start their own companies. Employment type incentives for hiring and training could be highly effective in expanding domestic capacity in the short-term.

As Nigeria's oil and gas resources are increasingly coming from deeper waters offshore the technical requirements are much greater than past on shore and shallow-water development. Easily-replicable standardized services and activities are a more likely niche for less experienced companies not already part of the IOC's networks. The outreach agency should be tasked with identifying some of those opportunities, then taking direct action with government financial incentives to support enterprise development.

VIII. OPPORTUNITIES AND CAUTIONS

The government should call on the oil companies to continue development of domestic networks and outreach programs to work with indigenous companies. Some of the

companies appear to have well developed and multifaceted programs, offering training in the use of electronic media for business applications, for example.

Imposition of domestic content rules must be flexible enough not to undermine operational or environmental integrity of oil and gas projects, especially in the more complex offshore venues. Quantity does not make up for lack of quality.

Nigeria should avoid overemphasis on developing local suppliers to the oil industry at the expense of other potentially valuable industries from the standpoint of job creation. While the oil and gas sector can be an important driver of economic activity and growth, it must be acknowledged the industry is more capital than labor intensive. Other countries with an extensive service and supply industry, including the U.S., have suffered from the cyclical nature of the petroleum business.⁶⁰ An economic development strategy that focuses on diversification of the economy should be just as important as expanding local content in the petroleum sector.

In countries like Norway and the U.K. that already possessed significant manufacturing and industrial capability, including shipbuilding, development of oil and gas-related businesses evolved at least in part as spin offs of other industries. In Brazil, the shipbuilding industry built up as a result of offshore oil development.

⁶⁰ Oil and gas development is a cyclical industry with a major ramp up during the development phase followed by a reduced level of investment and employment. Volatile commodity prices only amplify the cycles.

The initial upstream development phase of oil and gas production is a limited aspect of the business. As described earlier, the ongoing operations phase has been a better source of long-term employment in many other producing countries. Emphasis on investments by the IOCs in refining and development of the downstream natural gas and power sectors would likely generate more sustainable employment, in addition to expanding the permanent capital base of the country.

Expanding areas for increasing domestic content should focus on those areas likely to generate the most value added. For example, fabrication and well completion have been identified as two areas with high multipliers for manufacturing and employment.⁶¹ There could be real value, given the current state of the industry and the increasing expansion into deep waters, for Nigeria to focus on developing certain areas of expertise where indigenous companies could compete on a market basis with foreign alternatives. However, the government in its policies should be realistic and objective in its identification of areas for emphasis. Where domestic competence in the universities and private sector is low relative to international competitors, those areas should not be emphasized.

The local content agency must employ metrics to evaluate and rate the performance of indigenous companies benefiting under the local content rules. A local content policy that does not ensure a rising quality of indigenous businesses undermines not only the fundamental economics of the industry, but inhibits the increased commercial expertise needed by the economy as a whole for the future. A company that does a shoddy job of

⁶¹ Intsok, Section 6.2

fabrication for the oil industry will not be any better for another manufacturing line of business. Those companies should not be propped up by local content rules.

IX. CONCLUSION

To ensure economic sustainability for Nigeria, wealth from resource extraction must be transformed into broader industrial and commercial activity within the country. An industrial and local content policy that focuses too much on development of enterprises in the oil and gas sector will only amplify the cyclical downsides. A broad-based strategy of economic development emphasizing macroeconomic stability and development of domestic capital markets, infrastructure improvement, a streamlined business environment and education should parallel efforts to increase local content in the petroleum sector.