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ENHANCEMENT OF LOCAL CONTENT IN THE UPSTREAM OIL AND GAS INDUSTRY IN NIGERIA

A COMPREHENSIVE AND VIABLE POLICY APPROACH

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A joint study by

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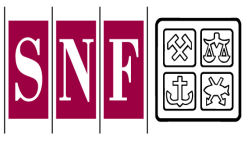
RF - Rogaland Research, Stavanger
K&A - Kragha & Associates, Lagos

SNF Project No. 4245
Private Sector Development in the Nigerian Upstream Industry

This study has been commissioned by the Norwegian Agency for Development Cooperation and the Norwegian Ministry for Petroleum and Energy and executed through INTSOK within the context of the Memorandum of Understanding, which has been signed between the governments of Nigeria and Norway.



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Foreword

This study is commissioned by the Norwegian Agency for Development Cooperation (Norad) and the Norwegian Ministry for Petroleum and Energy (NPE) under the custody of four oil-industrial related Nigerian government organizations: The Office of the Advisor to the President on Petroleum and Energy, the Department of Petroleum Resources (DPR), the Nigerian National Petroleum Corporation (NNPC) with its subsidiary, National Petroleum Investment Services (NAPIMS). INTSOK was engaged to organize it, and appointed the Institute for Research in Economics and Business Administration (SNF), Rogaland Research (RF) and Kragha & Associates (K&A) to carry out the study. The purpose has been to examine measures that may enhance local industrial development in Nigeria in connection with the nation's upstream oil and gas activities.

The study was conducted during the period August 2002- April 2003. The contributions from the Norwegian partners of the project team are based on theoretical insights into the task of enhancing industrial development based on rich endowments of natural resources, as well as knowledge and practical experience from private sector development in connection with the upstream oil and gas industry in Norway. The contributions from the Nigerian partner have been based on their understanding of local business and the political institutions of Nigeria.

The study group is made up of Per Heum, Hildegunn Kyvik Nordås and Eirik Vatne from SNF, Jan Erik Karlsen and Christitan Quale from RF, and Moses Kragha, Uka Nwaeze, Jim Orife, George Osahon, Yinka Omorogbe, Mabel Etomi and Godwin Obaseki from K&A.

While the study was commissioned within the context of a Memorandum of Understanding, which was signed between the governments of Nigeria and Norway, it coincides with a process in Nigeria of introducing a new policy framework and new legislation on local content in the upstream petroleum sector. The report of the National Committee on Local Content in the Upstream Sector, including a suggested Nigerian Content Development Bill, which was concluded in January 2002, and has been a frequently used reference throughout the study.

The study group is thankful to the custodians of the study for their assistance and cooperation, the Nigerian oil experts for their participation in the technology and policy assessment workshops in Lagos in November 2002, and the oil operating and service companies for their responses to the questionnaires and interviews.

The project team highly appreciates useful discussions and comments from a reference group made up of the following members:

Egbert Imomoh, Advisor to Shell International
H. Sola Oyinlola, MD Schlumberger Nigeria
Odd Godal, Statoil
Kjell Miskov, Aker Kværner
Tore Sandvold, Sandvold Energy
James W. Canning, Exxon Mobil Nigeria (from April 2003)

Furthermore, we are extremely grateful to Per Hagen, INTSOK, for his enthusiastic and constructive support all through the project. The hospitality and assistance of the Norwegian Embassy in Nigeria are also highly acknowledged.

Opinions and expressions in the study are those of the research team and do not necessarily reflect the policy stance of the Norwegian or Nigerian government or the opinions of reference group members.

Bergen/Stavanger/Lagos, August 2003

Content

Executive summary

The purpose of the study has been to assess the enabling environment for private sector development in the Nigerian upstream petroleum industry and recommend ways of increasing and improving the capabilities of Nigerian supply and services companies.

In essence this means to assess an industrial challenge where the ultimate goal is to have companies in Nigeria, which possess capabilities that are highly valued and demanded by oil and gas companies operating on the world scene. Local content in the Nigerian petroleum industry is a means to develop businesses that can compete for contracts in upstream oil and gas, in Nigeria and abroad, which may have positive spin-offs even to non-petroleum based industries, as in agriculture, manufacturing and services.

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.

The environmental context in which this industrial challenge has to be met, is essentially the same as for any country with ambitions to develop oiland gas related businesses. Nigeria has, however, been trying to meet this industrial challenge for decades, without any apparent success. Thus, Nigeria needs to overcome the obstacles that have prevented such an industrial development so far.

Discussing the content of a viable policy approach the study group attempts to integrate the capabilities and potentials of the Nigerian business community with lessons that can be drawn from theory and practical experiences with regard to policy programs and petroleum activities in other countries. The study group recommends that the ultimate goal of a viable local content policy should be to create jobs by enhancing sustainable industrial growth and national wealth. In the case of Nigeria, the study group considers the goal of industrial growth and national wealth as unattainable unless the framework conditions for investments

(local and international) and business in general, are significantly improved. A clear policy needs to be developed that will

- create a more predictable macro economic environment
- increase the credibility of institutions and the legal system
- provide incentives to enhance sound business practices
- create a more enabling infrastructure for business development
- enhance social structures that will contribute to inclusion and participation

Such improvements are necessary for any local content policy with regard to upstream oil and gas to be successful. Furthermore, improvements in this framework will also benefit industrial growth in other areas of the economy, which ought to be highly appreciated, as sustainable economic growth will benefit from diversified industrial and agricultural growth.

As for the local content policy regarding upstream oil and gas, the study group recommends two pillars to be constructed. One is primarily in the hands of the oil and gas companies; the other is the policy of the government. Government policy will have great bearing as to the commitments that the oil companies are willing to make. Government policy, and in particular policies influencing the framework conditions for investments and business development, also have great bearing on the entrepreneurs who are needed to invest to provide the goods and services that are demanded. Local content development is the responsibility of all these different groups of actors.

The study group recommends that a policy to enhance local content development has to build on a commitment by the oil and gas companies. The oil and gas companies should be asked to take – and accept – a major responsibility to achieve the objectives that are set. They have the financial resources and they make the decisions to invest, while possessing a unique knowledge and competence. To achieve their participation, the main elements in a local content policy for any host country should include:

1. Government should have a proper mandate, i.e. a legal basis, to implement a policy.
2. There should be a small government unit to implement the policy with the necessary resources and power vis a vis the relevant investors, i.e. the oil and gas companies. The power to award licences, to approve projects etc. is relevant in this context, as the agency should have the authority to reward good performance of oil and gas companies relative to the local content policy, process and measures.
3. Based on a general principle embedded in the law, the government unit should specify a vision and objectives for local content development. The objectives must be clear and specific, with the terms and steps in the

process of accomplishing the objectives well-defined and measurable. One easily understandable is a percentage of total investments (or of total expenses)[1], but this is not the only one. Targets should then be related to dates (years), taking the current capabilities of the domestic industry into account.

4. Policy should give clear indications as to how growth and improvement of local content will be measured. This will be communicated to each company and used to monitor the process as discussed in points below.
5. A process of monitoring must be decided. The monitory system must be company and/or project specific.
6. The objectives for local content development should then be translated into an obligation for the oil and gas companies. Approval for licenses, development projects etc. should not be granted unless there is a commitment and a (binding) detailed plan for implementation.
7. Information and reliable data is crucial to undertake these operations. The government unit should have the authority, ability and responsibility to gather, aggregate and publish data on future plans for specific projects, and on investment estimates in different categories.
8. The unit responsible for the implementation of the local content policy should also be a catalyst for describing, comparing and communicating best practice in the different areas.
9. As part of the monitoring, the oil and gas companies should present (publish) a report regularly, e.g. annually or every 6th month, outlining how they are performing. This is comparable to some companies reporting on environmental performance.
10. To ensure an impartial judgement, the results regarding local content, could be evaluated by an independent body, e.g. an international panel of experts or an auditor company.

[1] Under the WTO Nigeria has entered into *Agreement on Trade-Related Investment Measures,* where Nigeria has agreed not to enforce policies *which require the purchase or use by an enterprise of products of domestic origin or from any domestic source, whether specified in terms of particular products, in terms of volume or value of products, or in terms of a proportion of volume or value of its local production.* Thus, Nigeria ought to be considerate as to how policy and objectives are formulated and enforced.

These elements should translate into roles and responsibilities of the government and the oil companies. In the case of Nigeria, the study group recommends the following efforts regarding each operating oil company and the government.

GOVERNMENT AND GOVERNMENT AGENCY

1. Establish a small unit within DPR as a focal point to handle all activities related to improving local content (see item 2 above).
2. Propose a framework for achieving an increase in local content; it should be measurable, achievable (realistic), and have milestones.
3. Seek to establish true local content and to eliminate the practice of "agents", by clearly defining local content as adding value and growing capability in Nigeria.
4. Establish a method of measuring local content and communicate it clearly to all.
5. Establish a good and up to date database of competent contractors. This requires a proper method of establishing and registering competent contractors. Work with the industry to establish minimum standards
6. Broker JVs between new non-Nigeria companies and Nigerian companies.
7. Participate in establishing a forum for sharing best practices in industry.
8. Participate in fora to share work plans with existing and potential contractors.

OPERATING OIL AND GAS COMPANY

1. Have a clear policy on how to meet the obligation of local content (see item 6 above), and set targets for achieving this.
2. Prepare annual contracting plans and strategies, through which the companies commit themselves vis a vis the government unit responsible for local content.
3. Have these contracting plans and strategies endorsed by NAPIMS.
4. Establish a focal point to coordinate all activities related to improving local content.
5. Participate in establishing a forum for sharing best practices in industry.
6. Participate in fora to share work plans with existing and potential contractors.
7. Work with indigenous companies to build capability, via training, industry-led forums and workshops, company assessments (internal and external), regular feedback from multinationals, etc.
8. Measure monthly, and report annually, or every 6^{th} month, on progress being made with achieving the targets of local content (see item 9 above).

This approach is discussed more thoroughly in chapter 8 and spelt out in more detail in chapter 9. The underlying idea is to create a sound business climate, to

encourage the oil and gas companies to compete in being successful to enhance sustainable value adding activities in Nigeria, and to let their track record in this respect influence their rights to future oil and gas in Nigeria. Doing so on a competitive basis, which also allows temporary protection in a transparent manner, should develop competitive oil and gas related industry. Such a development will most likely spin off positively to industrial development in other areas of the Nigerian economy as well, which means that also industrial sectors other than oil and gas related industry should benefit. Altogether, this means that the chances for Nigeria to expand and realize its industrial potential ought to become significantly strengthened.

1 INTRODUCTION

The purpose of the present study, as stated in the terms of reference, is *to assess the enabling environment for private sector development in the Nigerian upstream petroleum industry and recommend ways of increasing and improving the capabilities of Nigerian supply and services companies.*

The terms of reference is reprinted in Appendix 1. Several tasks are listed, all within an overall objective, which was presented as follows:

> **To assess the capabilities of the Nigerian Supply and Service Industry and propose measures to enhance Nigerian private sector development based on Petroleum Activities.**

We have, however, had to redefine some of the tasks as the work proceeded. In particular we have experienced great difficulties in documenting the capabilities of the Nigerian supply and service industry. In fact, we have not been able to provide comprehensive statistics on the structure and skills of the industry. Thus, a slightly different approach was chosen, which also implies that more time has been devoted to address some basic issues, that are decisive when it comes to the ability of a society to enhance a sound business development. If these are not satisfactorily solved, there are hardly any measures that really will be effective in enhancing private sector development, whether it is based on petroleum activities or not. This also means that we have left the more specific and detailed tasks listed in the terms of reference for future elaboration, when the more fundamental issues have been clarified.

The background for the study is that Nigeria possesses huge resources of oil and gas, and that the country, despite being a major oil producing country for decades, is, still considered a Less Developed Country. Nigeria has a very narrow industrial base and heavily depends on its oil revenues. Manufacturing accounts for less than 5 percent of the country's national product, and only a small fraction of its exports. Oil and gas in contrast accounted for 12 to 15 percent of GDP , more than 75 percent of government revenue, and more than 95 percent of export earnings on average during the past three years. Key economic and social indicators are reported in table 1.1.

Table 1.1: Economic and Social indicators for Nigeria

Key economic indicators		**Key social indicators**	
GDP per capita (constant 1995 prices)	$254	Life expectancy at birth	47 years
Annual average economic growth 1995-2001	2.8%	Illiteracy rate	36%
Inflation rate, 2002 (IMF estimate.)	13.4%	Share of labour force with tertiary education	27.3 %
Investment share of GDP	23%	Military spending (% government exp.)	8.1 %
Domestic bank credit share of GDP	11.3%	Mortality rate under 5 (per 1000 live births)	153

Source: World Bank (WDI), and IMF (2003). Data from 2000 if not otherwise stated.

In this report, we summarize the study on private sector development in connection with the Nigerian upstream oil and gas industry. The documents that have been prepared, and on which this summary is based, are listed in Appendix 2.

The purpose of the study is in essence to assess an industrial challenge: The ultimate goal is to have companies in Nigeria, which possess capabilities that are highly valued and demanded by oil companies operating on the world scene. Local content in the Nigerian petroleum industry should not be seen as the end in itself. It is a means to develop businesses that can compete for contracts in upstream oil and gas, in Nigeria and abroad, which may have positive spin-offs even to non-petroleum based industries.

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 encourage the development of indigenous companies; the other is to encourage foreign investments and participation. It takes both to build capability and increase local content in Nigeria.

The environmental context, in which this industrial challenge has to be met, is essentially the same for any country with ambitions to develop oil-related businesses. This is spelt out in chapter 2. Nigeria has, however, been trying to meet this industrial challenge for decades, without any apparent success. Thus, Nigeria must first overcome the obstacles that have prevented such an industrial development for decades. This is briefly illustrated in chapter 3.

Having identified the gap between industrial objectives and present capacities and obstacles, it is necessary to establish two pillars on which recommendations for a comprehensive and viable policy ought to be based. One is the comparative perspective, presented in chapter 4, which briefly summarizes how other oil producing countries have organized their petroleum activities, and to what extent they have benefited in economic and industrial terms. The other is the Nigerian perspective, in the sense that recommendations can only work if they are realistically based on the capabilities and potentials of the Nigerian business community. These prerequisites for oil-related industry development are addressed in chapters 5 and 6.

Our point of departure for outlining a viable policy approach is the lessons that can be drawn from theory and practical experiences with regard to policy

programs and petroleum activities in other countries. These are discussed in chapter 7 as basic guidelines for outlining a viable policy. The more specific recommendations in this context are presented in the concluding chapter of this report. The ultimate idea is to contribute to a transformation of the oil wealth into a broader industrial base for national wealth in the Nigerian society.

2 THE INDUSTRIAL CHALLENGE

The oil industry is a well-established industry on the global scene. It consists of a few major oil companies, which are present almost all over the world, and a large number of mainly nationally based oil companies. They have numerous suppliers, offering a wide variety of goods and services, from the very sophisticated to more standardized products. Some are global players as the oil majors; others are more locally based. Contracts between the oil companies and their suppliers frequently involve a hierarchy, or a chain, of subcontractors. This supply chain may be regarded as a linear sequence of activities organized around the flow of materials from source of supply to finished products, after-sales services and often also recycling. It is in this context that the Nigerian industry has to perform and prove useful, if the ambition of private sector development based on petroleum activities is to be met.

In this supply chain perspective, **activities are only justified when they add value to the overall process.** Activities may shift between organizations, and may become more important or eliminated depending on market conditions, technology and firm strategy (Schary and Skjøtt-Larsen, 2001). The supply chain also involves transport, communication, finance and other specialized support functions. The primary supply chain drivers, made up of operating companies, typically approach supply chain management through the following steps:

i. Segmenting the potential suppliers based on strategic importance (level of dependence on the suppliers' product);
ii. Evaluate suppliers according to quality, delivery, lead-time and cost performance, and often also financial stability, capacity, design capability, capability to manage materials and subcontractors, and ability to implement continuous improvement;
iii. Rationalization of the supplier base – choose the set of suppliers to enter closer relationship with from the base of qualified suppliers;
iv. Enter long-term contracts with the chosen suppliers.

The long-term contracts with the chosen suppliers typically entail objectives of cost-cutting, mainly on the part of the supplier. This has sometimes led to the squeezing of suppliers' margins. Experience with the supply chain approach has thus been mixed and the supply chain driver has often benefited more than suppliers in the upstream oil and gas industry. Nevertheless, the supply chain management approach will probably characterize the business environment facing Nigerian suppliers. An understanding of this environment is necessary in order to design strategies for increasing local content.

The long-term contracts typically entail agreements on capacity building, cooperation on process and/or product innovation, promises of increased sales for the supplier and sometimes an agreement on sharing the benefits from the suppliers' cost-cutting innovations. Procurement is often outsourced to the first-tier suppliers (e.g. the major contractors in the oil industry) and quality control is typically expected to take place at source. Large reductions in transaction costs are expected to result. There is a growing proliferation of long term contracts (of 7 years or more) in the maintenance, modification and operations market in the upstream sector. Furthermore such contracts, as well as contracts related to exploration and development, are increasingly awarded by the oil majors' Houston offices to which procurement is centralized.

Further out in the supply chain, arms-length market exchange is more common for standardized products and activities, but even here automated procurement processes are becoming common in the upstream petroleum sector. The oil majors have jointly introduced portals for e-commerce, the most significant being Trade Ranger, owned by 15 oil and petrochemical companies including BP, Shell, TotalFinaElf and Statoil, and it has at present more than 1000 supplier members. It provides catalogue services such as standards, trading and invoicing and value added activities such as auctions and investment recovery. Another major portal is PetroCosm, which was founded by among others Chevron and Texaco.

E-commerce is most widespread in low-cost, high-volume transactions, the market segment in which Nigerian suppliers might be competitive. E-commerce is also increasing in the market segments providing standardized and proven technologies such as drilling and routing of drilling supplies. In markets where customization is more common, e-commerce is less prevalent. A combination of widespread use of frame agreements and e-commerce could introduce significant barriers to entry for small and medium-sized enterprises (SME) in the supply chain. There are, however, also economies of scale in the industry, which may restrict the competitiveness of small companies. Furthermore, participation in e-commerce requires investment in the necessary ICT equipment, and training. A considerable trading volume is probably necessary to recover such investment.

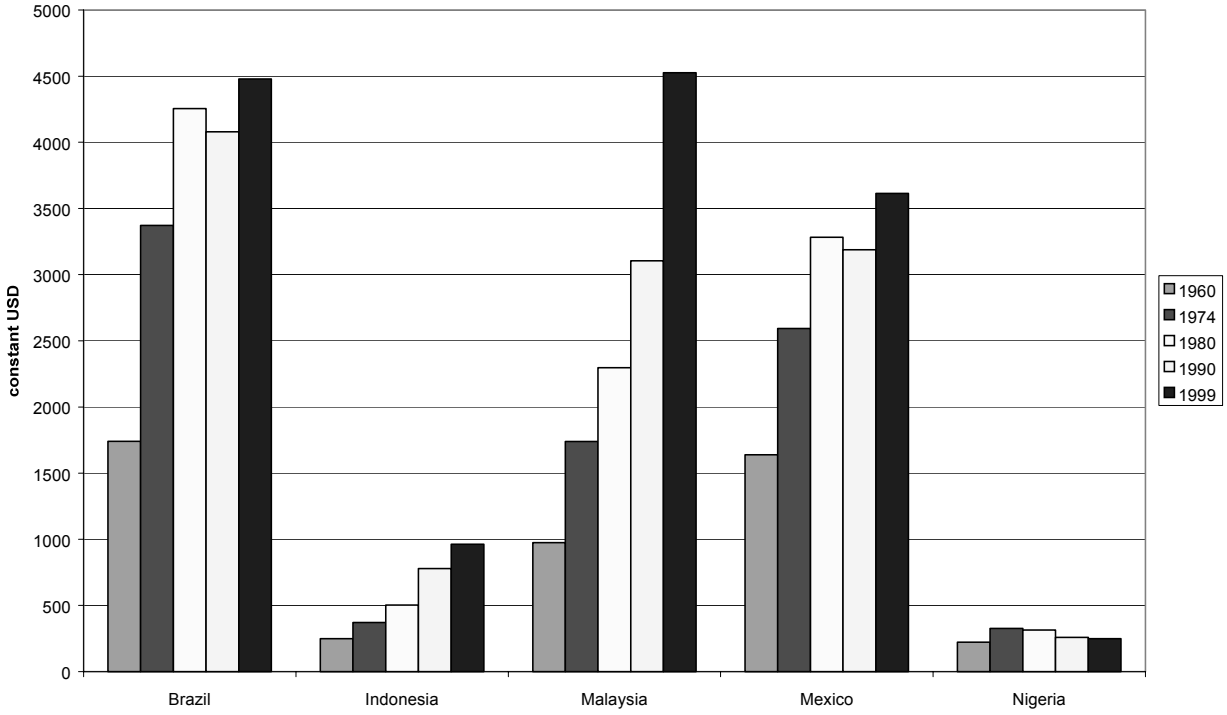
A recent British study argues that the supply industry is being polarized: suppliers must either be able to offer full service engineering, procurement and construction (EPC) contracts, or they must specialize in niche segments. But even the niche producers must be able to supply their products globally. Thus, the British study argues that some of the largest contractors prefer to work with global companies who have local subsidiaries in the oil-producing region in question in order to ensure quality. Local content, where such requirements are

present can then be obtained either by using local sub-contractors further out in the supply chain, or local affiliates of global companies.

3 THE NIGERIAN CHALLENGE

Oil production in Nigeria started in 1958. At least for the past 30 years, Nigeria has been one of the major oil producing countries in the world, with the capacity to produce some 2-3 million barrels a day since the early 1970s. However, in spite of having been a significant oil producer for decades, Nigeria has not been able to transform this valuable resource into economic growth, measured as recorded GDP per capita. Nigeria has performed much poorer than any of the other oil producing countries that have been included in Figure 1.[2]

Figure 3.1. GDP per capita, selected years. Constant 1995-prices.



Source: World Bank: World Development Indicators 2001

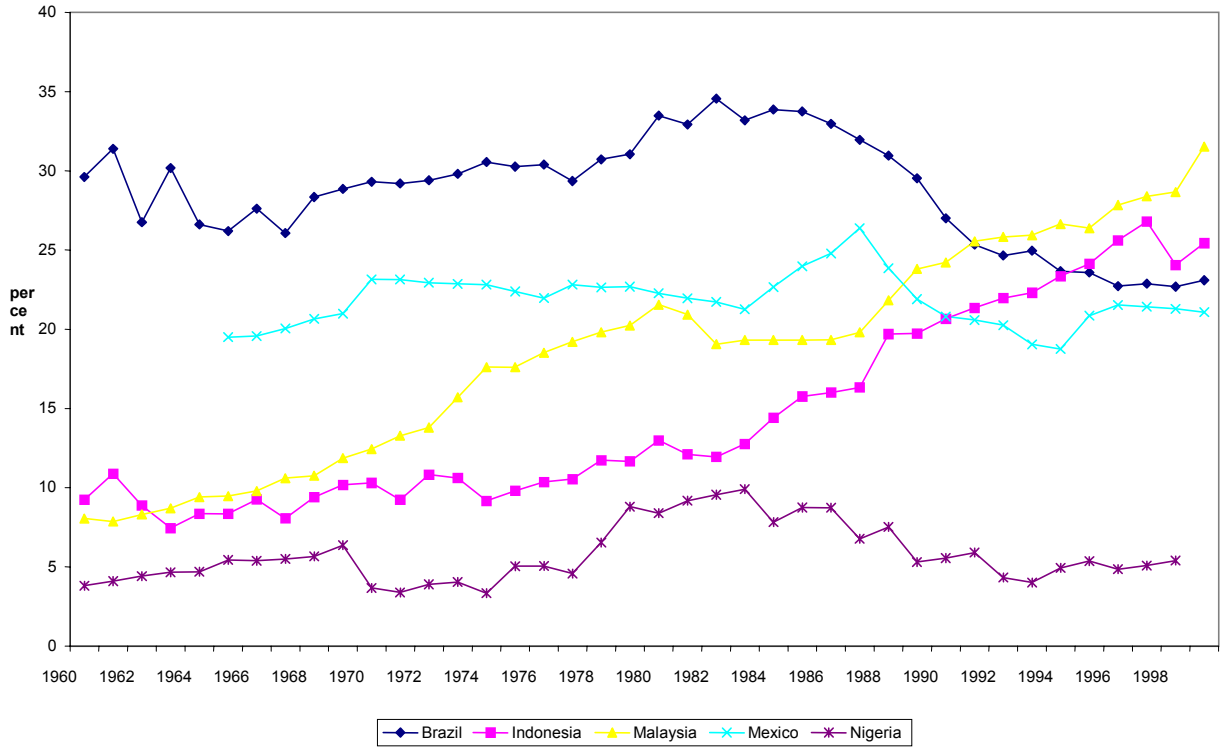
We particularly notice that Nigeria and Indonesia had about the same level of income per capita in 1960, but while Nigeria has stagnated, Indonesia's GDP per

[2] The figure is from the comparative study undertaken in connection with the project that is reported here. The countries included were chosen for different reasons. Indonesia is an interesting comparison because of its many similarities with Nigeria at the time when oil was first discovered in the countries. They were then both poor populous countries. As Nigeria's remaining undeveloped oil reserves are mainly found offshore, and offshore production is more technologically demanding and capital intensive than onshore production, we also wanted to compare Nigeria to offshore oil producing countries. This is why Brazil and Mexico, and also Norway, have been chosen for comparison (cfr. Chapter 4). Data on Norway is not, however, shown in Figure 3.1, but is reported with the other countries in Table 4.1. Furthermore, Nigeria has large gas reserves. Associated gas has hitherto largely been flared, but LNG production is emerging as a promising new area of industrial development. Malaysia and Indonesia both have a large-scale LNG industry and are interesting comparisons also for that reason.

capita has quadrupled. Nigeria's growth performance has in fact been slow also in a sub-Saharan African comparison. In fact, GDP growth rates have been lower in Nigeria than in its non-oil producing neighbouring countries over this period.

Essentially, the Nigerian challenge to create wealth is the same as for any other country with huge endowments of non-renewable natural resources: **To secure long-term welfare for the country and its inhabitants, the non-renewable natural resource wealth has to be transformed into a broader based industrial wealth.** The government and politicians in Nigeria are fully aware of this challenge. For most of the period that Nigeria has been an oil producer, policy measures have been in place, which legally should have made it possible to increase manufacturing value addition in the country in general as well as in the oil industry. Yet, at present, local content and industrial capacity is very low. This is clearly demonstrated when considering the share of manufacturing value added in the economy of the countries used for comparison.

Figure 3.2: Manufacturing value added share of GDP



Source: World Bank, World Development Indicators 2001.

Figure 2 shows that manufacturing as a share of GDP has stayed at a very low level in Nigeria throughout the period, while Indonesia and Malaysia have industrialized at a rapid pace, mainly in industries outside the petroleum sector. These two countries have managed to maintain a competitive cost level and

exchange rate in spite of windfall oil export revenues, while **in Nigeria the petroleum revenues and their domestic use have crowded out other tradable sectors**. Thus, the petroleum sector accounts for a much higher share of total national income in Nigeria than in the other countries, mainly because Nigeria has been much less successful in developing its non-oil economy.

The performance of Nigeria over the past decades clearly reveals that Nigeria cannot succeed in transforming the oil wealth into a broader based industrial wealth unless the factors that have prevented such a development over the last decades change. It is in fact impossible to identify any significant and positive development impact from the substantial accumulated oil revenues that the Nigerian government has received so far. The industrial base is still extremely narrow, and heavily dependent on oil, whereas wealth differentials among individuals in the Nigerian society seem to be extremely high.

Bad policies explain the poor performance of the Nigerian economy, which seems to have started during the booming years 1973-1981 when petroleum revenues became the driving force in the economy. Estimates by Bevan et.al. (1999) indicate that more than 90 percent of the windfall oil revenue during this period was saved and invested, most of it in domestic assets. Nevertheless, the windfall oil revenue had only a minor impact on non-oil GDP levels and private consumption, indicating that the returns to these investments were low. Furthermore, these investments changed the composition of non-oil GDP dramatically. Agriculture stagnated and prominent exporting sectors declined sharply, which meant that the traditional tradable sector was crowded out. Manufacturing increased, largely driven by government investment in large-scale heavy industries, such as steel and petrochemicals. These investments turned out to incur heavy financial losses.

The period 1981-87 was characterized by a bust in the petroleum sector. The decline in oil production was accompanied by a fall in domestic expenditure. Private consumption declined by 25 percent. The public sector budget balance went from surplus to deficit. The deficit could first be financed through depletion of reserves that had been accumulated during the oil boom. But as these funds ran out and the deficit remained high, the government turned to foreign borrowing to finance the deficit. Soon after Nigeria experienced a full-blown balance of payment crisis, and a public sector debt crisis, resulting in an IMF stabilization program.

Despite a very poor economic development over the last decades, there is no doubt, however, that Nigeria still holds a fortunate position with huge reserves of oil and gas, which the leading international firms of the oil industry consider as very promising. As documented in Chapter 6 of this report, this will most

likely cause the oil and gas activities, and the demand in connection with exploration and development of oil and gas fields in Nigeria, to stay at a high level. It is expected that Nigeria will be a significant producer of oil and gas for another 50-100 years. Thus, Nigeria has not yet lost the opportunity to develop a local industry based on the domestic oil and gas activities, but the technological entry barriers are clearly much higher in the present context as exploration and investment move into deep offshore than it was when production was concentrated onshore and in shallow waters. The question addressed in this report is how such an industrial strategy may be pursued in a viable manner.

4 THE HISTORY OF SIX OIL PRODUCING COUNTRIES

The six countries in the comparative study have been chosen to constitute a relevant comparison for Nigeria (cf. footnote 1). Apart from Nigeria, these countries are Brazil, Indonesia, Malaysia, Mexico and Norway. Nigeria was the largest oil producer among the six during the 1970s, but was overtaken by Mexico in 1980. Since 1991 Norway has also surpassed the Nigerian production level. Indonesia and Malaysia's production has leveled off. Brazil is a relatively small producer, but output has recently increased sharply, due to the opening up of deep offshore fields. Their history as oil producers, and the governance structure applied to the petroleum sector, is reported in more detail in Nordås et.al. (2003). This is briefly summarized in this section.

4.1 Brazil

Brazil has been an oil producer since the 1930s, while offshore production started in 1977. In spite of rapid increase in production over the past decade, mainly from offshore and deep offshore fields, Brazil is a net importer of both oil and gas and is expected to remain so over the next decade. The upstream petroleum sector was from the start under national control and only companies owned by Brazilians could mine for minerals. The national oil company, Petrobras was established in 1953 with a national monopoly in exploration, production, refining and transportation of petroleum. The company's first operation was the importation of crude for local refining and distribution. It later ventured into exploration and production projects. These ventures into production did not meet expectations, and foreign participation based on risk contracts was allowed in order to improve performance.

Brazil led a policy of import substitution in the industrial sector at large, including supplies to the oil industry. The government did, however, take a pragmatic stance in the petroleum sector in order to ensure that state-of-the-art technology was applied. The petroleum industry was thus first based on technology from the US provided by US firms producing equipment in Brazil. During the first half of the1980s the policy again became more protectionist and Petrobras developed local technology in cooperation with domestic supply firms for offshore production, partly through license agreements with international suppliers. Local content was above 90 percent in the late 1980s. As deep offshore technological challenges arose, the sector was again opened to foreign participation. Petrobras, alone and in cooperation with local and foreign partners, has contributed to the deep offshore technology frontier in floating and sub-sea production systems, offshore drilling, as well as telecommunication and information services for offshore production. Local content declined to 80 percent in the early 1990s, and remains at that level for well-established

technologies. Platforms and supply ships are still protected by import duties in the range of 18-20 percent. Local content is, however, much lower in deep offshore. Petrobras is seen as one of the most experienced and innovative oil companies in deep offshore today.

Petrobas is under the jurisdiction of the Ministry of Mines and Energy, but it was perceived as excessively independent. The company ventured into a number of more or less unrelated businesses, mainly heavy energy-intensive industries, and it established an international arm, Braspetro. While Braspetro for some time was successful, the conglomerate Petrobras became an overstaffed and inefficient organization and it was therefore restructured during the 1990s. Subsidiaries in non-core businesses were divested, employment was reduced from 60 000 to 33 000 and the company lost its monopoly in all its businesses following a reform in 1995. Petrobas was commercialized and partly privatized during the same reform process.

Restructuring of Petrobras was only one element of a comprehensive sector reform in the late 1990s that is still ongoing. Regulatory reforms include the establishment of The National Petroleum Agency (ANP), which regulates and supervises the sector's activities. ANP also organizes bidding rounds for new fields for exploration or mining, refineries and gas pipelines. Licenses are awarded after competitive bidding and Petrobas has been awarded a substantial share of recent allocations. One of the criteria for winning a license is a strategy for local content and training of local staff. A range of local content is suggested by the bidders and seems to depend on the technology adopted in the project and local capacity. The National Council for Energy Policies (CNPE) acts as an advisory and consulting body to the Ministry of Mining and Energy. After a long history of having an inward-looking monopolistic sector with weak regulation, Brazil has established a more competitive upstream sector and supply industry and a much more open and transparent regulatory regime, even if the latest political turn seems to move the industrial policy in a more protectionist direction again.

4.2 Indonesia

Indonesia started oil production in 1890. The industry was run by international companies until the 1950s when new regulations vesting the ownership and rights to carry out oil and gas development in the government and government owned companies were introduced. The national oil company, Pertamina was formed in 1968. Pertamina's main responsibilities were regulation of the industry, negotiating and managing Production Sharing Contracts (PSCs) with the international oil companies, and it had a monopoly in downstream activities. PSCs were in fact invented by Pertamina and have become widespread in the

industry worldwide. Pertamina only operates a few smaller fields, but has been encouraged to invest its oil revenue in a wide range of sectors such as shipping, petrochemicals, fertilizers, steel and hotels. This was part of the government's industrialization policy, but it turned out to become a financial disaster. The policy was terminated and Pertamina refocused on the oil business. As an important instrument for generating wealth and power, Pertamina has been highly influenced by Indonesia's chronicle problems of corruption, nepotism and cronyism. Pertamina is currently in the process of restructuring where important elements are transferring the regulatory responsibilities to government bodies, opening up the downstream sector to competition and transforming Pertamina to an incorporated, limited liability company. Oil production has been stable at about 1.5 million barrels a day for the past 20 years. Indonesia is the world's largest LNG exporter.

Local content in the upstream industry is about 25 percent. There is a target of 35 percent in the PSCs, but if local suppliers cannot meet the quality standards in a competitive manner, imports are allowed. Local suppliers are defined as suppliers producing in Indonesia, regardless of ownership of the company. Indonesia's main oil production is onshore, but new fields are increasingly located offshore. Indonesia has managed to maintain a reasonably stable macroeconomic environment including a competitive exchange rate as well as cost of labor and other industrial inputs.[3] Consequently, the country has experienced a rapidly increasing non-oil industrial sector, rapid employment generation and rapid economic growth.

4.3 Malaysia

Malaysia's oil production goes back to 1910, but Malaysia became a significant oil producer only in the 1980s. The national oil company, Petronas, was established in 1973 and the ownership of petroleum resources and the exclusive rights to mine them were vested in the company. Petronas was also assigned the responsibility for negotiating and managing PSC with the oil majors and for regulating the industry. Petronas soon established an upstream operating subsidiary (Carigali), which enters joint operation agreements with the operator of most fields. Some of the regulatory responsibilities of Petronas were transferred to government bodies when its operating activities commenced. The joint operation agreements included agreements on technology transfer. From the start Petronas faced competition in the downstream industry, and increasingly also in the upstream industry as the company became operator of a few domestic fields and ventured into E&P activities abroad. Petronas has grown into a fully integrated multinational oil company with operations in 24

[3] The Asian financial crisis in 1997 was, however a setback which Indonesia has only recently started to recover from.

countries. Petronas has also ventured into unrelated businesses such as banking and car manufacturing, bailing out struggling companies seen as being of strategic national importance. This has raised some controversy, but the policy has not been reversed. Malaysia is a significant gas producer and has a world market share of about 15 percent in LNG.

Malaysia awards PSC contracts continuously as the oil majors approach Petronas and enter into a field assessment and negotiating process. Local content both in terms of procurement and employment is included in the contract. There is a clause that companies with indigenous Bumiputra management or owners should be preferred when competitive, but otherwise local content is defined as value added in Malaysia irrespective of owners. Local content has been about 70 percent in the upstream industry. Malaysia has managed to attract substantial foreign investments in the petroleum sector, but even more in non-oil manufacturing sectors. The macroeconomic environment has been stable, the exchange rate and the cost level have been competitive and the country has experienced rapid growth in non-oil manufacturing output, employment and overall economic growth.

4.4 Mexico

Mexico was the world's largest oil exporter in the 1920s and second only to the US in oil production. American and European companies owned titles to the resources and left little revenue or development behind in Mexico. This situation triggered the nationalization of the resources in 1917 when the ownership and right to mine minerals were transferred to the state. The entire industry was nationalized in 1938. The national oil company, Pemex, was established in order to take over and run all the existing oil producing fields. It gained a monopoly in exploration, production, refining and distribution of oil and gas and for production of basic petrochemicals. As opposed to the other five countries in the study, Mexico excluded multinational oil companies from participation in the petroleum sector. The only exceptions were during capacity constraints and when Pemex happened to have a managing director who interpreted the regulations in a liberal fashion and got away with it.

The oil workers' union has had an exceptionally strong influence on the petroleum sector in Mexico. The union has four out of nine directors on Pemex's board of directors, and it runs a number of businesses that have exclusive rights to contracting with Pemex. The union is responsible for hiring workers, and it has the right to farm out contracts. The Mexican industrial development plan imposed a regulation implying that Pemex and others have to source capital goods locally if the price is less than 15 percent above comparable

imported goods including freight. The Mexican upstream sector was thus heavily protected and largely Mexican along the entire supply chain.

The Mexican closed system with privileges and lack of competition has bred widespread corruption. Furthermore, the country has lagged behind the technology frontier and thus been unable to exploit the deep-water resources Mexico is richly endowed with. Furthermore, the industry has been plagued by environmental problems. Due to the problems in the sector, reforms have been introduced. Pemex was commercialized and divided into four incorporated divisions in 1992. Private sector participation has been allowed in limited parts of the industry, first and foremost in the downstream gas industry. Foreign companies have been allowed to participate on a service contract basis, but this is still politically controversial. Pemex has a constitutional right to its monopoly position, and this is difficult to change. Mexico's oil production has, however, stagnated and reforms are necessary in order to develop new fields. Reforms to the effect of liberalizing the supply industry have been less controversial, and it also became a necessity under the North American Free Trade Agreement, which Mexico joined in 1994.

4.5 Nigeria

Nigeria has been producing oil since 1958. The oil majors operate most of the oil and gas fields either in joint ventures or under PSCs with the national oil company, NNPC. Joint ventures in combination with a joint operation agreement are the most common contractual relations. However, execution of new projects, including the development of the new fields under the Joint Venture arrangement, requires large-scale upfront investment, and NNPC has had difficulties in raising its share of the funding. PSCs have therefore been introduced for exploration and production activities in the deep offshore. .

The NNPC was established in 1977. The company manages agreements with the oil majors through its subsidiary National Petroleum Investment Management Services, NAPIMS. This is an incorporated subsidiary of NNPC. NAPIMS has the strategic role of enhancing local content, training and stimulating indigenous participation. The Ministry of Petroleum Resources is responsible for administering the license bidding rounds and thus allocating licenses for exploration, prospecting and mining. The Department of Petroleum Resources (DPR) is the major regulatory body under the Ministry. DPR's responsibilities are to set standards for exploration, prospecting and mining operations, and to control and supervise these activities.

The legislation regulating the Nigerian upstream sector goes back to 1969. The state has the exclusive right to exploit the hydrocarbons of Nigeria, a right that

has been vested in NNPC following its establishment. The Petroleum Act has not been amended significantly since its signing into law in 1969. There also exist a tax law. Nevertheless, tax conditions and other regulations applicable at present are those stated in the Memorandum of Understanding between the Ministry of Petroleum Resources, NNPC and the JV operators that was signed in 2000. Royalty and tax rates depend on the nature of the contract between NNPC and the operator, as well as the location of the field. The deeper it is offshore, the lower the roaylty and tax obligations.

Nigeria produces about 2 million barrels of oil per day, of which about half come from offshore and half from onshore production. The share of offshore production is, however, increasing as new discoveries and development projects are mainly in offshore and deep offshore. Due to relatively sophisticated technology in new development projects and limited local industrial capacity, local content is relatively low in the upstream industry. Figures vary somewhat, but an often-cited figure for local value-added contribution by indigenous companies is about 5 percent. Local content in Nigeria irrespective of ownership is probably significantly higher. Local content is also higher for onshore fields than for offshore fields.

OPEC quotas limit growth of oil production. Therefore, the most promising area for growth of the upstream sector is perhaps natural gas. Nigeria already has significant exports of LNG. The domestic market for gas is, however, underdeveloped and local and regional markets need to be developed in order to provide an outlet for the presently flared associated gas.

4.6 Norway

Norway has been an oil producer since 1971, and its current production is about 3.4 million barrels of oil per day. Most of it is exported. The oil majors played an important role in developing the Norwegian industry. They undertook exploration, development and operation of the first major oil and gas fields. As the other oil producing countries at the time, Norway established a national oil company, Statoil in 1972. It had the objective of managing the petroleum resources on behalf of the Norwegian state and to develop local capacity in the upstream oil and gas sector. Statoil started as a financial partner in fields that were operated on the basis of a joint operation contract. Licenses are awarded through rounds where oil companies announce their interest in the fields. The mix of partners is decided by the Ministry of Oil and Energy. After a field is declared commercial, a development and production plan of the field is presented to the Ministry, a PDO (plan for field development and operation). This is an instrument for a dialogue to reach consensus on the choice of

technology and contracting strategy. Based on this dialogue, the government makes a proposition to the Parliament.

Norway's largest industrial company at the time, Norsk Hydro participated in exploration licenses awarded throughout the 1960s. Finally, an independent private oil company, Saga Petroleum was established in 1971. This company actually started its operations abroad.

The oil majors operating the first Norwegian fields were required to enter into an agreement of capacity building with the Norwegian partners. In a few licenses there was also a time schedule for transfer of operatorship to Statoil. This arrangement presented a steep learning curve for the national oil company, which gradually became the operator of more than half of all Norwegian fields. The same policy "forced" multinational engineering companies to join with a local partner to build domestic engineering capacity. Foreign oil companies also helped to develop capabilities in Norsk Hydro and Saga through technical assistance contracts.

Local content in the Norwegian upstream sector is about 50 percent at present. Norway did not set a target for local content in its legislation, but a Royal Decree of 1972 stated that Norwegian suppliers should be chosen when they were competitive in terms of price, quality and delivery reliability. In order to monitor local content performance, the operators were required by the Ministry of Oil and Energy to report the award of all contracts exceeding NOK 1 mill. (USD 150.000). Contract research and investments in Norwegian R&D activities were also regarded as important to win a license

Statoil's position in the Norwegian petroleum sector was seen as excessive in the early 1980s. In 1984 the Norwegian Parliament therefore decided to vest the state's ownership in petroleum resources as a separate accounting unit, the State's Direct Financial Involvement (SDFI) from which the cash flow went directly to government coffers. This unit has recently been established as a 100 percent state-owned company, Petoro, following Statoil's privatization. As a consequence of these reforms Statoil became a more focused commercial company.

Following the collapse in oil prices in 1986 and Norway entering the European Economic Area in 1995, there has been a restructuring of the supply industry and the market conditions in the upstream sector. The "cosy" relationship between the oil companies and the supply industry was replaced by a more competitive one, as it became clear that the industry's cost level was too high to sustain profitability in a low oil price scenario. Finally, the local content clause

in the Petroleum Act was not compatible with the trade agreement with the EU, and was amended accordingly.

Consolidation and layoffs in the supply industry have followed these reforms. However, the major players have turned to international markets to develop their businesses, and their international sales are at present about a third of total sales on average. On the other hand, there are also companies that scale down their industrial activities when domestic demand stagnates and declines. These will not directly contribute to long-term value generation.

4.7 Comparing the six

Table 4.1 summarizes some facts regarding the six countries, and some of the information presented in the previous description of the petroleum activities in these countries. It is clear that Nigeria holds the largest reserves of the six when it comes to gas, and that the country ranks at the top together with Mexico when it comes to oil reserves.

Furthermore, the overview shows that policy measures related to ensuring national control with the upstream petroleum sector, and embedding the sector in the domestic economy, on the surface apparently seem to be quite similar in the six countries. All six countries established a national oil company, which has had the role of managing the petroleum resources, and all six countries have introduced local content requirement, training of local staff and technology transfer conditions. The countries have, however, differed significantly in policy design, policy transparency and ability to enforce regulations. The countries have also differed in terms of openness towards the international oil industry and the degree of protection of local suppliers. Considering inward foreign direct investments, the relative share of foreign ownership is much higher in Norway than in any of the other countries

Despite the differences in policy design and implementation, the six countries have in common lack of competition and lack of transparency in regulation. Over time, this has become a problem for the upstream sector's effectiveness. Reforms in the direction of opening the sector to competition and introducing more transparent regulation have therefore taken place in all six countries throughout the 1990s, although to varying extents.

It is also evident that the industrial capacity of the local economy differs widely. It is worth noticing that Indonesia, which is the second poorest country in the list, but with an industrial capacity much higher than Nigeria, has not managed to obtain its target of 35 percent local content, even though it has been an oil

producer for much longer than Nigeria and its production is mainly onshore and shallow offshore.

Table 4.1: Fact sheet

	Nigeria	Brazil	Indonesia	Malaysia	Mexico	Norway
1. Production 2001						
1.1 Oil (Thousand barrels daily)	2148	1337	1410	788	3560	3414
1.1.1 Offshore share	45%	83%	35%	100%	81%	100%
1.1.2 State owned company	55%	100%	3,3/80%[4]	30%	100%	
1.2 Gas (Billion cubic meters)	13.4[5]	7.7	62.9	47.4	34.7	57.5
1.2.1 Offshore share	45%	65%	37%	100%	34%	100%
1.2.2 State owned company	55%	100%	7.4/80%		100%	
2. Reserves 2001						
2.1 Oil (Thousand mill. Barrels)	24.0	8.5	5.0	3.0	26.9	9.4
2.1.1 Offshore share (by 1999)	54%	96%	20%	99%		100%
2.2 Gas (Trillion cubic meters)	3.51	0.22	2.62	2.12	0.84	1.25
2.2.1 Offshore share (by 1999)	29%	72%	61%	99%		100%
4. National oil companies						
4.1 State owned company?	Yes	Yes[6]	Yes	Yes	Yes	Yes
4.1.2 Operator or financial?	Mainly financial	Oper.	Oper.	Oper.	Oper.	Oper.
4.2 Other domestic companies?	Yes	Yes	Yes	No	No	Yes
4.2.1 Operator or financial?	Oper.	Oper.	Oper.	-	-	Oper.
5. Oil policy						
5.1 Member of OPEC?	Yes	No	Yes	No	No	No
5.2 Block auction or awarding?	Award.	Auct.	Award[7]	Award	na	Award
6. National economy 2000						
6.1.1 GDP per capita USD	260	3580	570	3380	5070	34530
6.1.2 GDP per capita PPP	800	7300	2830	8330	8790	29630
6.1.3 GDP Growth, annual %	3.8	4.5	4.9	8.3	6.6	2.3
6.1.4 Gross FDI, % of GDP	2.9	6.0	4.2	2.0	2.3	18.8
6.2 Sectors, VA as % of GDP						
6.2.1 Agriculture	29.5	7.7	17.0	8.6	4.1	1.8
6.2.2 Industry (incl. Oil)	46.0	37.5	47.0	51.7	27.9	42.9
6.2.3 Services etc.	24.5	54.8	35.9	39.7	68.0	55.2
6.3 Local content in supplies to upstream oil and gas					Largely	
6.3.1 Registered share	5%	ca.70%	25%	70%	Mexican	50%

[4] Indonesia's state owned Pertamina handles a small fraction of production as an operator, but has a 65 – 90 percent involvement in all fields through production sharing contracts (PSC).

[5] Due to lack of utilization infrastructure, Nigeria flares 50 percent of the natural gas it produces, and re-injects 12 percent to enhance oil recovery. LNG-production is planned to end flaring by 2008(MPR).

[6] In 1997 Brazil started a process of opening its petroleum industry to other domestic and foreign players. In august 2000, the government sold a 28.5% stake in Petrobras. Foreign companies entered JVs with Petrobras first in 1997, and have participated in bid rounds in 1999, 2000, 2001 and 2002 (EIA).

[7] The state owned Pertamina is a partner in all developments trough PSCs.

Recalling from Figure 3.1, Mexico and Brazil have also performed rather poorly over the last two decades, while Malaysia and Indonesia have both performed rather well. These Asian countries have followed policies which have been much more market driven than the policies of Nigeria, Brazil and Mexico. They have not avoided government intervention. But they have corrected the policy if it did not produce the intended results. Thus, the Look-to-Asia slogan in this sense means to learn from your mistakes.

Even though the definition and measurement of local content varies between the countries, and the figures cited in the Fact Sheet only give a rough idea of the relative performance of the countries in terms of local content, the data seems to support the rather obvious conclusion: **Local content which can add value to the economy will only develop when local industrial capacity is sufficiently developed and open to interaction with leading international companies. Value addition does not develop by decree.**

5 CAPABILITIES OF THE NIGERIAN SUPPLY AND SERVICE INDUSTRY

The Nigerian petroleum industry is the most vibrant within the West African oil province, accounting for about 65% of the crude oil output from the sub-region. With a 2003 target capacity of over 3.0 million barrels of oil production per day, the country currently produces about 2.0 million barrels, being limited by quota allocations imposed by the Organisation of Petroleum Exporting Countries (OPEC) of which Nigeria is a member.

Nigeria's crude oil reserves currently stand at about 35 billion barrels, after producing in excess of 20 billion barrels over the nation's four and a half decade as a producer with all the oil coming exclusively from the Tertiary Niger Delta region. During this period, the country had done very little to harness its gas resources, estimated at about 124 trillion standard cubic feet (SCF), which rank as one of the largest in the world. In spite of an aggressive programme in recent years to monetise the gas and the setting of a 2008-deadline to extinguish all oil-field gas flares, about 2.5 billion SCF per day, equivalent to 50% of the daily output, is still being flared.

This year, 2003, Nigeria is expected to spend 6.3 billion US dollars on oil industry activities, increasing to 8.2 billion US dollars in 2007 (Douglas-Westwood, 2003). Production has so far been from the conventional terrain (from land to the shallow offshore up to 200m-water depth). The concentration of activities in the conventional terrain however changed in 1990 when the first deep-water licensing round was announced. This attracted several multinational operators, most of which were already operating in the country as Joint Venture partners to the Nigerian National Petroleum Corporation (NNPC), to take up concessions in the uncharted waters of Nigeria's deep offshore. Just over a decade thereafter, the deep offshore Niger Delta has recorded over 5.0 billion barrels of oil reserves and the first set of deep water development would be coming on stream within the first half of this decade.

Though deep water exploration started as a natural extension of activities from the rather mature conventional terrain, it has in recent times become the choice place for multinational operators which dominate the nation's oil industry activities. These multinationals account for over 95% of the nation's daily crude production while the remaining 5% comes from two independents and a handful of indigenous operators. Indigenous operation commenced in 1990 as a government initiative to encourage indigenous participation in the upstream oil and as industry.

5.1 The supply and services business environment

The dominance of foreign over local companies seen in the upstream sector of the industry is largely repeated in the service sector where international contractors dominate the scene. For several years, these large supply/service companies have operated in the country without establishing factories or manufacturing plants and R&D centers locally such that the bulk of the billion of US-dollars expended in the industry annually rarely manifests in the nation's economy. Rather, most of the jobs were being executed outside the country, thereby making Nigeria a mere trading outpost of overseas contracting firms.

For some contracts the operating companies have entered into framework agreements with contractors to provide certain goods and services for their global operations. These arrangements have worked as a cost saving device, but they have also worked to the disadvantage of local companies. As the latter lack the required capacity compared to the scope of the framework agreement, they have been unable to compete with their multinational counterparts that have the advantage of global reach.

The definition of local content, emphasizing value creation/addition within the country, is more in tune with the global concept which has been adopted by other countries in comparative situation, all of which seem to have done much better than Nigeria. These countries have succeeded in leveraging their oil wealth and the capacities established in the service sector as launching pad for creating local manufacturing plants with multiplier effects for linkage industries and employment opportunities. Conversely, the supply and service sector in Nigeria has mostly thrived on imported finished goods which has served the interest of overseas manufacturers and local commission agents to the detriment of the local contractors.

A number of the multinational operating companies, notably Shell Petroleum Development Company (SPDC) of Nigeria Limited and its affiliates, which are the biggest players in the industry, use the percentage of contract value paid in local currency (Naira) as the indicator of local content, irrespective of whether the contractor is local or foreign. They have therefore tended to record the high end of the range of local content attainment, which is estimated between 5 percent and 30 percent depending on measurement criteria. On the other hand, government agencies, including the Department of Petroleum Resources (DPR) and the National Petroleum Investment Management Services (NAPIMS) Division of NNPC, contend that value creation/addition within the country is a better and more realistic measure and have therefore tended to record the low end of the range.

The industry is, however, witnessing a number of changes that could impact on local content. Apart from self-assessment on the part of the operating companies, brought about in large measure by the restiveness of the oil producing communities, the government has instituted a number of studies and committees to look into the matter. One of such studies coordinated by NAPIMS came up with several recommendations including a definition for local content. The study estimated the attained local content level at about 5% and set rather ambitious targets of 30% in 2005 and 60% in 2010.

In the aftermath of the change to democratically elected government in 1999, there has been established a practice to advertise contracts valued above USD 500,000 in newspapers and award them through open competitive bidding. NAPIMS initiated this change, which in some instances also has been expanded by the operating companies. More recently, NAPIMS again enjoined its partners to carry out all field studies locally, effective 1st April, 2003. The policies are aimed at increasing local content.

These measures notwithstanding, the level of local content has remained low compared to other countries. Altogether, more than 2000 contractors registered with the DPR in 2002 to supply goods and provide services in the industry. Three-quarters of them claim to be able to engage in development and production related activities. A large number of these companies are, however, sleeping companies. Thus, the DPR registration does not provide any effective inventory of active companies operating in the supply and service sector of the oil industry in Nigeria[8]. Nevertheless, it seems evident that among the active suppliers and service providers, the indigenous companies are no match for their foreign counterparts who are better equipped, technologically and financially. However, many of the foreign companies lack the infrastructure required to contribute significantly to Nigerian value added.

5.2 Supply and service providers in the Nigerian petroleum sector

The Nigerian supply and service industry, comprising indigenous and foreign owned companies, must be distributed across different activities in the value chain, but reliable data to describe it is hard to come by. The DPR registration does not provide any useful information on the companies operating in Nigeria, in terms of what they can do, and what they have done. However, based on actual information provided by the major operators (Shell, Chevron and Exxon

[8] A web-based business directory, (www.nesbd.dom), sponsored by SPDC, is recording some measure of success as over 600 companies have so far been listed. However, the site is not yet a reference portal for contracting purposes.

Mobil) the study group is able to present an overview of the major actors in the supply of goods and services to the Nigerian oil industry. The description captures the structure and characteristics of the supply and service companies that handled the bulk of the contract value in connection with upstream oil and gas activities in Nigeria in 2002. For Shell and Chevron less than 20% of the contracts cover more than 80% of the total contract spend for 2002, while for Exxon Mobil they covered less, but still a lot, roughly 50%.

Altogether these operators have provided information on 447 contractors[9] in 2002 with a total contract value of more than 2,8 billion USD, which ought to be a substantial share of the total annual expenses related to upstream oil and gas in Nigeria. The contract value may, however, refer to expenses that will occur over more than one year.

These major contracts are used to determine the relative involvement of domestic and foreign companies in Nigeria's upstream oil and gas activities, and the location of value addition activities to provide these supplies. Table 5.1 distributes the number of major contracts by the location of their value addition activities and by majority ownership, whether foreign or Nigerian investors. Altogether these major contractors number 447[10].

256 of the 447 major contractors, i.e. well above 50%, are majority owned by Nigerians, or what would be labelled indigenous companies. However, the bulk of these seem to operate as agents, or traders, importing goods and services for the Nigerian upstream oil industry, with only minor contribution to local value addition. They are of less importance for local industrial growth and national wealth.

79, or less than 20% of the 447 major contractors, are companies that have located a significant part of their value addition activities to Nigeria. Two third of these contractors are indigenous companies, while one third are owned by foreigners. These are the ones that presumably will contribute most directly to industrial development and economic growth.

[9] The information provided by the operators indicates that some companies are registered in more than one activity area and have executed several contracts in the different names. Therefore, the reference is to the list of contractors that have worked for the specified operators in Year 2002.

[10] A significant number of these companies, altogether 248, seems not to be registered with the DPR as suppliers of goods and services to the upstream oil industry in Nigeria. A number of these companies offer only peripheral services to the oil and gas industry. Still, it underlines the point that was made earlier in the report about the lack of a reliable inventory of companies and their capabilities with regard to supplying the oil industry with goods and services.

Table 5.1: Number of major contracts in Nigerian oil and gas to companies by location of their value addition activities and ownership. Different activity categories, 2002.

	Companies with significant value addition in Nigeria		**Companies with most value addition abroad**		
	Nigerian owned	Foreign owned	Nigerian owned	Foreign owned	TOTAL
Consultancy	6	0	8	0	14
Drilling and well completion	9	5	13	33	60
Environmental services	2	0	5	3	10
Exploration	2	4	0	10	16
FEED	0	0	0	3	3
Gas development	0	0	0	3	3
Hotel and catering	5	0	5	5	15
ICT	5	1	11	4	21
Procurement	8	2	65	11	86
Production facility maintenance	3	1	45	29	78
Projects/construction EPC	6	5	13	30	54
Transportation	9	6	36	36	87
TOTAL	**55**	**24**	**201**	**167**	**447**
	12%	*5%*	*45%*	*37%*	*100%*

Source: Analysis by Kragha & Associates

The major contractors differ in size. Table 5.2 shows the contract value according to the criteria of locating value addition activities and ownership. This shows that

- More than 60% of the contract value is awarded to foreign companies with most of their value addition outside Nigeria.
- Some 25% of the contract value is awarded to companies with significant value addition in Nigeria, of which one third are with indigenous companies.
- The average contractor of foreign origin is much larger than the average Nigerian owned contractor.

Altogether this gives some indication as to the share of local content. We know that 25% of the expenses in connection with the largest contracts is to companies with significant value addition activities in Nigeria. Of course, all of this cannot be regarded as local value, because these companies will also have some imports. On the other hand, also the indigenous and foreign owned companies with low value addition in Nigeria will have some local value

addition, which means that local content is not 0 for the remaining 75% of the contract value. Besides, we should expect that local companies are greater involved in the smaller contracts than the largest, on which this information is based. Thus, even though we lack comprehensive data and import figures for the different major contractors to calculate local value addition exactly, the information suggests that the share of local content according to value addition is well above the 5% that has been launched as an official figure.

Table 5.2: Contract value of major contracts in Nigerian oil and gas companies by location of the contracted company's value addition activities and ownership. Different activity categories, 1000 USD, 2002.

	Companies with significant value addition in Nigeria		**Companies with most value addition abroad**		
	Nigerian owned	Foreign owned	Nigerian owned	Foreign owned	TOTAL
Consultancy	7428	0	2778	0	10206
Drilling and well completion	42847	135939	35091	593284	807153
Environmental services	11018	0	6533	9250	26802
Exploration	1262	11056	0	90413	102731
FEED	0	0	0	40577	40577
Gas development	0	0	0	27978	27978
Hotel and catering	11760	0	5454	31637	48852
ICT	17107	526	11328	17520	46482
Procurement	26356	1062	62105	92248	181772
Production facility maintenance	12367	2656	62375	75243	152642
Projects/construction EPC	83253	269778	28193	657668	1038875
Transportation	18143	61273	63155	234515	377088
TOTAL	**231526**	**482284**	**277015**	**1870338**	**2861165**
	8%	*17%*	*10%*	*65%*	*100%*
Average spend on each contractor	**4210**	**20100**	**1380**	**11200**	

Source: Analysis by Kragha & Associates

When combining the two tables, it is clear that the average contract value in 2002 to a local, foreign owned contractor with significant value addition facilities in Nigeria, is almost 5 times the average spend on Nigerian owned contractors with significant domestic value added. Among the companies with low value addition in Nigeria, the average contract value is 10 times higher to foreign contractors than to the companies that are owned by Nigerians. Thus, the data on major contracts awarded in 2002 confirms a picture of the local supply

and service industry as one consisting of rather few companies with infrastructure for value addition in Nigeria, and where the indigenous ones are rather small.

5.3 Economic and investment climate

The economic and investment climate in the country does not help the development of indigenous companies, and it is the major explanation as to why foreign companies are reluctant to localize value addition activities in Nigeria. Soaring interest rates are detrimental for indigenous companies that cannot access international capital markets, and poor infrastructure blows the operating cost out of proportion for any local producers of goods and services, whether they are indigenous or foreign.

The state of security in the country, and the continuous hostility from the host communities, has largely increased the cost of operations in the Niger Delta. Special provision is often made for communities in the estimation of project execution costs as contractors are often obliged to engage workers from the immediate communities only to be replaced by new ones when work shifts to a different community. This does not make for effective capacity building and technology acquisition.

The issue of corruption also impacts negatively on the investment climate in the country. The bureaucracy that is expected to ease the process of conducting business is so slow that it creates a bottleneck, as the approval process literally wind their way through the labyrinth of officialdom. Corruption slows down the pace of work and increases the cost of doing business in the country.

Under this stressful operating environment, the foreign companies fair better. With prospect for recourse to their home offices for better credit facilities and access to technology, the foreign companies are able to offer services at comparatively lower costs than their indigenous counterparts who have no R&D backing of any sort. Ironically, some aspects of the law that are meant to encourage local manufacturing and protect the indigenous contractor have often turned out to be a disadvantage. For example, custom duties were set at relatively high levels, between 35 and 50% for steel tubulars and plates that are used for fabrication thereby making locally produced items more expensive.

Unfortunately, the law also incorporates a number of exceptions and exemptions that make them counterproductive. The law allows foreign companies, including local ones of foreign extraction to import their plants and machinery on temporary basis with the notion that they will repatriate them after some time, thereby avoiding the payment of duties. Such opportunities are however denied

their indigenous counterparts. Also, the law does not make provision for any distinction between finished goods and imported completely knocked down (CKD) parts that could encourage the establishment of local assembly plants for the industry. Carefully designed, however, tariffs could provide an advantage to local companies compared to their competitors abroad.

5.4 Structure of the supplier and service provider

The environment is not the only thing working against the local contractor, especially the indigenous ones. Many of them are young and very small in size with the average manpower level being less than fifty. Supply chain management is a relatively new concept while Information/Computer Technology (ICT) is yet to be widely used as a contracting tool. Management of these companies is often in the hands of non-technical entrepreneurs who are wary of delegating authority to those with the required competence to run the outfits. With several retired oil industry personnel working in relative isolation as consultants and supplier of goods requiring little or no value addition, the competences are fragmented and cannot match the strength of the foreign companies. This lone-star syndrome has been a hindrance towards merging of small contractors to create larger and more efficient indigenous companies. The plight of the local contractor is made worse by the difficulty for operators to build robust 5 years plans, which contributes to reluctance by the operating companies in intimating local companies concerning future projects. Therefore their investment plans are largely unguided and may have no bearing to the trend of project availability in the industry. Under such circumstances, however, the smaller firms suffer more as they lack the resources to carry out any meaningful liaison activity with the operators.

Typically, the indigenous contractor, having no access to cutting edge technology or information on job opportunities, relies on skills as his only competitive tool, which can only play second fiddle to the competences residing with the international contracting firms. This limitation has forced the indigenous contractors to concentrate on those activity areas that are technologically less demanding.

Recently however, a number of partnership relations are being forged between indigenous contractors and their foreign counterparts with a large number of them in particular technology areas. This trend promises to improve local content and change the outlook of the contracting industry, if pursued with genuineness of purpose. In order to build on this development and advance it more rapidly, efforts should be geared towards having these partnerships operate in those activity areas where the country is believed to have the best potential for improving local content.

6 THE INDUSTRIAL POTENTIAL FOR OIL-RELATED BUSINESS

One part of the study had focus on technologies and competence related to the Nigerian oil and gas industry, with a view to assess status and requirements and to identify areas with the largest potential for Nigerian local contribution in the short and medium term (2-5 years).

For this purpose a technology assessment workshop was conducted in Lagos on the 6th of November 2002 with 15 local E&P experts attending. The objective of the workshop was to evaluate E&P technologies with respect to their

- current level of competence in Nigeria
- criticality for contribution to new field discoveries and developments
- potential for impact on local content in the Nigerian E&P industry

6.1 Technology assessment setup

An inventory of E&P technologies formed the basis for the expert assessment. The inventory was organised along a field's lifecycle (*Exploration*, *Field development* and *Production*) and grouped into 17 major technology areas. The technology areas were further detailed into 117 functionally oriented specific technologies[11]. In this context *technology* was regarded as the whole complex of knowledge, skills, routines, equipment and engineering practice going into the design and implementation of a product, process or service.

The workshop proceedings were based on the local content definition as presented in the report of the National Committee on Local Content ("The quantum of composite value added to, or created in the Nigerian economy without compromising quality, health, safety and environmental standards"), and the work process with structured assessment and ranking of technologies against multiple criteria was supported by collective consensus building. The criteria applied for rating of the technologies on a scale from 1 to 10, were:

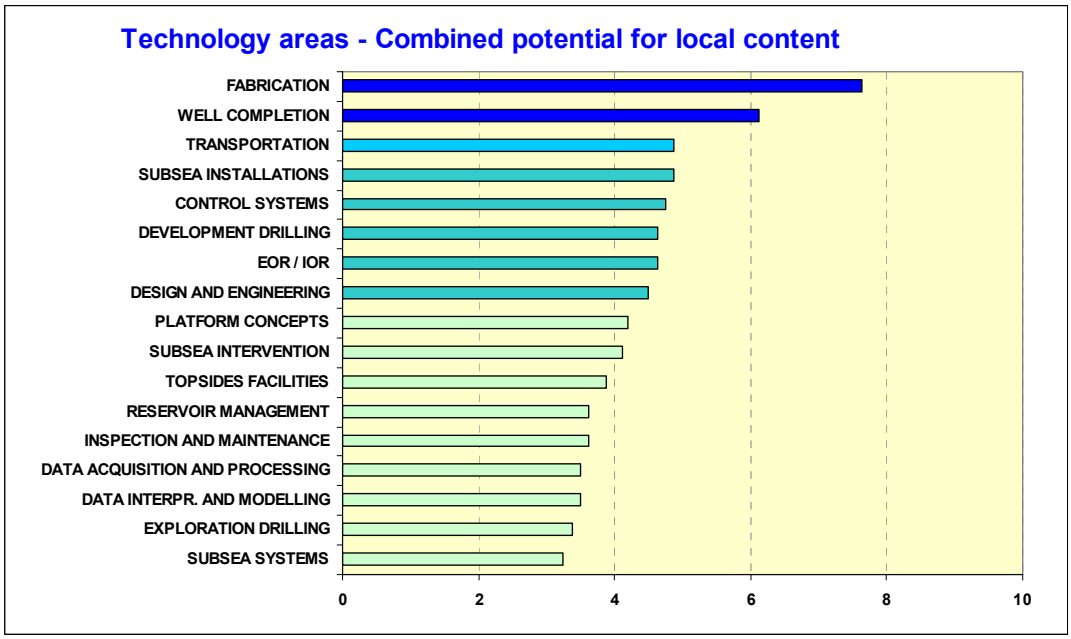
1. Criticality for improving discovery and cost effective exploitation of Nigerian petroleum reserves
2. Contribution to improved HSE standards
3. Current competence in the Nigerian environment (universities, R&D institutions, local industry) relative to leading international competence

[11] This report refers mainly to the functional technology areas. For details of which specific technologies were included in the respective areas, reference is made to the two Technology Assessment study reports (ref. appendix 2).

4. Potential contribution to new Nigerian employment, both directly and indirectly
5. Potential for increased share of locally manufactured equipment from Nigerian supply and service industry
6. Development potential for local expertise (personnel) within Nigerian supply and service industry as well as operator companies

The material produced during the workshop was analysed with respect to each of the criteria and provided a good basis for further derivations. The graph below is an example of how results were presented and shows the technology areas' combined scores for criteria 4 (employment) and 5 (manufacturing). This illustrates their overall potential for increased local content, and it comes quite clear that work related to fabrication and well completion stand out as potentially strong contributors.

This chapter summarises the findings from the workshop and outlines some technology based strategies for increased local content. Full details of the workshop and the scores for the individual technologies are available in two supporting study reports (ref. appendix 2).

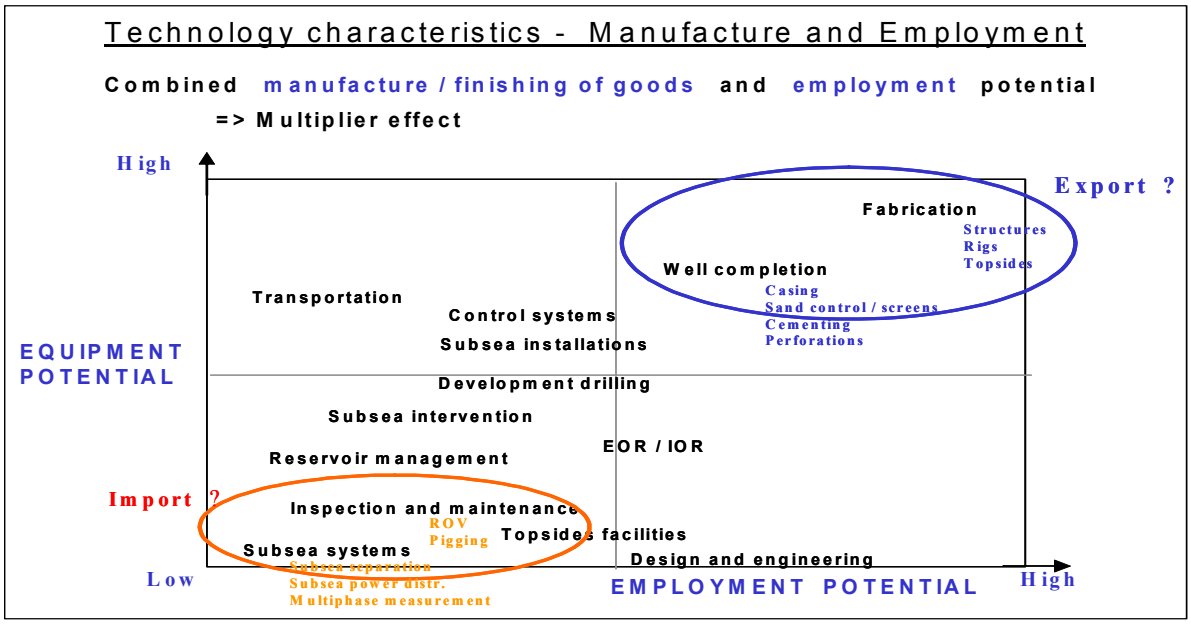


6.2 Local content through added value – Candidate technologies

The two main value adding local content criteria applied in the workshop, namely increased components of Nigerian employment and equipment will, to

some extent, address different aspects of activity. All technology areas were judged to have some scope for higher local content, however the scope has different characteristics dependent upon which efforts are involved. I.e. some areas are characterized by a strong element of costly, advanced equipment being provided from local sources but relatively low in terms of manpower requirements, whilst other demand high numbers in manpower to provide services or equipment which cost is made of work effort and to a lesser extent the cost of the materials. Also, the efforts vary in duration from intensive project work to longer duration operational tasks. Thus, there are several factors that come into the equation when assessing potential for added local content in terms of monetary value.

In the figure below the technology areas are placed in a grid according to their score against the criteria listed at the two axes. It illustrates how the combination of provision of equipment value and employment can be key to increased local content, where for instance finishing of goods can play an important role. One example of high percentage 'value added' is when a low value steel plate is imported and turned into equipment within Nigeria. Typically fabrication activity can be a major contributor through labour demanding transformation or refinement of raw material into high expenditure capital assets.



Two technology areas scored particularly high on the two main criteria: **Fabrication** and **Well Completion**, which both encompasses a wide range of services and facilities. The expert panel judged these as areas, which will count strongly, and where increased local content may be achievable in the short and medium term, given that certain prerequisites are put in place. Other technology areas with high score for potential local value added were **Transportation**,

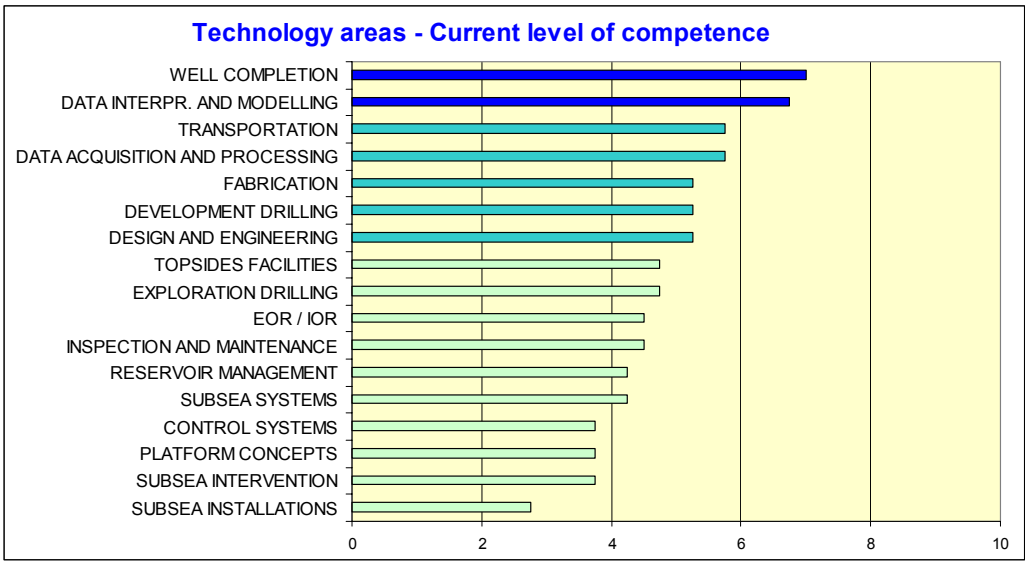
Subsea installations, **Control Systems**, **Drilling, Enhanced/Improved Oil Recovery** (EOR/IOR) and **Design and engineering**.

Inspection and Maintenance was rated amongst the areas with less potential for local content in the short and medium term. This is misleading and an unfortunate effect of the dominance by *inspection* technologies (ROV, Pigging and Corrosion prevention), which were listed in the Inspection and Maintenance inventory used during the workshop. An underlying assumption was that modificaton, maintenance and operations work (**MMO**) demanding engineering and construction capacity implicitly was covered by the categories **Fabrication** and **Design and Engineering**, which clearly were ranked as potentially high contributors for local content increase. Thus MMO, i.e. engineering and fabrications related work during the operations phase, must also be counted in as an area with potential for more local value addition.

The mentioned technology areas are discussed in more detail in section 6.4

6.3 Current state of local competence

The technology assessment workshop rated technology areas for current competence in the Nigerian environment (universities, R&D institutions, local industry) very low relative to leading international competence.



In addition to afore mentioned fabrication, transportation, drilling and well orientated and design and engineering activities, the panel judged the geo disciplines to have a relatively strong position in Nigeria. Although they may not have the highest potential for manpower or equipment value, utilisation of the Nigerian expertise in data interpretation and modelling work gives local ownership, understanding and influence in the processes which evaluate

prospects and propose the exploitation strategy for the nation's most valuable natural resources. These processes have high impact on the further level of investments and choice of contracting strategy for seismic campaigns as well as exploration and appraisal drilling.

6.4 Promising areas for local content development

It is essential for value creation and economic growth based on local content enhancement that industrial prerequisites are present or may be developed. The technology assessment workshops identified areas that according to the experts where the most promising for local content development in Nigeria. Combined with the information on the supplier and service providers in Tables 5.1 and 5.2, this ought to be quite realistic. Below we make a closer consideration of the areas, which we expect to be the most promising for developing local content.

6.4.1 Fabrication and construction

Fabrication is probably the most developed manufacturing area in the Nigerian petroleum industry. For several years, several items and parts have been fabricated in yards located mainly in Warri and Port Harcourt and there seems to be a boom in recent times starting with the establishment of Niger Dock, a recently privatised ship building / repair outfit located in Lagos. With a total national tonnage capacity of about 23,000 tons spread among a dozen or more yards, the handling capability of the yards would however, still be limited to items of small and medium dimensions meant essentially for the conventional terrain for which the fabricators presumably have proven competence.

Several of the yards have, however, been engaged in some of the ongoing deep offshore developments in the country. For example, the flare boom for SNEPCO's Bonga field is being fabricated by a newly established DAEWOO yard in Warri notwithstanding that the boom is estimated to cost 40% more than if it was built in Korea. Several companies in Lagos, including Dubi, Dorman Long and Niger Dock, are doing the anchor suction piles for the same field. Other simple jobs such as fabrication of subsea templates, manifolds and small welding works are given to local contractors.

Fabrication as a major construction endeavour in Nigeria has come to stay, but it suffers a number of limitations. Limited capacity installation and technological innovation would continue to plague the industry even as it is striving to mature into relatively more demanding deep-water fabrication. Also, the uncertainty of work continuity could lead to the closure of some of the small yards who may not be able to sustain long periods of dormancy imposed on the industry by

myriads of problems including the changing fortune of the industry, disruption of operation and budgetary/cash call constraints.

Probably one of the neglected areas in the fabrication/construction sub activity sector is the use of concrete. There are a number of cement factories in the country, which coupled with a pool of competencies existing in the concrete construction industry should engender relevance for the petroleum industry. So far, however, none of the cement factories produces the range required in the industry. Besides, the level of production is yet to meet the basic need of the construction industry, which is the major consumer. This probably explains, in part, why concrete platforms are rarely installed in the country. Nevertheless, concrete platforms should, when economically justified, be regarded as a technological solution with an inherent opportunity for high local content enhancement.

6.4.2 Well construction and completion

Drilling as an area of expertise is fairly well developed in Nigeria, though the accessories required for the job, including casings, drilling fluids and cementing materials are largely imported. Hence the term "well construction" is used to qualify the areas where local competence is fairly developed. Several Nigerians own drilling and work-over rigs for onshore and shallow water operation, which have been able to compete with multinationals in securing jobs. A number of indigenous companies currently engage in mud logging, directional drilling, measurement while drilling (MWD), cementing, wireline logging and other activities. To a large extent most of these companies are restricted to onshore and shallow water jobs, requiring limited economic and health / environmental (HSE) risk exposure compared to the deepwater where proven experience and flawless operation is required to forestall costly mistakes.

Presently, casing and tubing are not manufactured locally. However, whether local steel plants should be encouraged to manufacture such products is another question, as the international manufacturers are already struggling to stay afloat.

Deposits of bentonite and barites are located in some parts of the country, but the factories for turning them into industry grade drilling fluid materials are still at their rudimentary level. However, rather than fine-tune the plant with a view to improving the quality of its output, the industry has concentrated on imports, having succeeded in overturning the ban that was imposed a few years back. Albeit, the increasing use of pseudo oil muds, especially for deep offshore drilling, is bound to impact negatively on the use of bentonite and barites as major input to drilling fluids and thereby restricting their use largely to the conventional terrain. Be that as it may, developing the local industry for

production of bentonite and barites would go a long way in reducing import dependence on the items.

In addition to drilling, well completion, as complementary services to well construction, is also fairly developed locally. A number of indigenous companies with foreign partners undertake such jobs as core handling, completion fluid filtration, running of completion strings, installation of pressure gauges and well testing services. Though lacking the expertise and experience to compete effectively with the traditional contractors including Baker, Schlumberger, and Halliburton, they have succeeded in carving some niche for themselves in the conventional terrain, while the bigger and more capable international companies take on more complicated or advanced jobs, especially in the deep offshore.

6.4.3 Modification, maintenance and operations

The MMO area comprises a cross section of field development disciplines and operations support being executed after field start-up. Prominent areas are Design and Engineering and Fabrication, ranging from front-end studies through design, construction and installation of platform modifications. It is also being practised to classify the development of marginal fields through refurbishment or extension of existing facilities as an MMO task.

For the specialist disciplines involved the foundation and potential for local content is discussed under the respective headings in this chapter.

6.4.4 Transportation

Transportation in the industry can be considered in three parts comprising road haulage, marine transportation and pipeline transmission. Airline transportation relating to the industry is still firmly in the hands of foreign companies.

Road haulage is the most popular means of transportation for onshore operation because of the poor state of rail transportation in the country. Courier services, which used to be the preserve of major international companies, have now become common-place due to the inefficiency of the local postage system even as some of these international courier companies now engage in road haulage business. Nonetheless, several of the more successful road haulage companies are locally owned, although the trucks used are not manufactured locally.

Both local and international companies are active in marine transportation services for swamp and offshore operations. Various types of marine vessels including tugs, lay barges, supply boats and crew boats are deployed in the industry with many of them operating from private jetties lining the coastal part

of the delta. Nigeria has a crop of highly proficient seafarers with international experience that can be engaged in marine transportation.

Shore-base facility is one area that has been a monopoly of a foreign company, which operates with the blessing of the government agency in charge of port services. With virtual control over the coastal waters and access to a good portion of yard facilities within the nation's ports, the company determines the charges payable by vessels for pilotage and other services while undertaking the collection on behalf of the government. Some form of competition in this area would reduce the exorbitant rate paid by seagoing vessels and industry operators on marine and maritime services.

Perhaps, the most unsung area of transportation is the provision of line pipes for transmission of crude oil and gas. Nigeria imports a large volume of linepipes, mainly from the Far East. There were three plants for pipeline (cement) coating, but only one of them is operational today. Sometimes, coating is done overseas but invariably has to be redone locally due to damage during transportation. While establishment of a flat sheet factory in the country may be considered a good business decision, the need to establish a vibrant inspection, maintenance and repair (IMR) industry must be taken seriously as an integral part of transportation services.

6.4.5 Control systems and ICT

Significant amount of work is being done locally in the area of control systems mainly undertaken by international contractors including ABB, AMEC, Saibos and Bouygues Offshore. These companies engage a number of local hands in the execution of the jobs and use local fabricators for assembly of the less sensitive components. The growth of this technology area would be encouraged by the growth of deep offshore production activities.

6.4.6 EOR/IOR

With maturity, the conventional terrain is yielding less and less discoveries and the old fields are producing less oil. Although most if not all of Nigeria's production of crude oil come from natural reservoir energy, there will come a time when external energy would be required to profitably produce the remaining oil in some of the fields. Apart from the usual practice of water flooding or gas injection for reservoir pressure maintenance other methods of enhanced recovery including the use of surfactants and artificial lift pumps could be put in place. This area of technology is believed to hold large potentials for the future as the major operators move to the deep offshore while leaving the onshore and shallow marine to less technologically endowed companies. In fact, the trend might have started with the recent allocation of marginal fields in the

Niger Delta to thirty-one companies, mostly indigenous operators. Some of the allocated fields are so small and complex that they would require some unconventional development approach to make them profitable.

6.4.7 Design and engineering

The design and engineering disciplines were judged to have a fair competence basis and good potential for local content contribution. Through the early phases of field development planning, several studies are made regarding development concepts, which in turn influence the choice and decisions for the development, i.e. what structures to be built. Further, the engineering phases define contracting strategies, which include the design of work packages. These activities can have great impact on the feasibility for participation of local companies in the bid process.

6.4.8 Consultancy

In 1988, the standing order which required operating and service companies to get clearance/ approval from the DPR before retrenching any Nigerian staff was reversed. This resulted in the stagnation of direct recruitment, training and development of Nigerians by the companies with a concomittant increase in the use of expatriate staff and engagement of Nigerian contract personnel. Over the years there have also been periodic restructurings in both NNPC and DPR as well as the major operating companies, which have led to retrenchments of highly trained and experienced staff. These factors, coupled with an early retirement age, in some companies as low as 55, have produced a pool of Nigerian consultants in various activity areas. These consultants operate within small outfits providing technical services. However they have been unable to muster the financial resources required to set up manufacturing plants, factories, or R&D units to increase their capabilities.

Over the years Nigerian consultancy companies have provided limited services in data processing and interpretation; reservoir management; field development planning; well drilling/ completion facilities; production monitoring and related services; road and shallow water transportation services; flowline, flowstation and pipeline rehabilitation and construction services, etc. Albeit, the operators have not considered them capable of handling deepwater operations notwithstanding the capabilities of these contractors, given their experience in conventional terrain. Though deepwater operations constitute only a smaller share of the total value of work projected for the region within the next five years, local companies should be given the leverage to execute some of the work.

Consultants constitute an effective reservoir of manpower capable of feeding the different activity cells that have been identified in this study as having high potentials for local content growth. For greater effectiveness, however, they will have to transcend the prevailing tendency to operate individually, and instead, form larger and more viable consultancy companies with the ability to develop their own staff and to effectively compete with the international service companies. Again, local consultants need to be encouraged by operators. Current practices such as the non-payment of Nigerian firms and companies by operators whenever there are delays in joint venture cash calls is enough to literally kill these companies which are not strongly established enough and therefore may be seriously affected by such actions.[12] Improved access to hard currency funds will also be a major need for the consultancy companies.

6.5 Demand from the Nigerian upstream oil and gas

Douglas-Westwood (2003) has, on behalf of INTSOK, prepared a market report on oil and gas activities in Nigeria for the years 2003-2007. It shows that total expenses related to upstream oil and gas in Nigeria, i.e. capital expenditure (Capex) and operating expenditure (Opex) is estimated at over 6.3 billion USD in 2003, rising to over 8.2 billion USD in 2007. According to Table 6.1, offshore Capex is forecasted to grow from 2.4 billion USD to 3.6 billion USD over the period 2003-2007, representing over 50% growth in the period. Although there is considerable growth forecast in the offshore arena, the extensive onshore infrastructure leads to onshore Opex at the same level as offshore Opex.

Table 6.1 Expenditure Trends 2003-2007 ($m)

	2003	2004	2005	2006	2007	2003-07
Offshore Capex	2,411	2,926	3,061	3,178	3,640	15,216
Onshore Capex	1,269	1,315	1,327	1,374	1,389	6,674
Offshore Opex	1,224	1,303	1,455	1,610	1,730	7,323
Onshore Opex	1,429	1,458	1,472	1,486	1,501	7,346
Total Expenditure	6,333	7,002	7,315	7,648	8,260	36,559

Source: Douglas-Westwood, 2003.

6.5.1 The offshore market

According to the report, the Nigerian offshore sector is poised for a period of strong growth throughout the period 2003-2007, dictated by a growth of expenditure and activity within the key market sector of subsea fields, fixed and floating platforms and drilling and wells (cfr. Table 6.2). While Nigeria will maintain levels of activity within its extensive shallow water operations, the

[12] The wider issue is that operators have to make long term commitments while the industry in Nigeria is funded through an annual budget cycle. This can lead to cash-flow problems and damage to the local businesses.

principle driver for this growth will stem from the initial forays into the nation's highly prospective deepwater acreage.

Table 6.2: Nigerian Offshore Sector Expenditure 2003-2007 ($m)

$m	*2003*	*2004*	*2005*	*2006*	*2007*	*2003-07*
Seismic Acquisition	30	32	40	40	38	180
Seismic Equipment	4	5	7	7	6	29
Reservoir Modeling	4	4	5	8	8	29
Drilling & Wells	1,028	1,172	1,431	1,280	1,152	6,064
Downhole & Well Services	297	338	413	368	340	1,756
EDPM	120	140	130	163	242	795
Fixed Platforms	623	690	421	605	588	2,927
Floating Platforms	578	712	842	987	1,717	4,836
Subsea Fields	152	320	327	266	145	1,209
EI&T	24	28	29	35	55	171
Marine Equipment	47	58	68	80	139	392
Maintenance	122	130	146	165	177	741
Modifications	490	521	582	640	688	2,921
Operations	612	652	727	805	865	3,661

Source: Douglas-Westwood, 2003.

Expenditure within the offshore sector will be dominated by drilling and wells during the period 2003-2007, as over the period it is forecast to account for just over $6bn and in turn drives levels of activity within the downhole and well services, seismic and reservoir modeling market segments. An anticipated peak in 2005, and subsequent moderate stagnation, will see drilling and well expenditure overtaken by the vibrant floating platform sector in 2007 as the area with the highest annual spend. During the course of the period levels of spend on floating platforms are expected to all but triple, from $0.58bn in 2003 to $1.72bn in 2007, and total $4.84bn for the period as a whole.

There is a marked transition between predicted levels of activity within the fixed and floating platform sectors during the period, for as the latter enjoys a period of exponential growth it is believed that expenditure on fixed platforms will initially remain dormant before declining at the end of the period. This change is indicative of the growing significance of deepwater developments within the sector, and is expected to continue through to the end of the decade. Collectively the levels of activity in the fixed and floating platforms sectors dictate levels of expenditure within the EDPM and E,I&T segments, which are in turn forecast to flourish through to 2007. Levels of activity within the floating platform market are also a major driver of the marine equipment segment, which has been projected to enjoy a sustained phase of dynamic expansion.

The strong growth expected within the Nigerian offshore sector is exemplified by the growth of operational expenditure. As the market matures and develops over the course of the next five years there will be a sequential growth in levels of spend on appropriate maintenance, modifications and operations activities, to the point that over the period there is forecast to be a 41% collective growth of such operational spend to $1.73bn in 2007.

6.5.2 The onshore market

According to Table 6.3, Nigerian onshore expenditure between 2003 and 2007 is anticipated to be relatively static, as over the period total expenditure is forecast to rise by just 6%, from $2.7bn in 2003 to $2.9bn in 2007, largely dictated by the stabilization of production levels. The relative maturity of the sector is reflected in operational expenditure largely dominating total spend over the period, representing 52% of period spend at $7.35bn. Each of the principle sectors of expenditure are, however, forecast to exhibit a trend of sustained growth, for even as production levels off a continued growth in wells drilled, for instance, illustrates the continued exploration of onshore areas which in turn drives a growth in both capital expenditure and drilling expenditure.

Nigerian onshore capital expenditure is expected to grow throughout the period 2003-2007, from $1.15bn in 2003 to $1.21bn in 2007. Civil Engineering, largely in the form of major construction projects, is the principle contributor to this spend, accounting for approximately 28% of annual capital expenditure over the period and peaking at $334mn in 2007. Associated drilling expenditure is also projected to be a major area of investment, for as levels of drilling activity grow through to 2007 related expenditure in areas such as completions and the supply of equipment will be essential with a forecast period spend of $1.45bn, with annual expenditure rising from $$281mn in 2003 to $296mn in 2007.

Table 6.3: Nigerian Onshore Expenditure 2003-2007 ($m)

$m	*2003*	*2004*	*2005*	*2006*	*2007*	*2003-07*
Operational Expenditure	1,429	1,458	1,472	1,486	1,501	7,346
Capital Expenditure	1,154	1,177	1,189	1,201	1,212	5,933
Drilling Expenditure	115	138	138	173	177	741
Total	2,698	2,773	2,799	2,860	2,890	14,020

Source: Douglas-Westwood, 2003.

Operational expenditure is anticipated to grow from $1.43bn to $1.5bn between 2003 and 2007, with a total investment of $7.35bn forecast for the period as a whole. This expenditure is largely driven by spend on field equipment (48%), which essentially constitutes the maintenance, modification and operation of individual field's developmental infrastructure. From an initial spend of $685mn in 2003 sectoral investment is anticipated to grow through the period to $719mn in 2007, totalling an anticipated $3.52bn for the period as a whole. Other areas of specific note include expenditure on civil engineering, the maintenance of onshore pipelines and the workover of wells drilled in previous years.

Nigerian onshore drilling is expected to experience a period of strong growth between 2003-2007 with a 34% growth in the number of wells drilled over the period. This expansion in wells drilled in turn drives a rapid increase in drilling expenditure from $115mn in 2003 to $177 in 2007. Such activity is anticipated to generate a total expenditure of $741mn, which in turn necessitates an associated growth in related expenditure (Wells & Services).

6.5.3 Industrial potential

The market report from Douglas-Westwood clearly documents that there will be a huge demand requiring substantial industrial activities to carry out the activities that are likely to be undertaken in upstream oil and gas in Nigeria over the coming 5 years. It also shows that the demand will be rather extensive in most of the technology areas that have been identified in this report to offer the greatest industrial potential for Nigeria. Thus, the market conditions that are required to enhance industrial development and growth seem to be present in Nigeria. In the next two chapters we discuss political and industrial approaches to realize this industrial potential.

7 TARGETING LOCAL CONTENT IN INDUSTRIAL POLICY

There are pitfalls and trade-offs that one needs to pay attention to when focusing on how to enhance local content. Such issues are addressed in this section in order to come up with a viable policy for the enhancement of local industry development in connection with upstream oil and gas activities, i.e. to create a broader industrial base to generate national wealth. We underline that there are several caveats to be aware of when pursuing a policy of enhancing local content. The study group advocates that the focus, in order to generate wealth, ought to be on how local content may be promoted on a competitive basis, and not primarily on protective measures. Furthermore, attention ought to be paid to the industrial role that the national oil company take, while awareness should be devoted to potential pitfalls inherent in some local content policies.

7.1 Why stimulating local content may be sensible

The general concern for industrial policy should be to enhance private sector development in general. Thus, one may ask why the government should bother about industrial development in one particular area, as it will be when focus is on how to enhance local content in connection with upstream oil and gas. Furthermore, one may ask if it is a wise policy to try to increase local content in connection with upstream oil and gas, when Nigeria's economy already is heavily dependent on oil and gas.

Such theoretical considerations do not, however, take into account the mechanisms that actually generate industrial growth. It is not anything you decide, or anything that comes out of nothing. Rather it is a demanding interplay between established industrial capabilities, how these may evolve when they are employed to solve challenging tasks, vis a vis their improvement potential through technology transfer from cooperating with other companies. In that sense, Nigeria has a unique opportunity as the domestic petroleum activities provide challenging tasks, which attract the interest of leading international companies. Thus, through local content requirements for the upstream oil and gas industry, domestic resources may be linked to the most prominent firms in their field of business, through which industrial capabilities may be developed locally. Such industrial capabilities, even though developed through oil and gas projects, may in turn have much broader applications than just upstream oil and gas activities.

7.2 How to define local content

It is important to notice that local industrial development require the use of domestic resources, mainly domestic labour and skills. It may take place in indigenous companies, or companies that are owned by foreigners. . This is important, because research from other industries concludes that local content requirements are not very successful in developing an indigenous industrial base, but somewhat more successful in bringing in the primary foreign investors' international suppliers to the host country. In turn, collaboration with local companies and the dynamics that follow from such impulses, may have positive impacts on the development of indigenous companies. We therefore suggest that **local content should be defined in terms of value addition in Nigeria** (by local staff, local materials, local services and facilities) rather than in terms of ownership of the company performing the value added activities. In a globalized industry a local subsidiary of a multinational can be just as effective in using local inputs and developing capacity and competence in the Nigerian community as a company in which Nigerians hold a majority of the shares. This has clearly been the case in Norway and Malaysia where local content has been high and local content has been defined as value added in the host country rather than defined in terms of ownership of the supplier.

The definition of local content[13] in the Report of National Committee on Local Content in the Upstream Sector is given in terms of value added in Nigeria or by Nigerians "without compromising quality, health, safety and environmental standards". This report gives guidance to how local content should be measured. Real appreciation only seems to be given to value added from companies owned at least 60 percent by Nigerians living in Nigeria. This is much narrower than focusing on value added in Nigeria regardless of ownership, and will probably work contradictory to Nigerian welfare.

7.3 Focus on facilitating local participation on a competitive basis

Local content can normally only be achieved by enforcing measures which imply some kind of protection for domestically based companies, preferably only temporarily. The industrial policy should not, however, have its prime focus on the protective efforts, but on efforts that can facilitate the participation of domestic firms in the domestic petroleum activities on a competitive basis. This calls for a wide variety of measures to overcome barriers to entry, as well as to deepen and extend local industrial capabilities:

[13] The unpublished memo from Kragha & Associates in 2002 *Local Content in Nigeria: Law, Policy and Practice*, has a more extensive discussion of the legal framework around the oil industry.

- **Barriers to entry in the industry.** As the discussion of the supply chains in the upstream petroleum sector in chapter 2 suggests, there probably is a case for government intervention in order to lower local industries' barriers to entry. Closely knit international supply chains combined with widespread use of framework contracts, long-term service contracts and centralized procurement may constitute a formidable barrier to entry for local suppliers. When such contracts are anti-competitive, there is a case for regulations limiting the scope and duration of the contracts and opening for more competitive practices. Other market imperfections relate to lack of information and switching costs for the oil majors or the major contractors who already have established relationships with suppliers that provide goods and services to the multinationals globally. Nevertheless, the supply chain approach taken by the oil majors and their contractors is probably the most efficient, and it is the best-practice industry standard today. The Nigerian government should therefore be careful not to impose regulations that excessively fragment the supply chain.

- A **creative and demanding environment for business development.** Business may face barriers to entry of a local origin, which effectively prevent the enhancement of local content. Such locally generated barriers to entry are lack of or poor infrastructure, inefficient business licensing procedures, slow and inefficient pre-qualification and certification procedures, skills shortages and strict regulation on labor migration and lack of access to credit[14]. These are shortcomings that increase costs of local companies enormously, and these are areas where government clearly has a role to play. Focusing on providing and maintaining the necessary infrastructure, improving education and health services and having a transparent regulatory framework would help in making the local supply industry more competitive. Moreover, it would contribute to higher level of welfare in the country.

- **Improving local skills and capabilities.** From the comparative study we have seen that measures to develop the local supply industry through R&D programs where the oil majors also contribute with funding, expertise or both, have been employed in Norway and Malaysia. These are programs aimed at narrowing the technology gap between domestic and foreign companies, and have been relatively successful when there is an industrial base to build on. Research from other industries suggests that supplier development programs supporting R&D, training, product development, testing and factory auditing have been successful when

[14] The challenges regarding the financial system of Nigeria is more thoroughly discussed in a memo from 2002, *Financing of Oil and Gas Transactions in the Upstream Sector of the Nigerian Petroleum Industry*, which is available from Kragha & Associates.

there is a sufficient supplier base to build on. Government can encourage such programs in several ways: providing information through listings or databases of potential local suppliers, or expenditure on supplier programs could be tax deductible under given conditions.

7.4 The industrial role of the national oil company

From the comparative study we have seen that domestically based, state-owned oil companies have played an industrial role in every country. Statoil, Petronas, Pertamina and NNPC were all established as non-operating companies with the objective of managing the nation's petroleum resources on behalf of the nation. They all had the objective of becoming operating oil companies when established, and they all entered into technology transfer agreements with the oil majors in order to acquire the necessary capacity to become operating upstream oil companies. Pemex in contrast was established as an operating company right away, taking over the operations of the oil majors when the industry was nationalized. Petrobras took an intermediate position starting with refining and distributing imported oil. Statoil, Petronas and Petrobas have later developed into multinational fully integrated oil companies, Pemex has become a local fully integrated oil company while Pertamina and NNPC remain national oil companies with limited activities outside the national borders.

Lessons may be drawn regarding how the national oil companies have designed and fulfilled their industrial role in at least the following three areas:

- **Diversification.** In some of the countries, i.e. in Malaysia, Brazil and Indonesia, the national oil company has also been used as an instrument for industrialization in more or less related industries. The national oil companies have ventured into petrochemicals, fertilizers, steel, transport, and in some cases totally unrelated business such as car manufacturing, financial services and hotels. This has in most cases turned out to be a financial disaster, and the policy has therefore been abandoned in all countries except Malaysia, where such policies have been combined with competitive export-oriented markets. Nigeria does not have the industrial capacity, competitive environment and the checks and balances as Malaysia had. The lessons from the other case studies, and not least Nigeria's own past experience with state-owned heavy industries, indicate that **further experiments with channelling the oil revenues into new non-petroleum ventures through the national oil company, or other state-owned or subsidized enterprises, are unlikely to create value for the nation.**

- **Regulatory functions.** The six national oil companies from the comparative study differ in the extent to which regulatory powers are vested in the companies. All six have had some regulatory powers in the early days and all six have had privileges as state-owned companies. However, over time it has become clear that **regulatory powers should be strictly separated from operating activities**, in order to ensure transparency and to avoid creating a fertile ground for rent-seeking and outright corruption. All countries have introduced reforms to that effect, but to varying extents. Nigeria still has a long way to go before regulations and operations are strictly separated.

- **Competition and cooperation.** The case study further indicates that technological capacity and skills alone are not sufficient to establish an efficient and sound operating national oil company. There is also the need to put the right incentives in place for utilizing the capacity and skills in an optimal way, given the national objectives for the industry. The regulatory framework determines the incentive structure to a large extent. We argue that **facing the discipline of the market after a relatively short period of protection will provide the needed incentives for efficiency**. Further, it also seems important to design the contract with the oil majors in such a way that both parties gain from technology transfer. This is crucial for avoiding a situation where the oil major carries the national oil company financially and technically in perpetuity. It is not possible, however, to draw any firm conclusions on what is the optimal contractual relation between the oil majors and the national oil company when the objective is to transfer technology and develop the national oil company's competence. Nevertheless, it is clear that joint ventures are not a good idea when investments are substantial and the national oil company is financially weak. It is also clear that the less exposed the national oil company is to financial and technological risk, the less incentives will it have to chose the lowest cost and technologically sound solutions when these are in conflict with other objectives such as increased local content.

7.5 Potential pitfalls when local content is targeted

Protection of local companies is no assurance of industrial successes. In fact, there are several pitfalls one should be aware of when promoting a policy of local content, even though some may be less severe if measures to enforce local content employ labour and capital that otherwise would have been unemployed. Altogether, the following pitfalls are observed:

- **Consuming wealth rather than creating value.** When local content is required, it means that local suppliers do not make it in ordinary market competition. This further means that the cost of local technology is higher than what it would have been from foreign firms. The only reason to accept higher costs from an economic point of view, is to consider it as an investment, that will pay off in the future. If it is possible to acquire industrial capabilities that will generate more value in the future, higher costs at present may be justified. However, if more value added in the future does not compensate for higher cost at present, **there is the risk that the supply industry eats from the oil wealth instead of adding value to it**. Furthermore, **there is a risk that local suppliers to the oil industry will crowd out other, more viable industries** that furthermore have larger potential for employment creation than the upstream petroleum industry and its supply industry. Thus, it is important to pay due regard to cost efficiency, even in a context where local content is in focus.

- **Attracting high cost investors**. Local content requirements identified in other industries seem to create a business environment that is most attractive to less efficient, high-cost investors. This is because the less efficient have the lowest switching costs, i.e. they have less to lose from choosing more expensive suppliers than more efficient producers. Thus, it must be important to assure that the leading international firms continue to choose to participate in the domestic industry.

- **Risk of permanent protection**. The experience from local content requirements in the upstream petroleum sector as well as other industries indicates that developing a local supply chain **may be successful if combined with exposing the local suppliers to the discipline of market competition after a relatively short period of protection**. Lack of competition, insufficient competence and/or weak regulations on the other hand have led to high costs, brought environmental damage, and sub-standard technology. Malaysia for example, has encouraged local content without distorting local suppliers' incentives for cost effectiveness, while Mexico is an example of the opposite. Brazil has to some extent developed a cost-effective and technologically sophisticated national supply chain within a protective regime. But even in Brazil protection has given way to opening up the petroleum sector to international competition and partly privatization of the national oil company in order to keep abreast with the technology frontier and develop the nation's ultra-deep fields. Still, it is more popular among the local business community to have protection introduced than to have it abolished.

- **Inferior industry development.** Legislation setting a minimum local content requirement has been common both in the petroleum sector and other industries. A closely related measure is to require through legislation that foreign investors, e.g. oil companies, source their inputs locally if local suppliers' price is no more than a given percent above the lowest foreign bidder. Both measures are incompatible with WTO regulations. Besides they have some unintended and detrimental side effects. It may create a plethora of local short-lived and inefficient companies that thrive on the imperative for local content. Imposing a premium for local producers is equivalent to imposing a tariff on imported intermediates, which complies with the treaty obligations of WTO. **Such a tariff is a more general and transparent policy measure and should therefore be preferred to a more discretionary set requirement of local content**.

- **Red tape and corruption.** In the case of minimum local content requirements, if the minimum level is beyond the actual capacity of the local industry, waivers will be necessary. This may easily create a situation of bureaucratic delays of operations as applications for exemptions are being processed. It may also prepare the ground for increased corruption aiming at avoiding such delays. When considering Nigeria, a proposed bill aims at increasing local content from the current 5 percent or so to 30 percent by 2005 and 60 percent by 2010, with differentiated targets for indigenous ownership and the technology levels of activities. Furthermore a Cabotage Bill is at present before the Senate reserving the services of offshore supply vessels for locally owned vessels that are built locally and with a local crew. As there are no such vessels today, and it is way out to expect the share of local content to increase by 5-6 times over the next couple of years, these ambitions are both examples as to how targets may be put far beyond what is achievable. No matter how good the intentions behind these proposals are, they prepare the ground for continuous, and may be increasing, delays and corruption. Thus, absolute minimum levels of local content ought to be avoided, and particularly when set way above levels that can realistically be achieved.

The lesson to be drawn from this pool of pitfalls is that local content does not necessarily have to benefit industrial growth or national wealth. It will only benefit the society if the industrial development is competitive by international standards, which means that the participating companies will have to pass the test of the market after temporary protection. If not, requirements of local content will most likely only benefit some individuals at the expense of the society. This will most likely be the case if protection should become

permanent. It will also be the case if ambitions regarding national content are set way beyond local industrial capacity and capability, as an unrealistic minimum level of local content. This does not mean that the industrial ambition should not be ambitious. It should. But ambitions have to be directed at the real contributing factors to value generating industrial activities.

8 ENHANCING INDUSTRIAL WEALTH BASED ON PETROLEUM ACTIVITIES

The purpose of this project has been to focus on local content in order to enhance private sector development in Nigeria based on domestic petroleum activities. Any strategy to enhance local content will at best, however, only play a minor role in realizing the overall task, which for the case of private sector development is to enhance industrial growth to achieve national wealth. It is of utmost importance to be cautious when outlining the strategy to increase local content, as there are pitfalls that will easily result in wealth destruction rather than wealth creation seen from the society's point of view. Thus, we recommend that a policy to enhance industrial development based on petroleum activities, ought to be approached by paying due regard to 1) how it fits into the overall task of achieving industrial growth in many different areas, and 2) how a policy to increase local content may be outlined to be viable with the ultimate goal of promoting national wealth.

8.1 A comprehensive perspective on local content and industrial growth

In essence, any discussion regarding industrial growth, including efforts to generate growth by increasing local content in goods and services that are needed to extract oil and gas, concerns the issue of attracting investments. Investments are needed to expand capacity and capabilities to generate industrial growth. So it is in the petroleum sector, as in the non-petroleum sector of the economy. And, so it is for indigenous companies to expand, as for foreign companies to establish facilities for manufacturing and service production locally. Investments, however, is not primarily a matter of money. The critical issue is rather to attract industrial competence to engage in projects that will expand current levels of industrial capacity. Thus, the basic challenge is to attract the interest of domestic investors with highly valued industrial competence, as well as foreign investors with the same qualities, to invest in Nigeria.

In a market based economy investments are made when investors find it profitable to invest in a business. It is not obvious how a project may generate profit and attract investors. Investors may consider the same project differently. There are, however, some key areas that constitute framework conditions, which are decisive for the level of investments in a country, i.e. for the magnitude of investments made by domestic as well as foreign investors. This holds true for

investments in general, both in the petroleum sector and the private non-petroleum sector.

In Figure 8.1 we have listed four key areas:

- **The macroeconomic environment,** which is decisive for development of domestic prices, the exchange rates for the local currency, and the interest rate. These are all factors that are crucial for any investment decision. The key concern of investors is not necessarily macroeconomic stability, but that the macroeconomic development is predictable.
- **Institutions and legislation concerning business,** which constitute local factor markets, i.e. labour and capital, and also contains regulation of business relations and activities, and taxation. These areas provide incentives for how investors, the business community and local authorities will act. The key concern of investors is reliability.
- **Infrastructure for business development.** Public utilities as roads, railways and air transport, telecommunications, electricity and water supply will in general constitute an environment, which is more or less enabling for business development and productivity. The standard of this infrastructure will affect profitability considerations for investors when considering investments. So will the educational system, which influence the quality of labor, as well as the health system.
- **Social infrastructure,** which captures how inclusive the society is towards different social groups. Social cohesion reduces the chances of social disorder and violent conflicts. In case of the latter, neither investments nor the possibility to attract foreigners to contribute to technology transfer will be induced under a restive environment.

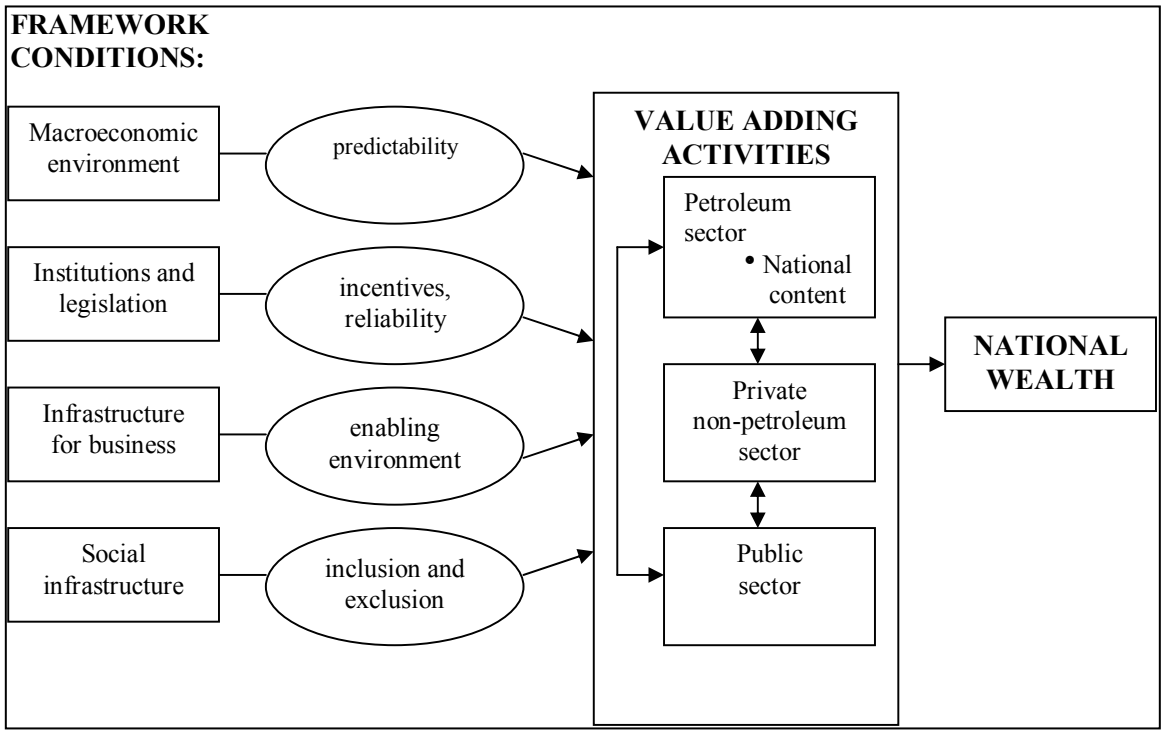


Figure 8.1: A comprehensive perspective on industrial growth and national wealth.

In the case of Nigeria, the country ought to have a huge potential for improvements in all of these key areas. Comparable data is hard to come by. When available, however, Nigeria seems to have a poor performance compared to others. In Table 8.1 we have used data presented in IMD World Competitiveness Yearbook 2002 indicating the quality of the macroeconomic environment in Nigeria compared to the five petroleum-producing countries examined in chapter 4. One indicator concerns the credit ranking of the country on a scale from 0-100 assessed by the Institutional Investor Magazine ranking. The other concerns exchange rate stability calculated as parity change from national currency to SDR over the years 1999-2001. Zero means full stability.

Table 8.1: Credit ranking and exchange rate stability of selected countries

	Nigeria	Brazil	Indonesia	Malaysia	Mexico	Norway
Credit ranking	18.3	42.1	21.6	56.4	55.3	90.0
Exchange rate stability	3.63	0.71	0.16	0.11	0.17	0.06

Source: IMD World Competitiveness Yearbook 2002

The credit ranking of Nigeria as considered by institutional investors internationally is very poor. Of the 58 countries that have been ranked, only

Pakistan scores lower (18.1). When it comes to exchange rate stability in the period 1999-2001, Nigeria shows much larger instability than any of the countries listed in the yearbook. In fact, compared to all the other countries considered, and to the extent that these figures indicate qualities of the macroeconomic environment, Nigeria is not very well positioned.

8.2 Industrial framework conditions

Even before globalisation became a common phenomenon, western companies have been known to establish manufacturing outposts outside of their borders. There is no reason why the next port of call should not be in West Africa and probably the best way to make that happen, is to improve the local infrastructure and encourage enduring partnerships focused on manufacturing.

Nigerian capacity and competence at the moment lie mainly in the low-cost, high volume end of the supply and service industry. However, this does not necessarily mean that Nigeria is a low-cost producer in these areas, but it is more likely to have the technological capabilities in these areas and could compete if costs could be brought down.

Nigeria is fortunate to host some of the most promising resources of oil and gas in the world. This attracts the interest of the leading companies in the petroleum industry world wide, which in turn offers Nigerian authorities a unique opportunity to enable industrial development domestically. Industrial development is a learning process, where capacity and capabilities expand through a process of solving challenging tasks in collaboration with internationally leading competence. Thus, Nigeria is in a position to outline a policy that may benefit the country at large. This is in accordance with the recommendation from UNCTAD in the World Investment Report for 2001, which advocated that industrial development will be enhanced by promoting industrial linkages between domestic resources and leading international companies that invest in undertaking business activities in the country. It is a matter of attracting foreign direct investments, which Nigeria may do with the basis in its rich petroleum resources, and to combine these with the use of Nigerian labour and collaboration with indigenous companies. However, to be able to take full advantage of this fortunate position, **Nigerian authorities should work seriously to get the framework conditions for industrial development right**. This will encourage the development of indigenous companies as well as foreign direct investments.

The comprehensive context in which local content in the petroleum sector has to be considered also contains the impacts it may have on value creation from the petroleum activities, as well as from other sectors in the economy. We recall that

local content requirements do not necessarily have to add value to the contributions from the petroleum sector. In extreme cases, wealth creation may be lower from the society's point of view, in particular if local content is implemented so that business in the non-petroleum sector of the economy is crowded out. This may also be the case if the petroleum activities generate revenues for the public sector, which are spent so that the competitiveness for producers of tradables, in particular in the non-petroleum sector, deteriorates. Thus, a local content policy and public spending have to be outlined and enforced with caution to avoid damaging the opportunities for business development outside the petroleum sector as well. This is why a viable local content policy has to pay due regard to cost efficiency.

The institutional and legal framework concerning business in Nigeria suffers severely from weaknesses that work contrary to the enhancement of sound business development. Nigeria still has a long way to go to separate regulation and business operations in the petroleum sector, the law governing this sector is amended on an ad hoc basis, while the tax system is subject to manipulations. There is no reason to believe that these shortcomings only concern business development in the petroleum sector. Even the legal system, in particular at the local level, is lacking confidence within the business community. From the interviews, the infrastructure for business development is considered to be rather poor, whereas the social infrastructure is marked by huge income differentials, high crime rates and incidents of community related violence.

It seems rather obvious that **improvements in the key areas of infrastructure development and social reengineering will mean more for industrial growth and national wealth in Nigeria than a successful local content policy to enhance industrial development based on petroleum activities.** Thus, it is recommended that the focus and discussion of local content in the petroleum sector should pay more attention to the framework for business development in general. This is decisive for the development of indigenous companies, and for foreign companies to find it profitable to locate value addition activities in Nigeria.

Furthermore, Nigeria ought to **improve its regulation** of the domestic petroleum activities. Currently it suffers from mixing different roles within regulatory authorities. Regulation ought to be strictly separated from business operations. The efficiency of the sector would also benefit if the **national oil company would have full authority to fund and operate its commercial activities**. This would prevent cash-flow problems in the industry, leading to a damaging stop-and-go development for local businesses. Altogether, the legal framework governing the activities is rather fragmented and incoherent. Thus, there is a **need for a revision of the petroleum law.**

8.3 Policies for Government - Industry relations

There is no clear cut, or simple answer, as to how a policy to enhance industrial development with basis in the petroleum activities ought to be outlined. It does, however, have to translate into the employment of domestic labour and companies, which, given the current low level of local involvement, also implies that **local content in the petroleum activities should be significantly increased.**

A prerequisite to succeed with a policy to enhance industrial development by increasing local content in the petroleum activities is to ensure that **decision makers at all levels in the society share the goal of pursuing a policy which will contribute to national wealth through industrial growth**. This means that policy-makers, as well as the executive power, should be aware of trade-offs and pitfalls that a policy to increase local content may entail, as discussed in chapter 7.

Assuming a **conceptual framework for the genuine task of enhancing industrial development** to benefit national wealth is widely accepted, a base is constituted from which a **constructive dialogue can take place** between all parties involved. Then **expectations can be clearly expressed** to the other parties as well. Oil companies, and major contractors, should be expected to contribute to the development of domestic industry that is able to meet the requirement of international competitiveness. Companies in the Nigerian supply and service industry should be expected to improve their performances and gradually reach international standards. This means that they at least should be expected to provide petroleum related services in the entire West African petroleum sub-region and in some areas, even globally.

We recommend that the collaboration between the Nigerian government and the major players in the petroleum activities should have its **focus on the processes of involving domestically based companies, which employ local labour**. Attention should be on how to **facilitate their participation** in the domestic petroleum activities without compromising quality, health, safety and environmental standards. It is also sensible to fix a minimum share of activities, which is expected to be executed by domestic firms. This target, however, should not be unrealistically high, which seems to have happened in Nigeria on several occasions.

8.3.1 Preferential treatment

Any policy which attempts to increase local content, and in particular when the industrial base is weak, must contain some measures which allow for preferential treatment of domestic companies. Theoretically it is recommended to **have a transparent and easily administered policy to ensure preferential treatment of domestic companies**. An import duty would be such a measure, which also should be compatible with the WTO-arrangement. There is, however, a problem in practice as it seems to be easier for foreign multinationals to escape this tariff because of re-export exemptions, than for local firms operating only in the domestic market. Thus, alternatives may be discussed, as for instance to accept a higher cost for local supplies, e.g a certain percentage above the best foreign offer. On the other hand, there is a question of how to calculate the cost base of domestic offers. Ideally, it should be done on value adding activities, i.e. less imports and transfer of profits abroad. Thus, it may be just as hard to administer this fairly, as to impose import duties in a fair way.

Having clarified the extra costs that politicians are willing to accept to promote local content, the government also ought to make it clear that **preferences only are granted temporarily**. For instance, protection may be abolished within 15 years or so, and may be reduced at different stages during this time period. At least the impact of the policy ought to be seriously evaluated throughout this period, to improve the industrial results that are produced.

8.3.2 Enabling processes

In addition to this basic line of thinking with regard to local content enhancement, two other elements should be of importance in a strategy to induce industrial development and growth based on petroleum activities:

1. Oil companies should be challenged to come up with schemes to promote domestic industrial development based on Nigerian petroleum activities, and

2. A government agency should be authorized and allocated sufficient resources, to monitor and assist efforts to increase the participation of local industry in the petroleum activities on a competitive, non-corrupt basis. We suggest that this is preferably organized within the DPR.

The underlying idea in such a strategy is **to encourage the oil companies to compete in involving domestic value adding industry on a competitive basis** and to **let their track record in this respect influence their rights to future oil**

and gas in Nigeria. Conducted in a sensible manner, such a strategy ought to increase the chances for Nigeria to expand and realize its industrial potential.

The **oil companies should come up with measures, which they consider the most effective** to achieve the task. The responsible government agency should be consulted. In this respect, **special attention ought to be devoted to the areas the study team has identified as those with the greatest industrial potential**. We do not, however, recommend that the oil companies shall limit their efforts to these areas. The oil companies should be allowed to decide where they, and their partners, consider that they can make their most significant contribution to local industrial development. In that way, the oil companies can be held responsible for the particular business relations that are developed. The types of measures that the operating oil companies must consider are:

- evolve and operate supplier development programs to enhance the chances of local content
- encourage technology transfer programs, involving for instance the training of Nigerian staff, cooperation with the educational system, balancing the number of expatriate staff in Nigeria with the number of Nigerian nationals in the companies' operations abroad, and/or R&D cooperation with domestic companies and universities
- design arrangements which allow dollar loans at relatively low interest rates to Nigerian companies with the contract as a guarantee
- design contract with milestones that allows for more frequent payments to ease liquidity problems of financially weak Nigerian companies
- encourage and even help in the administration of joint bidding by local and foreign companies to facilitate the development of the local contractor
- consider technological solutions which may increase the capability of local suppliers
- design contracts and specifications to fit the structure of Nigerian business
- train and assist local companies to meet demands for certification
- set up and train local staff in areas that may be crucial for participation, as operating transparent e-procurement facilities

In this respect **establishing a forum where the supply and service companies in Nigeria can meet**, may also be helpful. It allows the oil companies to approach a collective forum to **inform the industry about future plans and projects**, and to **discuss issues of general interest.** It may even form a base to **facilitate restructuring of the domestic industrial base** connected to petroleum activities. The current structure of many small companies is not very well suited to satisfy the demand from the domestic petroleum sector. Industrial development means change, i.e. to do things in a different way, and may be even by other actors than those which already are established, meaning that existing

companies even may exit. It is crucial to allow for such processes. Otherwise, the policy will only work to conserve existing business and power structures.

8.3.3 Government liaison

Besides monitoring the development of local content and the contracting processes, the responsible **government agency ought to play a role to assure that local companies can participate in the competition on a fair basis**. Based on the system implemented in Norway throughout the 1970s and 1980s, we suggest:

- oil companies should discuss the FDP (field development plans, or an extended version of it which includes purchasing strategies regarding development and operations) with the government agency, to reach a **consensus on the best approach** when considering cost efficiency and involvement of companies with local value addition activities to enhance industrial development and growth,
- oil companies should inform the government agency about the companies they have put on the bidders list for contracts above a certain size, and the government agency should be granted the authority to **demand that industrially qualified local companies are included** on the bidders list of the oil companies,
- oil companies should present their choice of service/supply company to the agency before the contract is executed. The role of the agency should be to **ensure that the offers from domestic companies have been granted serious consideration**, meaning that competition has been fair.

It must be underlined that **such a system may easily backfire** if the processes of enhancing local content are not executed in a way that is compatible with the need of economic efficiency and industry standards. To ease the process and the chances of a constructive dialogue between oil companies and the government, there ought to be established a **market driven register of pre-qualified local companies**. Besides forming a database of eligible contractors for the oil companies to choose from, such a register would also facilitate the efforts of foreign companies to find a local partner. The present information that is available local companies with regard to upstream oil and gas activities is neither comprehensive nor reliable. A register on pre-qualified local companies should contain reliable data for every company in such areas as line of business, year of establishment, turnover for the last 3 years, employment, list of references/previous contracts, certificates, exports, profits, financial situation, owners and so on. This ought to form a good basis for enhancing local content on a competitive basis as well as to promote the industrial linkages that are crucial to achieving industrial growth.

9 RECOMMENDATIONS

The study group recommends that **the ultimate goal of a viable local content policy should be to create jobs by enhancing sustainable industrial growth and national wealth**. Such a goal will have great bearings on the road to be chosen for the goal to be achieved, and the main building stones in constructing a viable local content policy are illustrated in Figure 9.1. The increase of local content should be seen as achievable from two possible directions: the first being Nigerian investors who wish to participate in the industry, and the second being foreign investors who wish to bring in capital and industrial competence into the country. They are both essential to expand capacity and generate industrial growth.

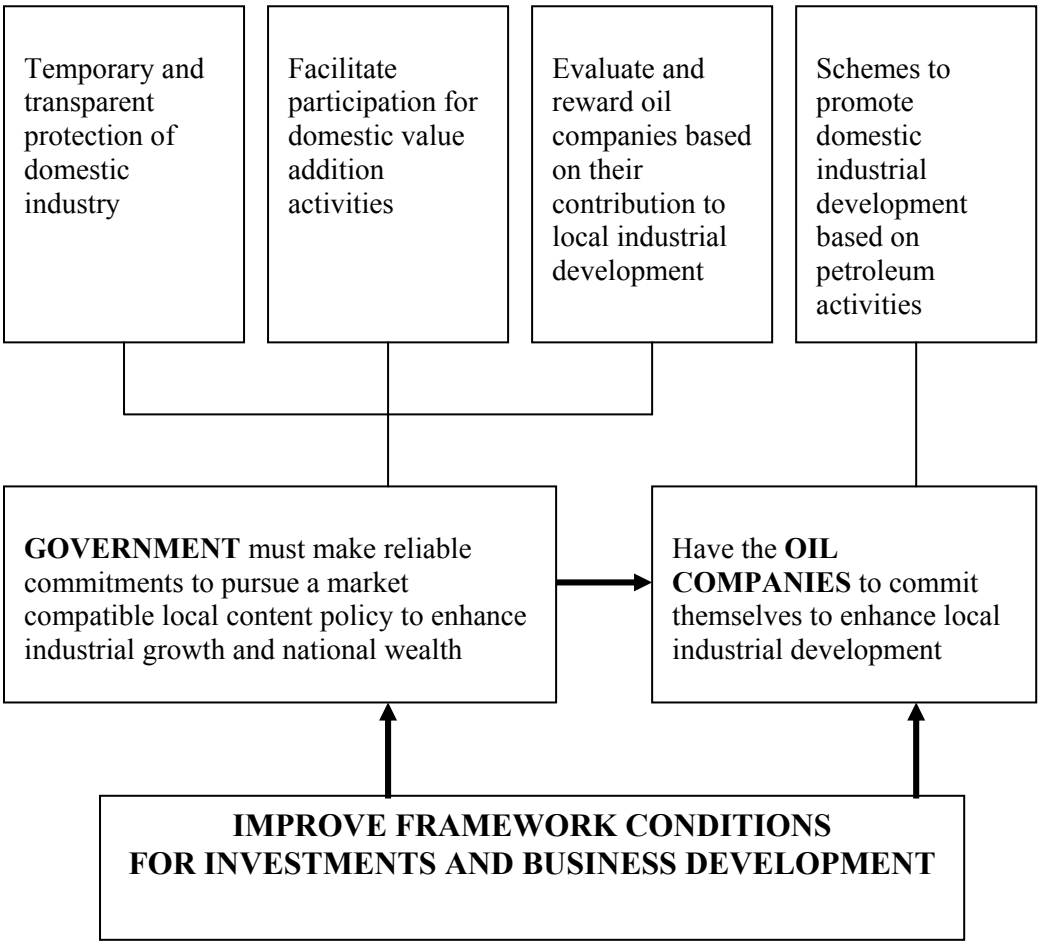


Figure 9.1 Framework for a viable local content policy approach

In the case of Nigeria, the goal **of industrial growth and national wealth is unattainable unless the framework conditions for investments (local and international) and business in general, is significantly improved** (cfr. section 8.1 and 8.2). A clear policy needs to be developed that will

- create a more predictable macro economic environment

- increase the credibility of institutions and the legal system
- provide incentives to enhance sound business practices
- create a more enabling infrastructure for business development
- enhance social structures that will contribute to inclusion and participation

Such improvements are necessary for any local content policy with regard to upstream oil and gas to be successful. Furthermore, improvements in this framework will also benefit industrial growth in other areas of the economy, which ought to be highly appreciated.

As for the **local content policy** regarding upstream oil and gas, **two pillars** have to be constructed. One is the **responsibility of the oil companies**; the other is the **policy of the government.** Government policy will have great bearing as to the commitments that the oil companies are willing to make. Government policy, and in particular policies influencing the framework conditions for investments and business development, also have great bearing on a third group of players that is required for industrial capacity expansion, namely the entrepreneurs who are willing to invest to provide the needed goods and services.

The study group recommends that a policy to enhance local content development has to build on a commitment by the oil companies. The oil companies should be asked to take – and accept – a major responsibility to achieve the objectives that are set. They have the financial resources and they make the decisions to invest, while possessing a unique knowledge and competence. To achieve their participation, the main elements in a local content policy for any host country should include:

1. Government should have a proper mandate, i.e. a legal basis, to implement a policy.
2. There should be a small government unit to implement the policy with the necessary resources and power vis a vis the relevant investors, i.e. the oil and gas companies. The power to award licences, to approve projects etc. is relevant in this context, as the agency should have the authority to reward good performance of oil and gas companies relative to the local content policy, process and measures.
3. Based on a general principle embedded in the law, the government unit should specify a vision and objectives for local content development. The objectives must be clear and specific, with the terms and steps in the process of accomplishing the objectives well-defined and measurable. One easily understandable is a percentage of total investments (or of total

expenses)[15], but this is not the only one. Targets should then be related to dates (years), taking the current capabilities of the domestic industry into account.

4. Policy should give clear indications as to how growth and improvement of local content will be measured. This will be communicated to each company and used to monitor the process as discussed in points below.
5. A process of monitoring must be decided. The monitory system must be company and/or project specific.
6. The objectives for local content development should then be translated into an obligation for the oil and gas companies. Approval for licenses, development projects etc. should not be granted unless there is a commitment and a (binding) detailed plan for implementation.
7. Information and reliable data is crucial to undertake these operations. The government unit should have the authority, ability and responsibility to gather, aggregate and publish data on future plans for specific projects, and on investment estimates in different categories.
8. The unit responsible for the implementation of the local content policy should also be a catalyst for describing, comparing and communicating best practice in the different areas.
9. As part of the monitoring, the oil and gas companies should present (publish) a report regularly, e.g. annually or every 6th month, outlining how they are performing. This is comparable to some companies reporting on environmental performance.
10. To ensure an impartial judgement, the results regarding local content, could be evaluated by an independent body, e.g. an international panel of experts or an auditor company.

These elements should translate into roles and responsibilities of the government and the oil companies. In the case of Nigeria, the clue for the government is to **design a local content policy that is compatible with major trends in the market**, and for the oil companies to have them to **take and accept a major responsibility in achieving the local content objectives** that are set.

A market compatible policy should for instance mean not to fight frame agreements within the oil industry, but rather to enhance industrial capacity so that the parties in such frame agreements choose to locate value addition activities to Nigeria. As for policy, the Nigerian government needs to

- underline that the ambition is to enhance an industrial development that will contribute to sustainable growth and national wealth

[15] Under the WTO Nigeria has entered into *Agreement on Trade-Related Investment Measures,* where Nigeria has agreed not to enforce policies *which require the purchase or use by an enterprise of products of domestic origin or from any domestic source, whether specified in terms of particular products, in terms of volume or value of products, or in terms of a proportion of volume or value of its local production.* Thus, Nigeria ought to be considerate as to how policy and objectives are formulated and enforced.

- pay severe attention to the pitfall of pursuing a local content policy, i.e to be aware of the risks and opportunities that are inherent in different schemes to promote local content, as discussed in chapter 7.
- make commitments to pursue a policy to facilitate the participation of local companies while paying due regard to cost efficiency, quality, and safety.
- have a coherent update and revision of current legislation regarding petroleum activities, where for instance Nigeria strictly separates regulation and business.
- set a clear vision for local content, and clearly define the terms, processes, measurements and milestones for developing and increasing local content by all stakeholders

Then, policies may be detailed in accordance with the market compatible conceptual design. The suggestions of the study group, may be grouped under three main headings, which all have the government as the responsible actor:

1. The protective measures to enhance participation of local industry should be designed on a temporary basis, and the criteria and procedures applied for protection should be transparent. It is needed
    - to define domestic industry as domestic value added by indigenous and foreign companies
    - to be explicit regarding the time limits of protective measures, with a possibility to have a program for down-scaling protection
    - to design a system that is easily administered, meaning that the measures are transparent
    - a properly designed tariff system is recommended, which also will be comply with WTO-arrangements.

2. Facilitate participation for domestic value addition activities on a competitive basis, which means
    - to have demanding, but realistic ambitions with regard to the magnitude of local content
    - to focus on processes to involve domestic companies on a competitive basis, and on capacity expanding measures within the industry, rather than reserve specific jobs according to the nationality of the company,
    - to encourage the establishment of a market-driven register of pre-qualified companies in Nigeria
    - to encourage restructuring of the local industry to better comply with the demands of the oil industry

- to stimulate the establishment of a supply and services forum, where the oil companies can meet local industry for information and discussions
- to establish the national oil company so that it has full authority to fund and operate its commercial activities
- to encourage constructive government discussions and liaison work with oil companies and the oil industry
- to monitor the man power requirements of the industry and ensure that various training programmes are in place to deliver the requirements
- to make known the various opportunities that are available for investors
- to encourage R&D and technology development programs, for instance around universities where funding may be leveraged from the oil industry

3. Evaluate and reward oil companies based on their contribution to local industrial development. It is recommended
    - to establish an authoritative system, with executive power located in a small, highly competent unit within DPR, to monitor industrial development based on the petroleum activities. This concerns the production of reliable data to register how local content develop, to initiate constructive discussions regarding FDPs from the oil companies, the contracting plan of the oil companies, schemes to have industrially qualified local companies on the bidders list, and to ensure that contracts are granted according to rules of fair competition.
    - to strive for achieving a reputation as being predictive regarding government intervention, which e.g. can be limited to enforcing standards regarding HSE (health, security and environment) and fair opportunities for local companies to compete for jobs.
    - when awarding new licences to the oil companies, or when extending old ones, their performance regarding local industrial development should be one factor that the government will reward.
    - conditions, or expectations, regarding local content development should be written into the licences, when they are entered into or renewed.

The responsibility of the oil companies should be directed to **implement business strategies that will contribute to industrial development on a competitive basis in Nigeria**. Partly it concerns the oil companies, or the operators, as the major actors of the system, but also the way the oil companies can motivate their major suppliers on the world scene. The point is not to

instruct oil companies as to what has to be done, but to challenge them to come up with schemes, which they expect to work, which they can commit themselves to, and for which they can be held responsible. Examples as to the types of measures that the operating oil companies must consider, concern

- technology transfer and development
  - to evolve and operate supplier development programs
  - to encourage technology transfer programs, spanning from training local staff to R&D cooperation with domestic companies and universities
  - to train and assist local companies to meet demands for certification
  - to train local staff in areas that may be crucial for participation, as operating facilities for e-procurement
  - to encourage joint bidding by local and foreign companies
- financial agreements to compensate an inferior financial system for local companies
  - to design arrangements which allow dollar loans at relatively low interest rates with the contract as a guarantee
  - to construct milestones in the contract which allow for more frequent payments to improve liquidity of the local companies
- strategies to match local demand with local supply
  - to consider technological solutions which may increase the probability of local supplies
  - to design contracts and specifications to fit the structure of local business
  - to demand local content programs from major contractors

Even though the government is advised against instructing the oil companies as to what they should do, the government ought to encourage the oil companies to devote particular attention to industrial development in technology areas, which are expected to have significant effects on employment. This will also be areas where the contributions to local value addition will be most substantial in the short and medium term. It will also mean training of manpower, which the development of other industries may benefit from through the mobility of labour.

The underlying idea of the recommended policy approach is to create a sound business climate, to encourage the oil companies to compete in involving domestic value adding industry, and to let their track record in this respect influence their rights to future oil and gas in Nigeria. Doing so on a competitive basis, which also allows temporary protection in a transparent manner, should develop competitive oil and gas related industry. Such a development will most likely spin off positively to industrial development in other areas of the Nigerian economy as well, which means that also industrial sectors other than oil and gas

related industry should benefit. Altogether, this means that the chances for Nigeria to expand and realize its industrial potential ought to become significantly strengthened.

The success of such a policy means that the government should work to enforce policies that will improve conditions for business and welfare on a broad basis. In some areas, the time horizon for policy to be designed, to be implemented, and to be effective, is much longer than in others. This concerns framework conditions for investments and business development in general. They are still of utmost importance to succeed. Nevertheless, the natural starting point when focusing on local content as such, is to design a local content policy that sets a clear and ambitious, but realistic vision for local content, and clearly define the terms, processes, measurements and milestones for developing and increasing local content by all stakeholders. In that respect, the establishment of a small, highly competent group within the DPR, with the authority to challenge the oil companies and their major contractors, is essential. Conducted in a demanding and sensible way, such a policy should contribute to a positive private sector development in Nigeria.

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Appendix 1: Documents prepared in connection with the project

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Local Content in Nigeria: Law, Policy and Practice, Unpublished memo, Kragha & Associates, 2002

Financing of Oil and Gas Transactions in the Upstream Sector of the Nigerian Petroleum Industry, Unpublished memo, Kragha & Associates, 2002

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An overview of the Supply Industry in the Upstream Sector of the Nigerian Petroleum Industry, Unpublished memo, Kragha & Associates, 2003

Appendix 2: Terms of reference

Terms of Reference for a study on

PRIVATE SECTOR DEVELOPMENT IN THE NIGERIAN UPSTREAM PETROLEUM INDUSTRY

Report prepared for the Presidential Advisor on Petroleum and Energy, Nigeria.

BACKGROUND

Nigeria has been in the oil and gas business for nine decades, much longer than Norway. The sector has been under the control of the multinational oil companies and is very much dependent on foreign personnel and technology.

The oil and gas sector is the real engine of growth in the Nigerian economy. To improve the benefit of the petroleum industry to Nigeria and Nigerians, private sector development (the increase of local content) is essential. In the creation and growth of businesses of all size, availability of indigenous expertise and manufacturing facilities is a critical success factor.

In spite of many efforts by government - in introducing legislation and policies - as well as private sector initiatives, the Nigerian content in the petroleum sector is only 7%. There is presently a bill in the National Assembly on local content development in the petroleum industry. Despite of this it is need to review the status of private sector development and to provide suggestions for measures to improve the situation.

In the Norwegian Government budget proposition, section for Ministry of Foreign Affairs: The following formulation is used for Nigeria:

Nigeria, the most populated country south of Sahara is playing a key role as an economic engine and stabilising element in the region. It can be of high significance for regional stability and economic development to provide support to the positive reforms deployed under the new regime headed by President Obasanjo. An important starting point for future co-operation between Nigeria and Norway are development of competence and petroleum administration and resource management.

Accordingly it seems that the Norwegian government will be positive to supports a study on Private Sector Development based on upstream petroleum activities.

OBJECTIVES

The purpose of the study is to assess the enabling environment for private sector development in the Nigerian upstream petroleum industry and recommend ways of increasing and improving the capabilities of Nigerian supply and services companies.

The study will comprise of a description of the existing situation and recommendations on short and long-term for growing the private sector and take due cognisance of the inter-relationship between the petroleum sector and other business sectors.

The study will include an assessment of areas of co-operation where the Norwegian business community can enhance the development effects in terms of employment and revenue generation (e.g. poverty reduction).

Within this context, the overall objective is:

> ***To assess the capabilities of the Nigerian Supply and Service Industry and propose measures to enhance Nigerian private sector development based on Petroleum Activities.***

The intermediate objectives are:

- Review and map the capabilities of the Nigerian supply and service industry to the upstream petroleum sector in a value chain and supply chain model, figure attached.

- Assess the legislation and regulations stimulating private sector development associated with the petroleum sector and its implications on promoting new and existing enterprises.

- Assess the potential for private sector development in the Nigerian Upstream Petroleum Industry.

- Identify and describe the technical, organisational and educational gaps that need to be closed to realise the potential.

- Assess potential for co-operation between Norwegian and Nigerian companies and identify and assess business opportunities for Norwegian enterprises in Nigeria to the mutual benefit of both countries.

SCOPE OF THE STUDY

In order to develop strategies for private sector development, the following work shall be performed:

1. Collect information on existing companies providing services to the upstream petroleum sector of the industry. Categorise them according to the value chain / supply chain model and describe their capabilities to meet industry quality standards (e.g. ISO 9000)

2. Review and assess current practices abroad for stimulating local content (e.g. Malaysia, Indonesia, Brazil, Norway)

3. Make a projection of the activity level including capital - and operational expenditure in Nigeria and assess the potential for Nigerian content along the value chain in an international competitive perspective.

4. Make a company survey current practices and bottlenecks for establishing or growing existing businesses (finance management, training, partnerships, etc).

5. Describe the technical, organisational and educational gaps that need to be closed to realise the potential. Propose and rank "gap closing measures" in a cost benefit approach.

6. Describe the present legal and regulatory frameworks under which the companies currently operate and assess impact of policies and regulations on service and technology suppliers.

7. Recommend enabling legislative and regulatory frameworks changes that will improve private sector development for upstream oriented companies of different size and capabilities.

8. Review and describe sources and types of financial instruments for supporting local content, including the Petroleum Technology Development

Fund (PTDF), Bank of Industry, NORFUND and other sources that could be syndicated by identified financial institutions.

9. Recommend other measures to support local business development.

10. Assess relevant areas for possible contribution by the Norwegian Government, and business community as providers of competence enhancing activities.

11. Recommend segments within the petroleum sector where Nigerian – Norwegian business co-operation would be effective and to mutual benefit.

STUDY METHODOLOGY

The study will be executed jointly by a Nigerian and Norwegian study team.

The study team will specialise within the different components of the scope and apply the following methodology:

1. Desktop review of practices of private sector development in the Petroleum Industry.
2. Company surveys of and visits
3. Interviews and group discussions with selected institutions.

TIME SCHEDULE AND REPORTING

Total elapsed time to complete study is 4 months.

1. An Inception Report within 3 weeks of the starting date outlining the methodology to be employed, the consultants' initial findings, the preliminary table of content of the draft report. Further the report shall outline plans and bar charts showing breakdown of work by individuals responsible.

2. A draft report with a summary for comments not later than February 2003.

3. Workshops held with the recipient of the study, the President's office for Petroleum and Energy, and preferably the Parliamentary Committee for

Petroleum, NAPIMS and other institutions, designed to communicate the study findings.

4. The final report shall be submitted not later than 30 days after comments have been received

FUNDING AND EXECUTION

INTSOK will apply to NORAD for funding of the study and will identify a study team composed of specialised Nigerian and Norwegian institutions to execute the scope.

Attached figure:

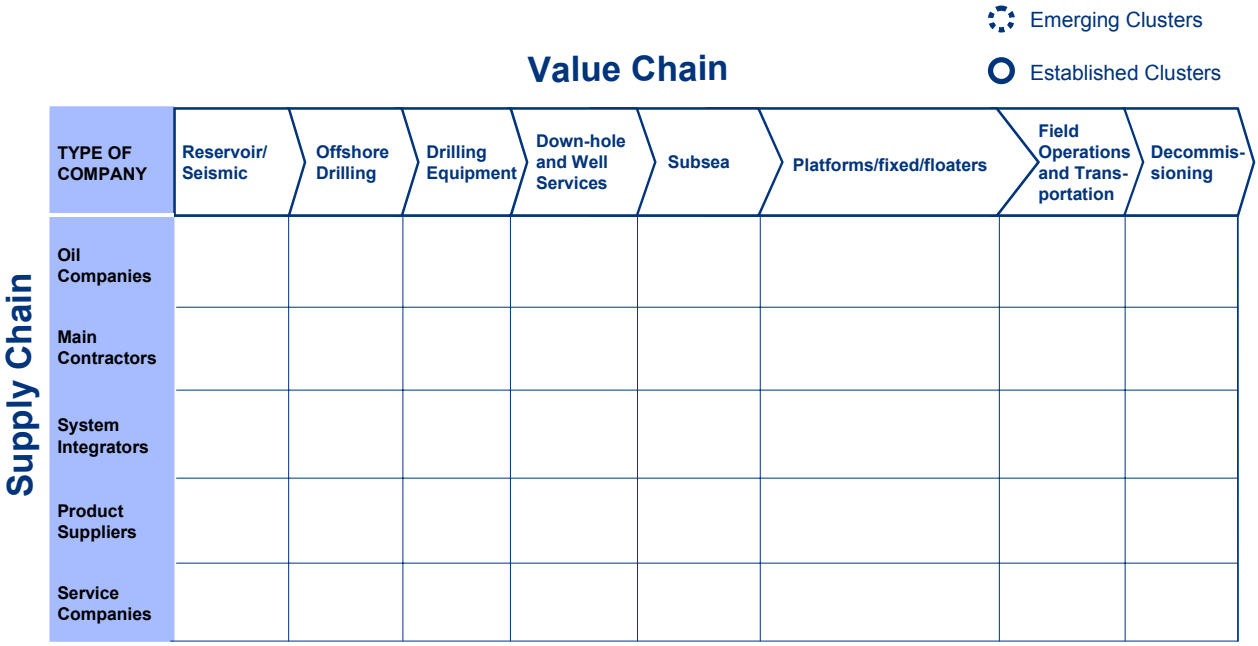

Figure: The Value Chain – Supply Chain Model for mapping Nigerian Capabilities in the Upstream Sector.