



Nigerian Content Development: The Petroleum Technology Development Fund Initiatives

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Abstract

The fact that Nigeria is endowed with some of the largest hydrocarbon reserves In the world and is a key member of OPEC with a production capacity of up to 3m bbl/d is no longer news; what is, is the fact that, of the estimated \$12bn annual spent in the upstream sector of the Nigerian oil and gas industry, over 80% by value of work is carried out abroad, resulting therefore in an insignificant contribution to national GDP. This write-up highlights the PTDF's interventions to develop indigenous capacities for Nigerian oil and gas industry towards the increased local participation and in-country value retention.

Introduction

The Petroleum Technology Development Fund (PTDF), established by Decree 25 of 1973, is the statutory arm of Government charged with the responsibility for developing capacities, capabilities and competencies in Nigeria's oil and gas industry. ¹ However, the PTDF only became fully operational in September 2000 when it was reconstituted and made an independent agency. ²

The PTDF's mandate therefore, is to educate & train Nigerians to qualify as graduates, professionals, technicians and craftsmen in the fields of Engineering and Geosciences. The PTDF's vision "to serve as a vessel for the development of indigenous manpower and the domiciliation of oil & gas technology in the Nigerian petroleum industry as well as to make Nigeria a human resource center for the West African sub-region", is consequently premised on three capacity building planks of 'Human capabilities/competencies development; Institutional capacities enhancement and facilitation of relevant Research & Development activities'.

Local Content Awakening

Following the advent of democratic civilian rule in 1999 and the setting up of several committees by Government to deliberate on the local content levels in the Nigerian oil and gas industry with a view to increasing the contribution of oil and gas to the nations GDP, the reports of these committees all identified that "*Nigerian content development initiative requires an exhaustive systemic approach that would assess local content levels, identify constraints, develop clear policies & processes to stimulate growth as well as define clearly the roles and responsibilities of stakeholders*"³. To afford an appreciation of the roles/responsibilities of the PTDF in matrix of Nigerian Content Development, it was crystal clear therefore that the PTDF, as the capacity building organ of Government, must firstly, undertake an assessment of local content levels, and in the process identify constraints with the availability or lack thereof of these competencies/capacities; and secondly, to develop clear capacity building policies and programmes that would stimulate local content growth towards the ultimate realization of Government's Nigerian content development aspirations and targets.

Definition

The most acceptable definition of Nigerian Content is the one that captures it as "*the quantum of composite value added or created in the Nigerian economy through the utilization of Nigerian human and material resources for the provision of a qualitative goods and services to the oil and*

*The Author submitted this article in October 2008 when he was the Executive Secretary of the PTDF.

¹ Decree No. 25 of 1973 (now PTDF Act 1990)

² The PTDF was domiciled as a desk in the Department of Petroleum Resources (DPR) since 1973.

³ Enhancement of Local Content in the Upstream Oil & Gas Industry in Nigeria. SNF Report 2003

gas industry within acceptable quality, health, safety and environment standards in order to stimulate the development of indigenous capabilities”⁴.

As a policy of Government, Nigerian Content seeks “*to promote a framework that guarantees active participation of Nigerians in oil and gas activities without compromising standards. The policy also focuses on the promotion of value addition in Nigeria through utilization of local raw materials, products, and services in order to stimulate growth of indigenous capacity that will result in steady, measurable, sustainable growth of Nigerian Content throughout the oil and gas industry*”.

Currently, there is no comprehensive legislation guiding Nigerian Content, however, several provisions of diverse legislations deal with different aspects of the issue. It is noteworthy that there is a Nigerian Content Development Bill before the national assembly which is expected to clearly define parameters for implementation of the set targets. Pending the passage of the Nigerian Content Bill into law, the Federal Government has set several targets (of 45% by 2006 & 70% by 2010) for Nigerian content (NC) participation in the oil and gas industry, and has issued 23 short term directives to guide the implementation of the government policy.⁵

PTDF’s Nigerian Content Focus

The Government’s 23 NC short term directives together with the targets set, provide the compass for the PTDF’s Nigerian Content intervention through its capacities/capabilities development programmes. The objective is to engender job creation by developing a critical mass of indigenous capabilities and world standard competencies which will in turn stimulate cross sectoral linkages leading to the active participation of all sectors in the development of Nigeria’s economy.

PTDF’s NC Activities.

To enable an “assessment of local content levels, identification of capacity building constraints” as well as afford an empirical basis for intervention, the PTDF in 2004 commissioned an industry-wide skills gap audit and survey to identify the skill inadequacies in the oil and gas industry towards providing a framework for developing an efficient education & training system to redress such inadequacies.⁶

The audit revealed that the necessary human resource capital required to achieve compliance with the 70% Nigerian Content Government Policy by 2010 must include: *stimulation of technology transfer, training in skills, mentoring and apprenticeship for Design Engineering Works, fabrication, construction, service, maintenance and upgrade of existing organizational and educational facilities for Nigeria’s vast but unskilled human resources*, as summarized in the table below.⁷

Figure 1: PTDF Industry-Wide Skills Gap Audit/Survey Summary of Report

⁴ Nigerian Content Division of the NNPC.

⁵ Short term directives of the Government issued by the NNPC to all stakeholders in the industry indicating the scope of work on all E&P projects that must be executed in Nigeria.

⁶ Industry-Wide Skills Gap Audit/Survey Report 2004

⁷ *ibid.*

| | 45% by 2006 | 75% by 2010 |
|--------------|---------------|--------------|
| Deep Water | 2430 | 4050 |
| Fabrication | 11820 | 19700 |
| Well Service | 1680 | 2800 |
| EPCI | 9240 | 15400 |
| Facilities | 3000 | 5000 |
| Total | 38,700 | 46950 |

i). *PTDF/NNPC Collaboration:*

To ensure the effective implementation of the PTDF mandate especially as it relates to Government's NC policy, the Fund signed a memorandum of understanding with the NNPC (NCD), tagged "Job creation through partnering initiative" under which several NC programmes were developed and are jointly being executed⁸. This strategic initiative is primarily designed to provide skilled human resource capital to achieve Government's Nigerian Content target of 70% by 2010; engage more Nigerians in task oriented certification and accreditation programs; establish local apprenticeship and mentoring opportunities and; grow capabilities and competencies tied to activities in prescriptive ITT's for planned projects.⁹

a). *Engineering Design Training Program (EDTP)*

The EDTP was designed to address the skills shortage identified in the area of engineering design, following from the PTDF industry-wide skills audit/survey which revealed a projected demand of about 5 million engineering design man-hours as a minimum requirement to effectualize Government's NC directive to fully domicile all front end & detailed engineering design projects from 2006. The EDTP therefore consisted of training in various engineering design software packages such as HYSYS (basic & upstream), PDMS, INTOOLS, FLARNET, PIPENET, and SACS as well as other design complimentary packages such as PRIMAVERA, STAAD-PRO, PROJECTWISE, QA/QC/QM, & PLANT DESIGN PRO towards up-skilling the 2,600 engineers necessary to meet the 5million man-hours required to domicile all design projects in Nigeria.

By end of September 2008, a total of 1,500 engineers (250 by NNPC in a pilot phase & 1,250 by the PTDF in the on-going main phase) would have been trained, while the Fund expects to complete the training of the remaining 1,100 by Q2, 2009.

b). *EDTP Post Training Attachment Program (EDPTAP)*

In order to ensure value addition through the optimal utilization of acquired knowledge, a structured framework termed Post Training Attachment (EDPTAP) has been developed to ensure a continuous deployment of the imparted engineering design skills. This entails Engineering Design Companies to

⁸ "Job Creation Through Partnering" A PTDF Capacity, Capability and Competence Building Initiative Presentation to the NCCF in March 2005

⁹ *ibid*

create openings for trainees to be placed on attachment so they can apply and use the engineering design software skills. It is expected that 75% of the trainees are unemployed at the point of training consideration and that all would be absorbed on full employment by the industry through the EDPTAP. To encourage trainee participation, the programme also provides for the payment of stipends to trainees during the training proper and for the whole of the six months attachment period to augment their transportation and accommodation costs. Even though the programme is ongoing, it is running on a 60% job placement success rate, and in the end, it is a win-win situation for all: PTDF/NNPC, trainees and engineering companies, thereby meeting Nigerian Content Targets.¹⁰ See table below.

ii). Interventions towards enhancing fabrication capabilities of the Nigerian oil and gas industry.

In a related manner and in its quest to develop the requisite synergies necessary to provide the mass of skilled indigenous manpower to drive industry operations; the PTDF is engaged in the twin projects of enhancing the fabrication capabilities of engineering yards (EFCN) and using these enhanced capacities to undertake a welders training & certification exercise (WTCP).

Figure 2: EDPTAP Statistics

| 1 | Pilot Phase | Total Trained | Eligible | Attached | Status |
|---|-------------|---------------|----------|----------|------------------------|
| | 250 | 250 | 70 | 70 + 5 | Over 100% Success rate |
| 2 | 2350 | 1300 | 700 | 160++ | On Course |

a). Enhancing the Fabrication Capabilities of the Nigerian Oil & Gas Industry:

Having identified the lack of fabrication capacities as one of the single largest impediments to the development of capacities and building local content, the PTDF in conjunction with other stakeholders is engaged in the development of capacities of selected Fabrication yards in Nigeria.

The project is being undertaken under a PTDF/NNPC/NORAD/INTSOK collaboration, which itself is consequent upon an MoU in that regard between Nigeria and the Republic of Norway signed in 2001; and entails the upgrade of the capacities of some notable fabrication yards to enable these facilities provide the requisite platform for use in fabrication as required by NC short term directives.¹¹

b). Welders training and certification programme (WTCP).

To complement these enhancement efforts, preparations have reached an advanced stage to commence a welders training and certification exercise wherein 2,500 Nigerians would be trained in various aspects of welding as a collorary to developing Fabrication capabilities for Nigerian content development

Institutional Capacity Development

¹⁰ *ibid.*

¹¹ See Short term directive no. 5 and 6 of the Government issued by NNPC for Nigerian Content Development

Apart from the NC specific projects/programmes, and in order to ensure a sustainable strategy for capacity building towards the attainment of indigenous self sufficiency in the oil and gas sector, the PTDF is also undertaking institutional capacity building programmes. The primary motivation for the PTDF intervention in this area, is simply to assure a seamless development trajectory from the human to the institutional and then to the material (technology), and of the optimal utilization of this mix towards building and sustaining capacity in the Nigerian oil and gas sector.

The Fund's effort to develop local capacities of Nigerian Oil and Gas related Universities programme culminated in the conceptualization and execution of the upgrade of selected departments in some selected universities in the first phase as follows:

Figure 3: PTDF's University Upgrade Projects

| | UNIVERSITY | DEPARTMENT |
|---|------------------------------|----------------------------|
| 1 | University of Port Harcourt | Gas Engineering Department |
| 2 | University of Maiduguri | Geology Department |
| 3 | University of Ibadan | Petroleum Engineering Dept |
| 4 | University of Nigeria Nsukka | Geology Dept |
| 5 | University of Benin | Chemical Engineering Dept |
| 6 | Ahmadu Bello University | Chemical Engineering Dept |
| 7 | Usman Dan Fodio University | Petroleum Chemistry Dept |
| 8 | University of Jos | Geology and Mining |

Components of the project include; infrastructure, laboratory equipment, books, IT facilities, power generating sets and water borehole facilities. These upgrades have been completed and handed over to the benefitting universities.

In addition to these, a second phase of the upgrade programme has commenced in the following 8 Federal Universities, bringing the number of Universities where PTDF has intervened to 16.

- i. University of UYO (Chemical & Petroleum Engineering)
- ii. University of Calabar (Applied Chemistry)
- iii. Federal University of Technology Owerri (Petrochemical Engineering).
- iv. Obafemi Awolowo University Ile-Ife (Geology)
- v. Abubakar Tafawa Balewa University (Petroleum Engineering)
- vi. Bayero University Kano (Electrical Engineering)
- vii. Federal University of Technology Minna (Chemical Engineering)
- viii. University of Ilorin (Geological and Mineral Science).

Coaching, Mentoring and Competency Development Programmes.

After the Overseas Scholarship Scheme (OSS) has run for sometime and the EDTP has concluded, there will be a need to monitor the progress of the young trainees whom are presumed to have been gainfully employed. It would therefore be most productive to establish a platform where professionals can coach and mentor young and competent engineers. This can be achieved through the creation of collaboration & linkages between employers in the service sector of the Oil and Gas

Industry, interventionist agencies like the PTDF, the academia, regulatory agencies as well as E & P companies as an extension of the current demand driven, project specific NC interventions the Fund is undertaking. This will be akin to moving from a state of adequacy to self sufficiency in human capability and competencies development.

Conclusion

PTDF's mandate of capacity development in the oil and gas sector is being realized through the above initiatives. In the long run, it is expected that PTDF interventions will create the critical mass of engineers, welders as well as other professional artisans and stimulate the needed economic growth through an increase in locally produced goods, materials, personnel and services rendered in-country and ultimately boost contribution of the expenditure in the upstream sector to the Gross Domestic Product of Nigeria.