

# **The African export industry: What happened and how can it be revived?**

**Case study on the Nigerian oil  
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## **Case study on the Nigerian oil palm industry**

by Ladé A. Dada



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## Preface

The African export industry has undergone a cycle of rapid growth and decline in the years following national independence and the structural adjustment programmes. Certain sectors are faring better than others, while many are fighting a losing battle to remain competitive. This study will seek to identify those factors that influenced select industries, Coffee in Kenya, Oil Palm in Nigeria, Cocoa in Cameroon, paying particular attention to the elements of management and industry structure that contributed to the demise of these important export commodities. Africa's policy process cannot be generalized, since there are as many similarities as there are differences in individual country experiences. Moreover, there is a broad set of factors that have shaped policy implementation, but the extent of each differs from country to country. Each case study will therefore seek to capture specific domestic elements drawing upon the vast literature available and primary research with local actors.

Following a preliminary literature review of the Nigerian oil palm industry, a series of meetings were organized (with the help of FAO Nigeria) with the Federal Ministry of Agriculture and Rural Development (FMARD), the Nigerian Institute for Oil Palm Research (NIFOR), the Tree Crops Development and Marketing Company Plc (TCDMC), A & Hatman Limited, Presco Plc, and Okomu Oil Company.

This case study seeks to investigate the factors that have resulted in such a drastic change in the oil palm sector. Adopting an 'inside-out approach' it will evaluate the case of Nigerian oil palm exports primarily from a domestic perspective carefully analyzing the local conditions (institutional and management infrastructure) that have contributed to the decline. To that end, the flow of services within the industry, governance issues, as well as the sources of industry competitiveness and value creation will be carefully examined. Finally, the paper will offer recommendations for reviving the sector, based on the nation's identified strengths in the oil palm sector. The intent is not to merely highlight what went wrong, but to focus on how Nigeria can capitalize on its strengths to regain national competitiveness.

This working document is aimed at those working at ministries of agriculture and extension services, Non-Governmental Organizations (NGOs) and related projects concerned with agricultural development.



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## Acronyms

ACGSF	Agricultural Credit Guarantee Scheme Fund
ADP	Agricultural Development Programme
CBN	Central Bank of Nigeria
CSR	Corporate Social Responsibility
ECOWAS	Economic Community Of West African States
ETLS	Economic Trade Liberalization Scheme
FAO	Food and Agriculture Organization of the United Nations
FFA	Free Fatty Acid
FFB	Fresh Fruit Bunch
FMARD	Federal Ministry of Agriculture and Rural Development
FTCMU	Federal Tree Crops Monitoring Unit
GDP	Gross Domestic Product
HR	Hour
HYV	High Yielding Variety
IDP	Interest Drawback Programme
IMF	International Monetary Fund
MIPS	Manufacture Inbound Scheme
NACRDB	Nigerian Agricultural Credit and Rural Development Bank
NAFDAC	National Food and Drugs Administration and Control
NAICPP	National Accelerated Industrial Crop Production Programme
NDDC	Niger Delta Development Commission
NEPC	Nigerian Export Promotion Council
NEEDS	National Economic Empowerment Development Strategy
NGN	Nigerian Naira
NGO	Non-Governmental Organization
NIFOR	Nigerian Institute for Oil Palm Research
NPPB	Nigerian Plan Produce Board
NTNDP	National Tree Nursery Development Programme
OPGL	Oil Palm Genetics Laboratory
PITC	Presidential Initiative on Tree Crops
PORLA	Palm Oil Registration and Licensing Authority
PORIM	Palm Oil Research Institute of Malaysia
POS	Palm Oil Sludge
QC	Quality Control
SAP	Structural Adjustment Programme
SON	Standards Organization of Nigeria
SSPE	Small-Scale Processing Equipment
TCDMC	Tree Crops Development and Marketing Company Plc
TCP	Tree Crop Project
TCU	Tree Crops Unit

TFM	Trust Fund Model
UNDP	United Nations Development Programme
VAT	Value Added Tax
VODEP	Vegetable Oil Development Programme
WARI	West African Research Institute

## Summary

In the 1950s and up to the mid 1960s, Nigeria was the world leader in oil palm production (see Annexes One to Five for statistics on world oil crop production). The country enjoyed a global market share of 43 percent, providing about 645 000 metric tonnes of palm oil annually. However, following national independence, as was the case with most other African nations, Nigeria was forced to liberalize its economy, engaging the World Bank imposed Structural Adjustment Program (SAP) as part of its reform efforts. This move was accompanied by the abolishment of the commodity marketing boards, the removal of subsidies and an overall pull-out of government support to smallholder agriculture.

While these simultaneous actions had an immense impact on the economies and particularly on the agricultural sectors of other nations, the case of the Nigerian oil palm industry is peculiar. Between 1967 and 1970 the country found itself in the midst of a significant civil war that primarily took place in the eastern states, the oil palm belt. Within the span of a short period, most of the oil palm plantations had been destroyed, while most of the smallholders had dispersed. This is perhaps the most significant contributor to the decline of the oil palm industry.

Following the civil war, the ‘petroleum boom’ continued to take precedence over agricultural production since crude oil was more economically valuable. Therefore, little investments were made in agriculture, and those producers who did return to their farms, continued exploiting old plantings without seeking to improve their outputs. These factors effectively facilitated the considerable drop in quality and production of oil palm produce.

Prior to the discovery of crude oil, Nigeria earned a substantial amount of foreign exchange from the sale of oil seeds such as oil palm, groundnut and cotton, key agricultural commodities which helped to fund a number of the nation’s development programmes.

When President Olusegun Obasanjo came to power in 1999, one of his main goals was to revive the fledgling agricultural sector. Accordingly, he initiated a series of programmes and projects aimed at stimulating agricultural production. One of such notable schemes is the Presidential Initiative on Tree Crops (PITC), a subset of which focuses on vegetable oil production. The President’s five year goals (beginning in 2003) in this regard included:

- To plant one million hectares of oil palm,
- To produce five million tonnes of groundnuts annually,
- To produce one million tonnes of cotton seed annually,
- To produce 0.68 million tonnes of soybeans annually.

One of the challenges facing the production of vegetable oil production in Nigeria is the dumping of assorted oils, which are more competitive in the local market. Dumping often

occurs under the guise of the Economic Community Of West African States (ECOWAS), Economic Trade Liberalization Scheme (ETLS). This calls for heightened control measures to curb this activity and thereby boost domestic production.

The government has a particular focus on increasing oil palm production, considering that Nigeria was once the world leader. In 2001, palm oil and palm kernel oil output stood at 936 000 tonnes, making Nigeria the third largest world producer after Malaysia and Indonesia.

The Nigerian oil palm belt covers fifteen states, namely: Abia, Akwa-Ibom, Anambra, Bayelsa, Cross River, Delta, Eboniyi, Ekiti, Enugu, Ondo, Ogun, Osun, Oyo, Imo, and Rivers. Odey (2004) estimates that within the oil palm belt, Nigeria possesses about 24 million hectares of land that is suitable for oil palm cultivation. Therefore, in order to increase oil palm production, the government has focused on increasing the area under cultivation and improve the output or yield per unit area.

Despite the tremendous potential for improving commercial viability and regaining export competitiveness, the Nigerian oil palm industry continues to be plagued by a poor plantation culture that inhibits the inclusion of widely dispersed small-scale producers who contribute about 80 percent of total production. Because of the lack of effective coordination, research and extension services have limited outreach, while the producers have restricted access to improved seedlings and improved processing technologies. Moreover, the existing land management system serves to deter the development of oil palm plantations, particularly since it is a crop with a long gestation period, that doesn't offer immediate returns.

Another source of vulnerability to smallholders and to the industry in general is the lack of adequate financing. For instance, producers in need of credit to purchase inputs either have to contend with large banks that charge double digit interest rates of 20 percent or more, or have to forfeit the use of inputs, which affects output and quality. Moreover, with the rising cost of labour and with the poor support mechanism, plantation husbandry practices are waning.

The Nigerian oil palm industry produces both low and high quality palm and palm kernel oil. Together these account for 74 percent of total vegetable oil consumption in the country. The burgeoning domestic market requires an annual importation of about 300 000 metric tonnes to meet the shortfall in supply. About 20 percent of the oil produced is considered to be of high quality and passes 17 quality tests that make it exportable. Nevertheless, the domestic market prefers the 'tangy taste' of locally produced oil, which contains a high amount of free fatty acids (FFAs) and has high iron content.

With the interventions currently underway through the various government created initiatives, the oil palm industry is being geared up to drastically increase production levels (by increasing the area under cultivation and by raising yield per hectare). However, while there is the potential for regaining world market share, the short to medium-term objective should be to produce for the domestic market. As local demand is met and as overall quality is improved, the industry will be robust enough to compete with Malaysia and Indonesia, as it once did. Moreover, focusing on the global market would keep producers vulnerable to fluctuations in the world market. Therefore, further developing the local market and seeking to expand the African sub-regional market would help to reduce vulnerability.

# 1. Introduction

Oil palm originated in the tropical rain forest of West Africa and spread to South America in the 16<sup>th</sup> century. In recent decades, the domestic consumption of palm oil in West Africa has increased more rapidly than its production. Having been the lead producing and exporting region, West Africa has now become a net importer of palm oil (Kajisa, Kei *et al*, 1997). During the 1970s, Asia overtook Africa as the principal oil palm producing region in the world.

Nigeria has a land area of 923 708 square kilometres. About 31 percent of this is arable land, while about 15 percent is forest cover. The country's primarily equatorial climate varies considerably by region. In the far north, the wet season (one of only two seasons) ranges from three to eleven months in the coastal south. Similarly, the mean annual rainfall ranges from 50cm in certain areas of the north to as much as 400 cm in parts of the south. The northern half of the country is significantly more susceptible to drought, than the south. Conversely, tropical storms often lead to severe leaching of the soils, rapid run-off and soil erosion. Moreover, only one crop per year can be grown in the north under rain-fed agricultural production, while the annual rainfall in the south and middle belt is sufficient for planting two crops each year (Oyejide *et al*, 2003).

Nigeria has three main vegetation zones, namely the swamp, the forest, and the savannah. The tropical high forest zone covers much of the southern half of the south-eastern and south-western regions of the country. This is where the main perennial crops, including cocoa, oil palm, coffee, kola, cashew, rubber, roots and tubers (yam, cassava, cocoyam, sweet potato) are grown (Oyejide *et al*, 2003).

Prior to the petroleum crude oil boom in the 1960s, agriculture accounted for more than 60 percent of Gross Domestic Product (GDP) and over 70 percent of total export earnings, including about 70 percent of employment (Oyejide *et al*) and specifically, oil palm, cocoa, groundnut, rubber, and cotton were the main sources of the country's export earnings at independence (Oyaide, 2004). However, that figure declined to about 40 percent of GDP and 2 percent of total export earnings by the end of the 1970s. Certainly, the discovery of petroleum was a major contributing factor to this downward trend. At the peak of the petroleum boom in 1980, crude petroleum accounted for 31 percent of Nigeria's GDP and 96 percent of total export earnings.

Despite the dominant role of the booming petroleum oil sector, agriculture remained a significant contributor to GDP throughout the 1980s and the 1990s. As seen in Table 1, it accounted for 48 percent of GDP between 1980 and 1982, falling to 45 percent by the end of the 1990s (Oyejide *et al*, 2003.).

**Table 1. Share of agriculture in GDP (Imports and Exports), 1980—2000**

	1980-- 82	1983-- 85	1986-- 88	1989- -91	1992-- 94	1995- 97	1998-- 2000	Pre- reform (before 1986)	Reform (1986-- 1993)	Post- reform (after 1993)
Agriculture as % of total GDP	35.2	38.6	41.9	39.4	38.1	39.1	40.8	36.9	39.8	40
Agriculture as % of non-oil GDP	40.6	45.1	48.1	45.4	43.8	44.8	45.1	42.9	48	45
Agricultural imports as % of total imports	15	14	12	7	11	14.1	14	14.5	10	14
Food imports as % of total imports	13	12	11	6	9	12	12	12.5	8.7	12
Agricultural exports as % of total exports	1.9	2.7	4.3	2.1	2	1.3	1.4	2.3	2.8	1.4
Agricultural exports as % of non-oil exports	81	63.3	73.8	54.9	55.6	37.8	37.6	72.15	61.4	37.7
Agricultural exports as % of agricultural imports	14	22.7	7.9	46	17.9	9	10.5	18.4	23.9	9.8

Source: CBN, Annual Reports and Statements of Account (in Oyejide et al.)

The abrupt end of the petroleum boom in 1981 would seem to have been a catalyst for the general economic policy reforms that took place in Nigeria in the mid 1980s. While all facets of the economy suffered, the agricultural sector was the hardest hit. This is owed to the fact that the petroleum boom related ‘Dutch Disease’ impacted agriculture in numerous ways. First, the exchange rate appreciated by 80 percent in real terms between 1973 and 1980, as petroleum revenues increased. As such, the overvaluation of the Nigerian Naira (NGN) placed agricultural exports in a particularly disadvantaged position. Second, growers were burdened with the taxes and retention charges imposed by the commodity marketing boards, leaving them with a reduced percentage of the average world market prices for their crops (Oyejide *et al.*, 2003).

In summary, in 1961-65 world oil palm production averaged 1.5 million tonnes, with Nigeria accounting for 43 percent. Today, world production has grown to 14.4 million tonnes, while Nigeria, which remains one the largest producers in West Africa, now only accounts for 7 percent (Kajisa *et al.*, 1997). In addition, palm oil is the leading edible oil in the world market, accounting for 40 percent of the trade in all 17 major oils and fats. In the year 2000, world exports reached 15.1 million tonnes, up from 900 000 tonnes in 1999. Malaysia led the market, providing 60 percent of all output, followed by Indonesia at 26.5 percent. Nigerian production only accounted for 740 000 tonnes. Palm oil is also expected to surpass soybean oil production in the coming years (Odey, 2004).

## CHARACTERIZATION AND BACKGROUND INFORMATION

### OVERVIEW OF THE MACROECONOMIC ENVIRONMENT

Petroleum-rich Nigeria has had its share of challenges stemming from the nation's political instability, corruption, inadequate infrastructure and poor macroeconomic management. The over-dependence on the capital intensive petroleum sector has meant that the primarily subsistence agricultural sector has failed to keep pace with the rapidly growing population. In past years, the government has implemented market-oriented reforms, as recommended by the International Monetary Fund (IMF), including modernizing the banking system, curbing inflation and resolving regional disputes over the distribution of petroleum earnings. In addition, the government began deregulating fuel prices in 2003, announced the privatization of the country's four petroleum refineries, and instituted the National Economic Empowerment Development Strategy (NEEDS); a nationally designed programme modeled after the IMF Poverty Reduction and Growth Facility for Fiscal and Monetary Management. GDP rose in 2005 largely owed to the increase in petroleum exports and the high prices for global petroleum. Later that year, the country won debt relief approval from the Paris Club for \$30 billion of Nigeria's total \$36 billion external debt (CIA, 2006).

Prior to these improvements in the macroeconomic environment, Nigeria's overvalued NGN (see Table 2 for changes in exchange rate) played a leading role in the declining competitiveness of agricultural exports in world markets. This factor contributed to the dramatic drop in agricultural commodities in the 1970s. Between 1970 and 1982, annual production of the country's main export crops fell between 29 and 65 percent:

- Rubber (by 29 percent)
- Cocoa (by 43 percent)
- Groundnuts (by 64 percent)
- Cotton (by 65 percent)

The result was that the aggregate value of agricultural exports fell by close to half during this time frame (Oyejide *et al*, 2003).

**Table 2. Changes in the exchange rate (NGN/US\$) 1980-2000**

	1980-85	1986-93	1994-2000
Period Average	0.7038	9.373	77.7959
Minimum	0.5468	1.7545	21.996
Maximum	0.8938	22.0654	102.1
Total Change (%)	63.5	1158.6	364.3
Annual Average Change (%)	12.36	165.88	60.72
<b>Changes in real effective exchange rate</b>			
Total Change (%)	60.49	118.07	113.44
Annual Average Change (%)	10.08	13.12	16.21

Source: Oyejide



While the commodity marketing boards held monopoly power for the purchase and sale of the country's export crops, they also acted as the Government's fiscal agents and paid producers at well below world market prices. The removal of many tax elements in the 1970s resulted in producer prices being higher than world prices at the official exchange rate. Nevertheless, owing to the overvaluation of the exchange rate, the world price was substantially discounted in terms of the NGN, so farmers continued to be taxed by the commodity board system. Even with considerable subsidies for agricultural inputs and capital equipment (by the 1980s, subsidies ranged from 50 percent for tractors to 85 percent for fertilizer), the agricultural output produced was not substantial (Oyejide *et al.*).

In 1984, a short-term programme was initiated, comprising various measures to reduce fiscal deficit and limit import demand, with a view to improve the balance of payments. By 1986, a two-year SAP was launched, which included the introduction of a market-based exchange rate system, reform to the trade regime and monetary and fiscal restraint. Originally intended to be implemented within 18 months, the main elements of the SAP were in process beyond 1993 (Oyejide *et al.*, 2003).

One of the main goals of the SAP was to control the country's large and growing external imbalances and to facilitate the renegotiation of external debt. The SAP was particularly concerned with increasing the competitiveness of the economy's non-petroleum sectors, through the restructuring and diversification of the production base. Table 3 compares the macroeconomic indicators for Nigeria and Africa between 1980 and 2000.

**Table 3. Macroeconomic indicators for Nigeria and Africa (1980—2000)**

		Nigeria	Africa
Real GDP average			
Growth Rate (%)	1980-1990	1.6	2.5
	1991-2000	2.7	2.3
Current account balance			
(% of GDP)	1980-1990	-5	-2.9
	1991-2000	-3	-2.1
Fiscal deficit			
(% of GDP)	1980-1990	-5.2	-6.4
	1991-2000	-1.2	-4
Inflation: Annual			
Average Change (%)	1980-1990	21.6	15.7
	1991-2000	30.9	23

Source: AfDB, 2001 in Oyejide *et al.*

The main modifications carried out under the reform were changes in the exchange rate, with a significant devaluation of the NGN, constituting a decline of over 60 percent. However, this change was minor considering the magnitude of the depreciation experienced during 1986-1993 (1 161 percent) and 1994-2000 (364 percent). Changes in agricultural trade policy were not as extreme and the main trade policy instruments remained consistent (Oyejide *et al.*, 2003).

### **Box 1. Nigerian oil palm production 1970-2001**

- In 1970, palm kernel and palm oil production stood at 315 000 and 488 000 tonnes respectively. By 1984, production had increased to 360 000 and 615 000 tonnes.
- At the inception of SAP in 1986, output stood at 824 000 and 715 000 tonnes respectively, and increased significantly postSAP to 1.321 million and 894 000 tonnes respectively in 2000.
- The average production growth rates of both palm kernel and palm oil prior to SAP were 1.56 percent and 2.01 percent and these increased to 16.07 and 4.28 percent, post SAP (1986—1993), but subsequently declined to 3.0 and 1.31 percent between 1994 and 2001.

Source: Sanusi, 2004.

The dissolution of the commodity marketing boards in 1986 (at which time direct public sector intervention in fixing prices for export crops also ceased) was aimed at creating incentives for the increased production of agricultural export crops. To that end, interest rate ceilings were removed to encourage greater availability of agricultural credit through cooperatives. Additionally, heightened import restrictions were established to stimulate domestic production (Oyejide *et al*, 2003).

The agriculture sector attained an overall annual growth rate of 5 percent between 1980 and 2000. The average annual growth rate during this period remained at 6 percent for all crops. In the first half of the 1980s, aggregate agriculture grew by a meagre 2 percent, while in the second half this figure improved dramatically. However, the average annual growth rate of aggregate agriculture again fell to 5 percent during 1990-95 and further to 3 percent between 1995-2000 (Oyejide *et al*).

The Nigerian government progressively abandoned its reform programmes and towards 1993 restored a fixed exchange rate system. By 1995 the rapidly worsening macroeconomic situation resulted in the restoration of fiscal control and the establishment of a dual exchange rate system. With this, a new market-based exchange rate system for private sector transactions operated alongside the official fixed rate system, restricted to official transactions. By the end of 1999, all foreign exchange transactions were carried out within the market-based system (Oyejide *et al*, 2003).

### **POLICIES AND PROGRAMMES SUPPORTING THE EXPORT SECTOR**

The oil palm sector was severely disrupted by the civil war that lasted from 1967 to 1970. “Virtually all plantations were abolished, processing mills destroyed, and smallholders and oil palm groves received low priority as all the available labour was devoted to the production of staple foods” (Moll, 1987). Since most farmers fled, effectively abandoning the oil palm industry, many of the farms lay fallow for some time. When the producers returned, they began harvesting what they found, and continued exploiting old plantings without seeking to plant new ones.

The petroleum boom further aggravated the decline of the agricultural sector during the 1970s, as did the marketing board's pricing policy in the 1960s (which also served as a disincentive to technology adoption). Urban activities took precedence over farming, as both labour and capital pursued more viable options. In this regard, the Nigerian Palm Produce Board (NPPB), which was established to promote the prosperity of rural oil palm producers, failed (Kajisa *et al*, 1997).

Consequently, in 1975 the federal government again sought to revive agricultural commodity production through an oil palm sector programme sponsored by the World Bank and the federal and state governments. The initiative was designed to link the plantation sector with smallholders in order to maximize economies of scale and scope, provide new employment opportunities and offer facilities for fruit collection and processing. However, an unforeseen wage escalation diminished the financial resources for this project and other financial constraints hindered some state governments from supplying free seedlings and fertilizers. Loans for land preparation were also affected and the ensuing conflict between the federal and state governments served to hamper all such future projects (Kajisa *et al*, 1997).

## **FINANCIAL INSTITUTIONS AND THEIR ROLES**

In terms of the roles played by financial institutions and other agencies in supporting oil palm production, Sanusi (2004) identifies them as:

- To fund research and development,
- To support the development of linkages between formal, semi-formal, and informal providers of financial services to smallholders and plantation owners,
- To assist in updating and sensitizing farmers' knowledge and skills in the production and utilization of oil palm fruits through farm-level research, training and information,
- To set up revolving loan schemes to encourage and facilitate the establishment of youth employment generating projects, outgrowers' schemes for the establishment, rehabilitation, expansion of plantations and other innovative initiatives,
- To offer technical advisory services and risk management,
- To encourage and support the intermediary role of Non-Governmental Organizations (NGOs) and private agencies, as well as international and regional mediators,
- To invest in the establishment of cottage, processing, and manufacturing industries and the marketing of agricultural products.

The Central Bank of Nigeria (CBN) has played an important role in supporting agricultural development in general. The CBN has created a number of products aimed at facilitating the provision of credit to the agricultural sector. Through the Agricultural Credit Guarantee Scheme Fund (ACGSF), the Trust Fund Model (TFM) and the Interest Drawback Programme (IDP), it has sought to increase credit facilities to smallholders. Perhaps these schemes will prove to be major contributors to oil palm production in the near future.

In general, banking institutions are averse to lending to agriculture, particularly for perennial crops such as oil palm, owed to the high risks involved. With the collapse of the industry, the fears of many lenders materialized as factors such as the depreciation of the NGN (which made the

cost of imported machinery, spare part, and agro-allied inputs skyrocket), the deregulation of the banking system, and the issue of poor management of the production, storage, marketing and maintenance processing, resulted in huge losses to the various institutions (Poyi, 2004).

In linking smallholder or outgrower schemes with nucleus estates, nucleus oil palm estates were to be established throughout the oil palm belt. Subsequently, smallholders around the estates were to be assisted in planting the improved tenera oil palm variety, while also receiving extension and processing services (Oyaide, 2004).

This policy resulted in the establishment of oil palm estates at Ohaji, Obima, Okomu, Ore-Irele, Ayip-Ekun, Nsukwa, Risonpalm, Okhus, and Obaretin, among others. Today, oil palm estates are estimated to cover 80 000 hectares, increasing at about 6 000 hectares each year (following privatization of most of the estates). Where smallholders were concerned, smallholder units were created at the state level and a Federal Tree Crops Monitoring Unit (FTCMU) was put in place to monitor and coordinate their activities. Each state unit therefore raised tenera seedlings from Nigerian Institute For Oil Palm Research (NIFOR) seeds and distributed them to producers (Oyaide, 2004).

Despite its good intentions, less than 55 percent of sprouted seeds provided by NIFOR were actually used. Instead, a significant number of the seedlings overgrew the nurseries and were eventually destroyed. The scheme additionally failed to create strong linkages between smallholders and the nucleus estates. It instead became a separate programme managed by the Ministry of Agriculture through the Tree Crops Units (TCUs). This is in stark contrast to a similar scheme enacted in Ghana, which proved to be extremely successful. Despite the overall failure, more than 120 000 hectares of tenera seedlings have been planted through the years.

The oil palm sector is largely dominated by smallholders who produce 80 percent of Nigeria's output. Several million smallholders are dispersed over an estimated area of 1.65 million hectares in the southern part of Nigeria, where they inter-crop oil palm with food crops such as cassava, yam and maize. The wide geographical spread necessitates high transaction and high transportation costs in conveying harvested fruits to processing centres and in providing extension and other services to smallholders. In addition, the capacity of the traditional presses is considerably low, ranging from 0.10 to 0.75 tonnes of fruit per hour. When compared with modern mills, the traditional method proves inefficient, offering oil extraction rates of between 20-50 per cent, whereas its counterpart yields 90 percent. The quality of oil is also low by export standards, although it is adequate for the domestic market (Moll, 1987). Furthermore, although high yielding varieties (HYVs) were available at research stations, few smallholders have actually adopted them (Kajisa *et al*, 1997).

The government initiated a series of projects in an attempt to boost oil palm production. Most notable are:

- The Tree Crops Project (TCP) (in partnership with the World Bank)
- The National Accelerated Industrial Crop Production Program (NAICPP)
- The Presidential Initiative on Tree Crops (PITC)
- The Vegetable Oil Development Program (VODEP)

The main constraint hindering the effectiveness of these projects was the poor funding arrangements on the part of the government. Additionally, there were problems of misplaced political interest and involvement, as well as overall political unrest, which served to limit the success of the first two projects. With such ambitious objectives in place, corresponding financial commitments were required.

In 2002-03, the government created a task force on oil palm rehabilitation as a measure to boost the sector. However, no realistic targets were set, therefore the impact of the task force was limited. In addition, while NIFOR remained the only source of reliable seedlings and sprouted nuts, no provision was made to increase the institute's production of seedlings, which could have significantly impacted oil palm production and yields. This could have facilitated the government's goal of increasing the cultivated area to one million hectares (from an annual growth rate of 5 000 to 6 000 hectares).

VODEP was subsequently proposed for oil palm and other major oil seed crop development with the target of planting one million hectares of oil palm in five years, a budget of 50 billion NGN and a total ban on the importation of vegetable oils. The programme included an aggressive planting component involving private sector investors and plantation owners, as well as smallholders and outgrowers. Under this scheme, private investors and plantation owners were charged with planting 100 000 hectares of oil palm estates, while smallholders (directly and also through an outgrowers initiative) would be assisted in planting 900 000 hectares. The implementation was planned to be executed in three phases (Oyaide, 2004):

### **1. Immediate/ Short-term (2003-2004)**

- a. Rehabilitation of 125 000 hectares of abandoned or poorly maintained moribund plantings,
- b. Immediate raising of 2.5 million seedlings for planting in 2004,
- c. Upgrading of NIFOR seed production capacity by establishing 55 hectares of seed gardens,
- d. Promotion of fabrication of improved small/medium scale fruit processing equipment and nut crackers. Refurbishment of existing old mills and those in estates to be promoted through subsidized interest rates on loans raised for that purpose,
- e. Undertaking a national inventory of existing oil palm plantations and serviceable or abandoned mills and related machinery, for use as benchmarking.

### **2. Medium/Long-term**

- a. Replanting of about 2.7 percent of the existing 2.3 million hectares of wild dura groves with tenera seedlings, involving about 62 000 hectares over a five year period;
- b. New Plantings;
  - i. Plantations and estates
  - ii. Outgrowers to be assisted by plantation owners and nucleus estates within 25 km radius to plant an estimated 32 000 hectares of oil palm annually. The government would accordingly finance the cost of the seedlings for the out growers, as well as the wire collar and fertilizer required. Plantations will also provide technical and extension service, as well as an outlet for processing and marketing,
  - iii. Smallholders will be assisted through government subsidized seedlings, fertilizer and other necessary inputs, while the state Agricultural Development Programmes (ADPs) will provide extension support.

In 2004, the government launched the PITC, which provides producers with funding,<sup>1</sup> and with oil palm seedlings at subsidized rates. It is too early to determine the impact of the funds provided, as few smallholders have benefited to date.

The initiative is composed of various committees that are tasked with diverse functions and responsibilities. Some of the goals of the PITC include:

- To help NIFOR increase production of seedlings.
- To enhance the provision of extension services through the ADP.
- To improve producers' access to rural credit through the Nigerian Agricultural Credit and Rural Development Bank (NACRDB).
- To promote palm oil production and help to stimulate the local market (in partnership with the Nigerian Export Promotion Council (NEPC)).
- To improve the overall marketing of tree crops.
- In collaboration with the government, to improve roads and rural infrastructure.

The Federal Ministry of Agriculture and Rural Development (FMARD) is the coordinating agent for all PITC activities. The ministry's present expectation is that overall oil palm production will exceed the existing shortfall of 300 000 metric tonnes in the coming three years.

### **NIGERIAN INSTITUTE FOR OIL PALM RESEARCH (NIFOR)**

NIFOR is structured as a top-heavy body with a large number of administrative staff. While only about a third of the regular staff are directly involved in research, most of the organization's budget is used to pay the salaries of the vast number of administrative, scientific and support staff (David, 2003).

As a result of the lack of sustainable funds and due to inconsistencies in policies, researchers are often unable to adopt a long-term vision (Oyejide). This sometimes results in ineffective research that restricts the positive impact on smallholders.

NIFOR has a budget from the government of about 100 million NGN. Originally founded in 1939, it was transformed into the West African Research Institute (WARI) in 1951 with funding from other external sources. However, in 1960, the Nigerian government reverted back to NIFOR and reassumed control over its activities. Because of these fluctuations in management and funding, the work of the institute has been limited, and the infrastructure has deteriorated to the extent that NIFOR is in dire need of new laboratories and equipment. Some external funding is still provided through such sources as the World Bank and the institute tries to generate revenue through sales from its oil palm demonstration sites, however, these do not adequately address the existing funding gap.

<sup>1</sup> The Government provided 50 billion NGN (through the Presidential Committee on Special Credit Scheme) for extending credit to producers at an interest rate of 8 percent. The producers simply have to provide the land and labor. This overlaps with the PITC.

Another challenge facing the institute is the growing generation gap among staff. Since there has been minimal recruiting over the past number of years, the skills and knowledge of staff have not kept pace with the evolving technology and with the changing needs of smallholders and of the market. Accordingly, investments are required for staff training and to promote heightened field experience and contact with producers.

The functions of NIFOR include:

- To provide quality seeds to producers (the institute is presently the main source of good seeds).
- To disseminate information on good crop husbandry.
- To provide knowledge and training on pests and disease management.
- To engage producers through extension services.
  - Through ‘Farmer Field Days.’
  - By handing out information bulletins.
  - By conducting training seminars at the institute.
- To provide small-scale processing technologies (NIFOR produces small processing machines that are of immense benefit to smallholders).

The mandate and subsequent functions of the institute are presented in the table below.

**Table 4. Mandate and functions of NIFOR**

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<b>Mandate of NIFOR</b>
Fundamental study of the mandate crops
Improvement of genetic potentials of the specified crops and production of their seeds for distribution to farmers
Improvement of agronomic and husbandry practices including planting, cultivation, harvesting and soil fertility management techniques; farming systems in relation to cultivation methods
Ecology of pests and diseases of the mandate crops and development of appropriate control measures
Mechanization and improvement of the methods of cultivation, harvesting, processing, preservation and storage of palm products
Improvement of the utilization of by-products
Design and fabrication of simple implements and equipment for palm processing
Integration of the cultivation methods of the mandate crops in farming systems in different ecological zones and its socio-economic effects on the rural population
Any other matter relating to production, processing and utilization of palm products
<b>Deriving from the mandate, the Institute:</b>
Produces seeds and seedlings of the mandate crops for distribution to farmers
Undertakes agricultural extension services through liaison with federal and state agencies, primary agricultural producers, industries and other users of research results
Organizes technical and vocational courses in palm production and related fields
Provides laboratory and other technical services to farmers, agro-based industries and other parties requiring these services
Collaborates with relevant research institutes and organizations

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Source: Omoti, 2004

Another challenge facing the institute is the provision of seeds to producers. The demand presently exceeds the supply, because of limited outreach. Additionally, research into diversified palm products (such as palm diesel plasticizer) also require up-scaling in the scope and outreach of research efforts.

In 2005, the government established the Tree Crops Development and Marketing Company Plc (TCDMC) with the task of promoting the production and processing of tree crops. A planning conference involving the Niger Delta Development Commission (NDDC), the governments of oil palm producing states, and oil companies, served as the basis for launching the company, which is part of the implementation arm of the PITC.

One of the responsibilities of the company is to buy palm products (palm oil, palm kernel oil, and palm kernel shells) from processors and subsequently sell to the market (including hotels and supermarkets). Another function involves promoting higher quality standards by requiring that palm oil be certified by the National Agency for Food and Drugs Administration and Control (NAFDAC) and the Standards Organization of Nigeria (SON). This additionally required educating the local market on the need to ensure that products on sale had the appropriate quality control (QC) seal from NAFDAC, so as to discourage the sale of uncertified, low quality and potentially unsafe products. The company also organizes training for producers and lobbies for subsidies for agricultural inputs.

The TCDMC has played an important role in promoting collaboration between government entities. Working with NIFOR, the company helps disperse and promote the by-products derived from oil palm produce and has helped to increase market sales.

Table 5 shows the performance of NIFOR planting materials over the past few decades, while Table 6 gives an overview of some of the institutes' achievements.

**Table 5. Performance of NIFOR planting materials released to farmer (1930s - 2004)**

Period		Yield (tonnes/ha)	
		FFB	Oil
1930s--1950s	Open and controlled DxD, DxT, and DxP crosses of selected grove palms	2.5--5	0.5--1.0
1960s--1970s	DxP controlled pollinated EWS materials from the first stage oil palm breeding programme	5--10.0	1.0--2.0
1980s--Present	DxP controlled reproduction of elite tenera progenies from the first cycle of the modified RRS breeding programme	15--18	3.0--3.6
Future	DxP controlled reproduction of elite tenera progenies from the second cycle of modified RRS breeding programme	20--25	4.0--5.0

Source: Okwuagwu et al, 2002: In Omoti, 2004



**Table 6. Some NIFOR achievements**

1994--2003	1 500 farmers trained in oil palm management techniques
1999	<p>Outreach program launched for direct transfer of technology and to motivate land owners to grow tenera hybrid</p> <p>655 farmers from 105 communities spread across three local government areas in Edo State involved</p> <p>Outreach programs launched in Akwa Ibom, Cross River, Delta and Nasarawa States to provide technical assistance in raising large-scale oil palm nurseries</p>

Source: Omoti, 2004

## SECTOR PERFORMANCE

Oil Palm flourishes in the rainforest and derived savannah belts where unimproved indigenous (*dura*) varieties cover 2.3 million hectares and provide about 50 percent of national palm oil and palm kernel output. Plantings of the improved (*tenera*) variety only cover about 200 000 hectares of small-scale holdings. The large and medium-scale plantations are spread over 80 000 hectares (Oyaide, 2004).

Nigeria used to lead the global oil palm industry, but is today the third largest producer (after Malaysia and Indonesia) with annual palm oil and palm kernel oil production estimated at 936 000 tonnes (Oyaide, 2004).

Records from the FMARD show Nigerian palm oil exports at 180 000 tonnes in 1958 declining to about 9 000 tonnes between 1974 and 1977 and subsequently zero soon after. Today, annual production is estimated to be 1.3 million tonnes, although the country still imports over 300 000 tonnes to make up for the shortfall.

Between 1973 and 1985, the FMARD initiated the Smallholders' Scheme to encourage tree crop development. The scheme provided selected producers with cash and free material inputs, as well as with extension services over a four year period. However, at the end of thirteen years, the impact of the scheme was minimal, having resulted in only 18 217 hectares of oil palm, 58 675 hectares of cocoa and 2 618 hectares of rubber.

Since then, one of the main causes of the sector's low performance has been the sustained use of traditional oil palm varieties that yield low levels of productivity. In addition, a number of smallholders continue to use old planting materials that have effectively reached the end of their productive lives. Coupled with this, old processing methods further diminish the level of productivity attained. Without adequate access to new planting materials and without the availability of mechanical processing equipment, smallholders have remained incapable of increasing their yields and quality levels.

**Box 2. The role of improved technology: Lessons from Malaysia**

Oil palm research in Malaysia has benefited from the creation of the Oil Palm Genetics Laboratory (OPGL) by four major private plantations and with the launching of an exchange programme between the Malaysian Department of Agriculture and its African counterparts (Hartley, 1988). The OPGL developed new planting materials that radically enhanced the industry's commercial viability. This foundational entity paved the way for future improvements in the sector. Accordingly, the Palm Oil Research Institute of Malaysia (PORIM) was established in 1979 to cater to the growing number of producers, in partnership with the private research stations owned by the large plantations. To maintain industry competitiveness, PORIM has focused on demand expansion (for instance, developing diesel and fat substitutes from palm oil), cost reduction through farm mechanization (in response to rising labour costs), and improved planting material efficiency through tissue culture.

As the industry grew, the pool's rigidity proved to be a stumbling block and as such it was replaced by a federal regulatory body, the Palm Oil Registration and Licensing Authority (PORLA) in 1974. From a theoretical perspective PORLA's role is to regulate and coordinate all activities relating to supply, sale, storage, trade and quality, however in reality, it has not interfered with the establishment of free market prices. Furthermore, its powers have not served to limit competition, but the group has instead focused on providing goods and services in the form of quality control and information. A key lesson is the sector's consistent adaptability to the changing needs of the market, as evidenced through the creation of new institutions as deemed appropriate (Idachaba, 1987).

In addition, the Malaysian government facilitated the move to oil palm by allowing rubber replanting funds to be diverted to that purpose and by simplifying the land registration procedure for consolidation of holdings into viable units.

Another important element of the industry was its vertically integrated structure, which provided an essential coordination mechanism. Unlike the widely dispersed production structure in Nigeria, Malaysia's geographic concentration of production in plantations, combined with the ease of communication between production and processing managers, easily linked the supply of perishable fruits to processing centres. This framework also facilitated access to imported inputs such as fertilizer. This system was instituted by European trading companies and there was usually direct contact between large plantations and input suppliers (Kajisa et al, 1997).

Sources: Idachaba, 1987 and Kajisa et al, 1997



## 2. Characterization and appraisal of factors affecting commercial viability

### MARKET STRUCTURE AND ORGANIZATION

The market for palm products is divided into palm oil, palm kernel oil, and by-products. The Nigerian market for low quality edible palm oil accounts for about 80 percent of total production, owed to the local preference for the ‘tangy flavour’. Palm oil, together with palm kernel oil, accounts for 72 percent of vegetable oil production in Nigeria (Oyaide, 2004)). This oil doesn’t pass the quality control (QC) test assessed against 17 characteristics, instead has a high FFA content and high iron content. High quality palm oil produced for the local market accounts for 20 percent of total production and possesses a high olein content. Okomu Oil Company is presently the main producer of this high quality oil and serves as the benchmark for others. However, there have been reported cases of market sellers mixing oils of varying quality levels and pricing them according to the amount of ‘Okomu oil’ present.

**Table 7. Vegetable oils and fats in Nigeria (2001)**

<b>Annual Demand</b>	<b>1.6 million tonnes</b>
Growth in Demand (annually from 1996)	5%
Annual Domestic Production	1.3 million tonnes:
Palm/Palm Kernel Oil	72%
Groundnut Oil	23%
Others	5%
Annual Production Deficit	0.3 metric tonnes

Source: Oyaide, 2004

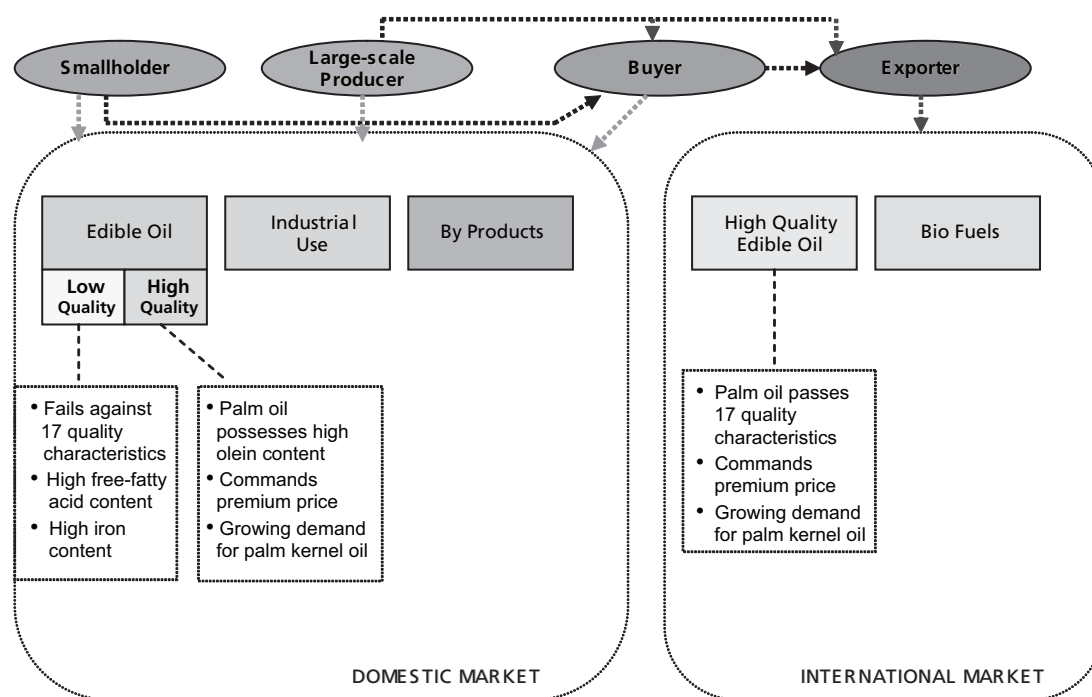
Palm oil is also sold to industrial customers, who demand high quality oil. With the rise in interest and use of palm kernel oil, sales are increasing for both consumption and for industrial uses. Additionally, palm kernel by-products are also in demand. The by-products of palm oil production are kernels and an aqueous mixture of oil, fibre and solids. This solution is strained to remove fibre and then used as fuel, leaving an aqueous mixture called palm oil sludge (POS) (FAO, 2006). Additional uses for oil palm by-products include the preparation of poultry feeds, similar to groundnut cake (Onwudike, 1986) and Nwokolo, Bragg and Saben (1977) state that palm kernel cake can be used in poultry feeds up to 30 percent without any adverse effects.

Smallholder farmers after processing, often sell their produce to intermediaries for sale to the local market, as well as for exporting. Depending on their processing capacity (and based on the cost-benefit analysis of distance to market and transportation costs incurred), some smallholders sell directly to the market.

Large-scale producers, by virtue of their size, are able to sell directly to both domestic and international markets, but may, for reasons of efficiency and/or cost savings, choose to use an exporter.

Intermediaries (buyers) negotiate with producers and sell the produce to the domestic market, as well as to exporters. In a number of cases, exporters and buyers are one and the same. Figure 1 below presents a visual illustration of the market structure of the oil palm industry.

**Figure 1. Market structure of the Nigerian oil palm industry**



### CONSUMER DEMAND AND DESIRED PRODUCT QUALITIES

There are varying degrees of quality levels desired for palm produce. In the case of palm oil, there are 17 characteristics against which the oil must be evaluated in order for it to be graded as premium quality and in order for it to be exported to overseas markets. This type of palm oil is known as ‘special oil’ containing only 2 percent of FFA and is both consumed and used in the production of creams. ‘Technical oil’ on the other hand, is preferred for local consumption and scores poorly when evaluated in light of the 17 characteristics.

In order to attain special oil, the palm produce must be harvested and processed within 12 hours. However, most smallholders, lacking the technical and labour requirements to do this, usually process their harvest within a week, under poor processing conditions, which results in high levels of dirt, high FFA levels (about 8 percent and over), and high iron content (owed to iron deposits from the use of old machines). Moreover, over 70 percent of the nation’s processing centres are non-operational and without capital and spare parts required for maintenance, these poor processing practices continue to impact quality.

About 80 percent of the palm oil produced in Nigeria is sold to industrial users however, only about 20 percent of the oil produced is of premium quality.

## **RISKS AND SOURCES OF VULNERABILITY**

### **Access to land**

In comparing the Malaysian oil palm industry with the Nigerian counterpart, it is evident that plantations have served as the dominant agricultural production system in Malaysia for a number of years. This is easily attributable to the country's high involvement in the rubber industry. It is therefore not surprising that the transition to oil palm was relatively effortless considering that the management and infrastructure requirements for rubber and oil palm plantations are quite similar. While the associated costs were low for Malaysia, they could be significantly high for a country like Nigeria whose smallholders are widely dispersed.

Owing to Nigeria's low plantation culture (partly owed to the land tenure system and also because of the geographical spread of oil palm producers), it would be useful to review the Land Use Act and modify it to serve as a catalyst for supporting the development of a plantation culture for oil palm production.

One of the difficulties encountered in acquiring land for oil palm production is the perennial nature of the crop. It takes about 36 months from the date of planting for a well established plantation to produce any outputs. Moreover, initial yield is typically low and increases annually until it reaches full maturity in the eleventh year. In addition, annual maintenance costs during the immature period stand at about 20 000 NGN (Omereji, 2004). Specific strategies for addressing the land tenure issue are presented in the technical strategies for improving commercial viability section.

### **Access to finance**

Another risk source for smallholders is the limited availability of rural finance. Considering that oil palm is a perennial crop with a long gestation period, lending institutions are unwilling to provide financial services to producers owed to the lack of collateral and the time lag for producing a harvest. In addition, some banks (that are involved in promoting the export sector), such as the Nigerian Export-Import Bank (Nex-im Bank) only fund large-scale projects, and therefore leave smallholders marginalized. An appropriate policy for ensuring the availability of rural finance to smallholders is therefore required to improve the enabling environment for small-scale oil palm production.

Another reason for the seeming failure of financial services to smallholders lies in the limited agricultural expertise of loan application reviewers. When unseasoned subject matter professionals review applications, depending on their understanding of the project, their appraisal may be somewhat biased. This is especially true considering that the returns derived from agricultural investments are often not as profitable as from other sectors and also owed to vagaries in weather, pests, diseases and other uncontrollable environmental factors that essentially promote defaults on loan repayments.

**Technology**

The simple oil-palm processing machines mentioned in the section on NIFOR are required to help improve the output levels and quality of palm produce. Smallholders would benefit from measures to increase their access to production and processing technologies, to ensure that they receive adequate remuneration for the volume of their produce, as well as for their increasing quality levels. One such measure could involve strategically located mills to reach as many producers as possible and offering improved oil extraction rates (for instance, 15-20 percent of the weight of the fruit bunch).

**Lack of government buy-in (funding)**

There have been situations where external donors have sought to provide funding for oil palm related projects, but have had to withdraw their support owed to the lack of government buy-in. In one case, the World Bank had offered to provide a considerable amount that would have resulted in the establishment of 60 mills for smallholders, however, because the government wouldn't guarantee the loan, the proposal never materialized.

In the past, when Nigeria was ruled by military governments, there was little interest in agriculture development and even less in the oil palm industry. As such, even private sector interests in driving agriculture were often blocked, as politicians sought personal gain from the petroleum boom. Therefore, there was poor maintenance of the support industries and infrastructure for agriculture, which translated into the decline of various sectors.

While the present government has adopted drastic measures to boost agricultural production, smallholders will always be vulnerable to fluctuations in the political arena, as new entities coming to power may have differing priorities that could limit the growth of the oil palm industry. If the government doesn't buy into the needed interventions for creating a robust industry, the funding allocated will be insufficient, as will be the other factors of production.

**Unaffordable inputs and labour**

While the availability of inputs and labour are adequate, smallholders have limited access owed to the prohibitively high costs for each. The prices of insecticides, herbicides, and fungicides are increasingly high and beyond the reach of the meagre earnings of small-scale producers. In the past, the government subsidized inputs, thus facilitating acquisition. As such to remedy the problem of low input usage, provision of credit for purchasing inputs and for hiring labour could be made.

The cost of labour is also rising, owed to the need for adequate accommodation and the high risks involved in harvesting (many smallholders still climb to harvest, which places the harvester at risk of death or injury and which sometimes results in damaged pods). Therefore, the provision of harvesting machines is essential.

Finally, as has been mentioned earlier, traditional processing methods have a low oil extraction rate, which suggests that producers are inadvertently throwing away a considerable portion of their income earnings. As such, modern processing mills are needed to help reverse this trend. Another positive effect of the processing mills is that they enable the producer to earn additional income from the sale of by-products.

**Poor plantation husbandry practices**

Plantation maintenance practices are often minimal in Nigeria, including poor weed management, pruning and fertilizer application practices. These are seemingly the result of a lack of support to smallholders, who would benefit from such assistance from industrial estates. Owing to their sometimes weak economic and technical ability, their adherence to strict agronomic standards is limited.

**Poor accessibility to quality seedlings**

A critical source of vulnerability lies in the uncertainty of the origins of some of the seedlings being sold to producers. Individuals seeking personal gain often approach producers with supposed high quality seeds, which are in fact fake replicas. There is therefore the need to strengthen the linkages between oil palm seed and seedling production and distribution to curb this unscrupulous activity. NIFOR could therefore work in close collaboration with the National Tree Nursery Development Programme (NTNDP), as well as with local governments to train a network of certified nursery operators to improve seedling supply to smallholders. A more detailed discussion of this is provided in a later section on economic strategies for improving commercial viability.

**Political instability**

It is a well known fact that the Nigerian oil palm belt (the Niger Delta region) has been privy to a fair share of political instability and civil strife in distant and recent history. While the civil war wrecked considerable havoc in the late 1960s, tensions over petroleum earnings have persisted since the 1990s. In fact, the spate of petroleum worker kidnappings and the rising number of opposition groups, render this region particularly unsafe. With such a situation, the lives and livelihoods of oil palm producers are always at risk, while the incentives for the involvement of private investments (not to mention lenders!) are dismal.

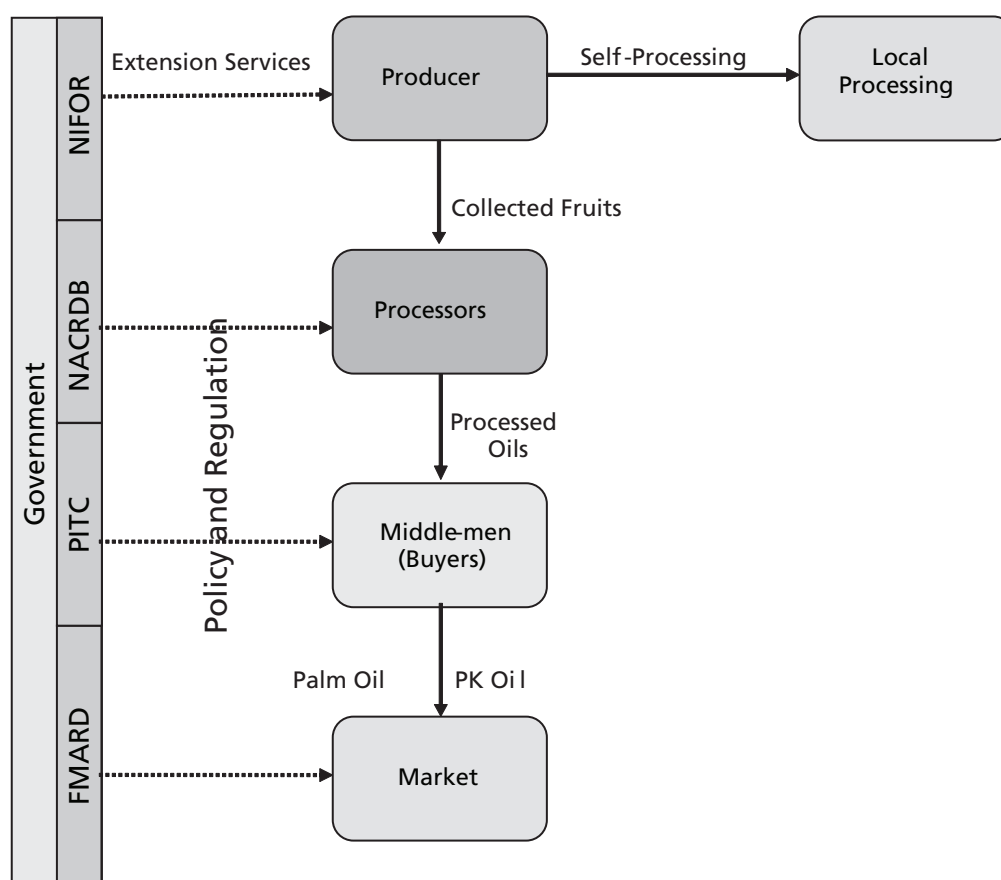
**Flow of services within the industry**

Once producers have harvested their palm produce, they have the option of either processing it themselves, depending on their capacity, or they can go through local processors. The main outputs from palm produce are palm oil and palm kernel oil. Palm oil has traditionally been the most important product (accounting for about 72 percent of total vegetable oil consumption) however, owed to the growing demand for palm kernel oil there is added opportunity for increasing overall oil palm production.

Once processed, the oil is sold to buyers who subsequently sell to the local market as edible oil, as well as to industrial customers and exporters. About 80 percent of palm oil output is sold to industrial companies, while the remaining 20 percent is used for home consumption. While it is more profitable for producers to sell palm or palm kernel oil, owed to their limited processing capacity, they are often only able to sell palm fruits, which earn considerably less than processed oil.

The Nigerian oil palm value chain is depicted below.



**Figure 2. The Nigerian oil palm value chain**

Source: Created by author

### **EFFICIENCY AND PROFITABILITY OF PRODUCTION AND PROCESSING TECHNOLOGIES**

Traditional processing methods for palm oil production are only able to extract about 24 percent of the oil, whereas modern methods extracts above 90 percent. An efficient means of addressing this issue lies in the small processing machines manufactured by the NIFOR. Although NIFOR has these machines available at reasonable costs, dissemination to producers has been limited. Because of a lack of resources, the institute is unable to extend its direct outreach to all needy producers throughout the oil palm belt. Moreover, because of the producers' own limited resources, the low cost of the machines could be prohibitive when more pressing needs, such as daily subsistence and children's school fees, are taken into consideration.

NIFOR, in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and United Nations Development Programme (UNDP), has developed the semi-mechanized integrated small-scale processing equipment (SSPE), which has been improved considerably since its initial introduction. New models with increasingly high extraction efficiency and requiring less labour input have been developed. These include the NIFOR large, with throughput capacity of 0.5-1.0 tonnes ( Fresh Fruit Bunch/ Hour (FFB/HR), the NIFOR medium, with throughput capacity of 0.25-0.5 tonnes FFB/HR and the NIFOR mini, with throughput capacity of 0.1-0.25 tonnes FFB/HR (Oyaide, 2004).

## COMPETITIVE ADVANTAGE

The main advantage enjoyed by the Nigerian oil palm industry is its location. Situated in West Africa, it benefits from close proximity to the major markets in Europe and Africa, especially as compared with its main competitors, Malaysia, Indonesia and Latin America. This significantly lowers transportation costs and can also serve as a stepping stone to increasing export market share once Nigeria's productivity and quality levels increase.

Table 8 compares the Nigerian Oil Palm Industry with that of Malaysia. It highlights the strengths of the Malaysian counterpart and shows areas for improvement in the Nigerian industry.

**Table 8. Comparison of the oil palm industry in Nigeria and Malaysia**

Characteristic	Nigeria	Malaysia
	Dominant technology: smallholder production with traditional processing	Dominant technology: large-scale plantations with modern mills
<b>TECHNOLOGY</b>		
Farm-level	Oil palm inter-cropped with other food crops; semi-wild varieties with little or no modern inputs	Intensive monoculture; high degree of specialization; HYVs and modern inputs, mechanization
Processing	Manual; low volume; low extraction rate (20-50%)	Well-integrated; capital intensive; high volume; high extraction rate (90%)
Management Structure	Decentralized management, processing and marketing	Single management control
<b>ENVIRONMENT</b>		
Production Structure	80% of national production from smallholders	Over 90% of production from large-scale plantations
Research	Public research (NIFOR) only	Collaboration between public (PORIM) and private research
Institutions	Separate land and tree tenure system, Land Use Decree of 1978	Consolidated land holdings; vertical integration; quality control standards
Supporting Infrastructure	Negligible; some government mills or plantation	Nurseries, credits, refinery mills, established trading system
<b>COORDINATION</b>		
Inputs	Little use of modern inputs and extension service	Provided internally (e.g. seedlings from own nursery) or from markets
Output Market	Previously controlled by monopoly marketing board; market liberalization in 1986	Vertical integration; contracts; markets; PORLA provides market information, standards and quality control
<b>PERFORMANCE</b>		
Productivity	Low	High
Quality of Oil	High fatty acids; for local use only	Export Quality
Adoption of Modern Inputs	Low	High
Access to Information	Slow	Fast (partial internal flow)
Impact on Environment	Low	High

Source: Staff Paper, Department of Agricultural Economics; Michigan State University, 1997



### **3. Guidance on strategies and actions to sustain and improve commercial viability**

#### **ECONOMIC**

##### **Youth involvement in oil palm production**

One of the important sources of risk and vulnerability to smallholders and to the oil palm industry in general is the political unrest and mounting civil tensions in the oil rich Niger Delta region, home to the oil palm industry. While petroleum has benefited a small number of Nigerians in the northern and western parts of the country, residents of the eastern petroleum producing area continue to be marginalized. It has been reported that infrastructural development has been slowest in this area, while high unemployment and crime prevail. This is perhaps the underlying reason for the involvement of employable youths in the various kidnappings and armed robberies taking place in the area. If these youths were able to benefit economically through gainful employment, it is likely that crime and tension in the region would decline considerably.

Accordingly, it would be helpful to further develop schemes to involve the youth in oil palm production. Considering the need to increase production and the tremendous potential for job creation and income generation, it would behoove the government to ensure that the youth profit from vocational and university training, with the subsequent guarantee of steady employment.

The NDDC is presently engaging the youth in the area of agro-equipment fabrication and maintenance. This initiative trains selected youth from the nine oil palm producing states and enables them to find employment (Aguariavwodo, 2004). This is an excellent initiative that has the potential of stimulating the positive effects mentioned above. FMARD should therefore seek to partner with the local governments and producer communities to scale-up this initiative and consequently curb crime and illegal activities, helping to boost oil palm production and helping to generate income and create jobs. Areas for further consideration include:

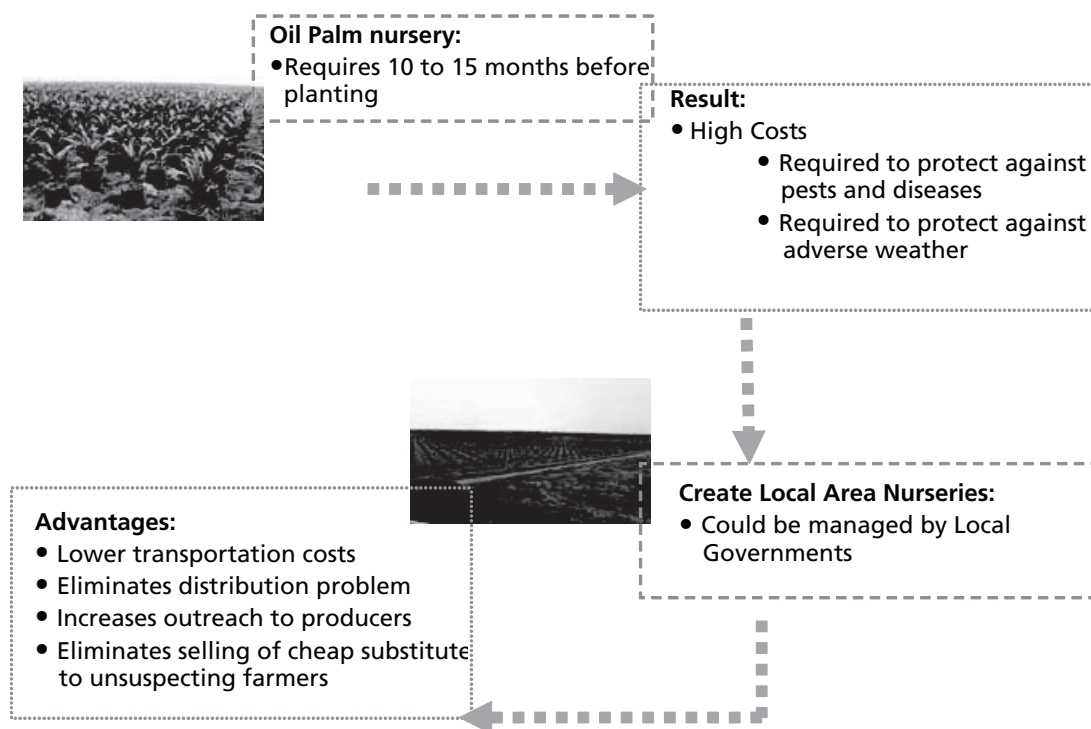
- Establishing and maintaining small oil palm plantations
- Raising and marketing oil palm seedlings
- Processing oil palm fruits and kernel
- Marketing palm fruits and processed products
- Fabrication and maintenance of oil palm processing equipment

### Increased use of improved seedlings

As has been stated throughout this paper, one of the constraints facing the oil palm industry is the low use of improved seedlings produced by NIFOR. Production of the high quality tenera variety, which is highly rated and accredited, has been increasing over the past few years, however, the actual uptake of these seedlings is not yet optimal. It has been reported that seedlings are often left in nurseries for too long so that they become unusable.

As of 2004, the price of seedlings stood at 15 NGN, making it quite affordable. The question is therefore how to increase the distribution of this important material to smallholders. One solution would be to create nurseries throughout the oil palm belt to increase the research institutions' reach. NIFOR would help to establish these nurseries, to ensure adherence to quality standards and the nurseries would subsequently be charged with providing the seedlings to producers in a timely and strategic manner, to ensure greater outreach. Moreover, these nurseries would provide certified seedlings and also help to curb the growing tendency of unscrupulous fraudsters selling wild oil palm seedlings to producers, claiming that they are improved materials.

**Figure 3. Benefits of improved seedlings and nurseries**



The table below further highlights the gap between seeds produced and those actually used.

**Table 9. Production and distribution of oil palm seed (1994—2003)**

Year	Fresh Seeds Produced	Quantity of Sprouted Seeds Distributed Based on Paid Order
1994	2 640 000	1 357 131
1995	2 200 000	1 045 818
1996	3 870,000	1 490 000
1997	4 700 000	1 090 000
1998	3 600 000	1 060 000
1999	3 763 500	1 299 208
2000	4 804 000	2 231 232
2001	7 906 000	4 638 586
2002	5 176 000	1 559 289
2003	6 300 000	3 100 000

Source: Omoti, 2004

## TECHNICAL

### Modern processing technologies

As has been stated throughout this case study, smallholder farmers are in dire need of modern technologies for increasing quality and production yields. NIFOR possesses such knowledge; it however lacks the resources to disseminate this information. One way in which NIFOR could generate additional funding is through increasing the consulting services it provides to the oil palm industry, for instance on soil fertility analysis, feasibility studies and so on. Moreover, new seedlings of improved varieties are equally needed to mitigate the low yielding old varieties presently in use. NIFOR is again the source for providing these seedlings, that will enable producers to meet and exceed the existing 300 000 metric tonnes shortfall in palm oil production.

### Increasing area under cultivation

As has been mentioned, the Nigerian oil palm industry lacks an adequate plantation culture and also follows a land tenure system that limits smallholders' access to land. If adequately addressed, these two factors could effectively help increase the area under oil palm cultivation and subsequently palm produce production and smallholder earnings.

In the past, government-owned plantations fared poorly in matters of production, processing, and efficiency, especially as compared with their large, privately owned counterparts. However, with the advent of the new 'model' adopted between 1976 and 1990 in the form of the Okomu Oil Company, a new framework was created to successfully increase smallholder involvement in the industry.

Okomu was established in 1976 as a government-owned entity with foreign (Belgian) technical experts hired to manage the pilot scheme and to provide technical management and accountability. By the year 1990, it was fully privatized, as SOCFINCO (a Belgian entity) bought the thriving company.

Okomu successfully initiated a plantation culture, expanding its area under cultivation to the present 21 000 hectares of which, 8 000 hectares are dedicated to oil palm. Having established palm produce, the company diversified its product base and incorporated rubber into its portfolio. Rubber now accounts for about 62 percent of total land cultivated. The company sources its sprouted seeds from NIFOR and subsequently develops them in its nursery.

The main palm products produced by the Okomu Oil Company are processed palm kernel to produce palm kernel oil and palm kernel cake and palm oil. These are subsequently sold to the local market for consumption as edible oil, to industries and to other buyers.

Despite its huge success, the company is faced with numerous challenges, namely:

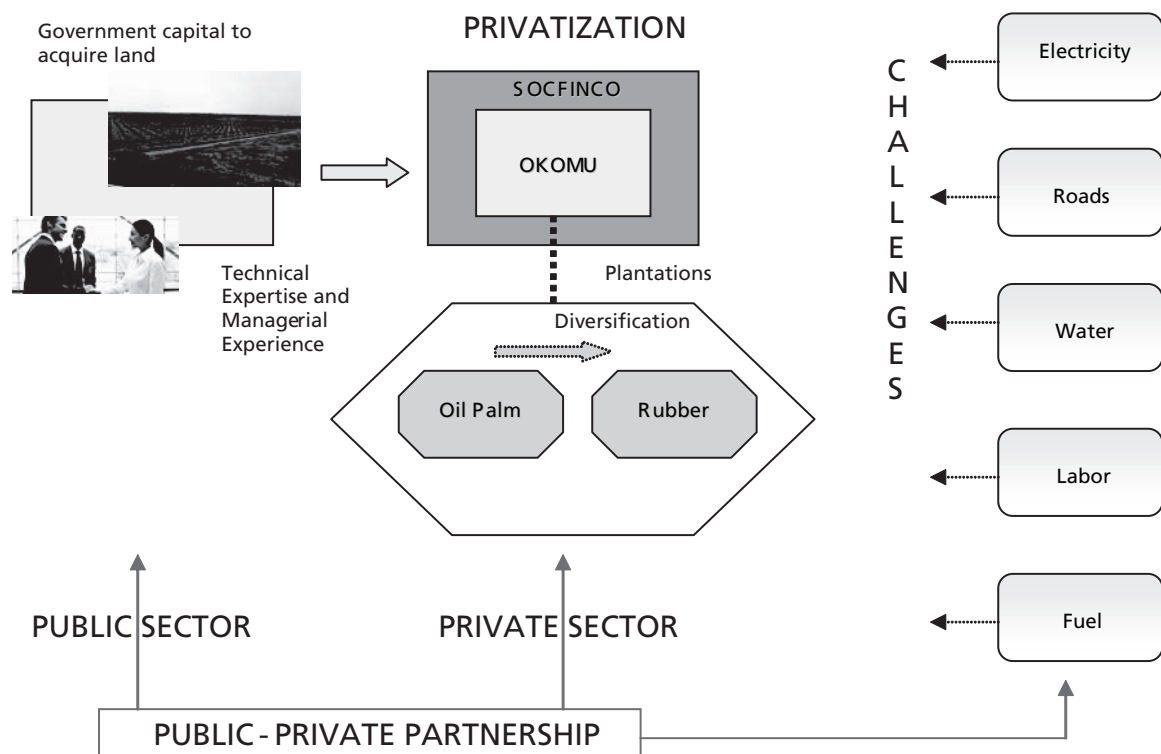
- **High electricity costs:** unreliable and infrequent public supply of electricity, Okomu has to generate its own power through the use of industrial size generators. Considering the magnitude of its operations, this translates into significantly high costs for diesel, labour, and maintenance.
- **Poor roads:** lack of an adequate rural and in certain cases, urban road network, Okomu is charged with building and maintaining its own roads to facilitate the transportation of goods to the market.
- **Poor access to water:** unavailability of potable and running water for farming and industrial purposes, the company has had to dig boreholes to meet its water needs.
- **High labour costs:** in order to attract and retain high quality, skilled employees, the company offers attractive employment packages. Part of the package includes the provision of accommodation on the plantations, for security reasons, and also due to the shortage of adequate housing in the neighbouring rural areas.
- **High production and processing costs:** ever fluctuating fuel prices and the frequent shortages, Okomu incurs significant costs for fuel use.

The ‘Okomu model’ is depicted in the figure below.

Even with an improved land tenure system, the fact remains that smallholders lack the start-up capital required to purchase land and establish oil palm plantations including clearing the land for planting. It would therefore behoove the government to adopt the successful ‘Okomu Model’ since the government is effectively the only body with the requisite capital for creating new plantations. Coupled with this, the inclusion of private sector entities with the needed technical expertise and managerial ability, as in the case of Okomu, would not only help to build public-private partnerships, it would also facilitate the success of such new ventures.

The government’s role would additionally be to ensure adequate maintenance and development of (rural) infrastructure (particularly the road network) to help defray high production and processing costs. One mechanism for financing infrastructure development and maintenance is ensuring that all import and export duties and taxes on palm produce are collected. Owing to cross-border smuggling, the government loses a considerable amount of tax revenues, which would have been spent on improving infrastructure. Accordingly, tighter border controls are needed.

Figure 4. The Okomu model



Source: Created by author

Furthermore, government policies should remain stable, since regular variations increase the cost of doing business for local companies. With robust policies in place, the provision of important community needs could be achieved. Presently, companies such as Okomu are charged with bearing the huge costs for community development (a function that ordinarily should be carried out by the government) as part of their efforts to promote corporate social responsibility (CSR).

Another benefit of adopting this model lies in its high involvement of smallholders. In the case of Okomu, a 'Smallholder Programme' has been developed, where the company provides producers with seedlings, inputs and subsequently receives installment payments as the produce is sold. This externally funded initiative guarantees returns to producers, as well as to Okomu and would be useful for future industry expansion.

## INSTITUTIONAL

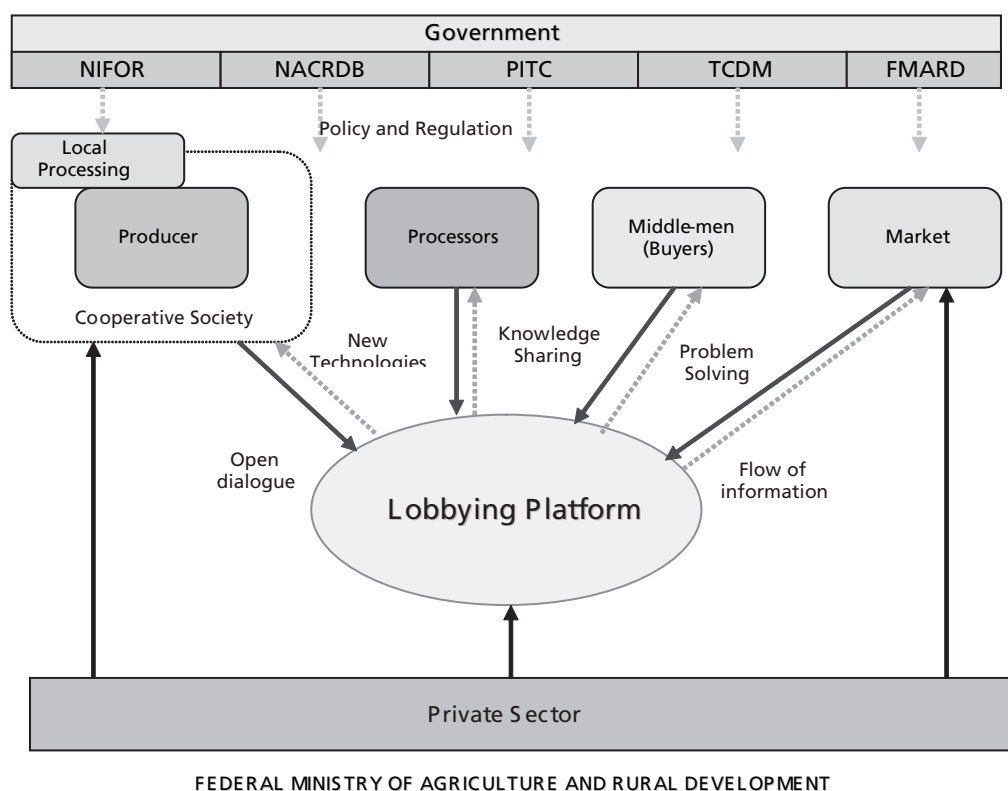
The institutional framework of the oil palm industry could be further strengthened to help boost quality and levels of production. Within this structure, stronger linkages would be established between the FMARD and its agencies, NIFOR, producers and the market. FMARD would seek to create a more robust extension service, in close partnership with NIFOR to provide training on quality control and good crop husbandry, as well as to disseminate new research information on processing technologies and to provide high quality seedlings. As well, marketing of palm products would be managed more efficiently, as producer- market linkages are strengthened.



Within this structure, the cooperative societies would additionally be fortified to facilitate the flow of information, inputs etc to producers, provide marketing services, as well as to increase communication between smallholders and other actors in the value chain. To that end, a platform for lobbying would be instituted to increase dialogue and to encourage open communication.

This new institutional framework could be designed to operate as depicted in Figure 5.

**Figure 5. Oil Palm industry institutional framework (value chain)**



Working through the state and local ministries, FMARD would additionally seek to develop rural radio and television programmes and information bulletins to disseminate useful information to producers.

One of the important challenges facing the government is how to curb dumping of other oils from abroad, with which locally produced oils cannot compete. As such, the functions of the regulatory bodies should be heightened to ensure the cessation of dumping into the local market. Additionally, stricter policies can be implemented to restrict dumping and thereby create an enabling environment for local palm oil and palm kernel oil production.

Finally, within the lobbying platform, lobbyists could consist of:

- Farmer associations
- Chambers of industries
- Agricultural lobby groups

Accordingly, the local governments could play a crucial role in strengthening oil palm plantation lobby groups by providing these much-needed support mechanisms.

## **FINANCIAL**

### **Improving rural finance and private sector investments**

The issue of finance has been highlighted throughout this paper, considering the prohibitively high costs for developing oil palm plantations, as well as the high costs of labour, inputs, and processing. Moreover, with banks charging interest rates exceeding 20 percent and with the overall reluctance to lend for the purpose of cultivating perennial crops, smallholders are invariably denied access to much needed financing. As such, a new financing policy should be instituted that sets a reasonable interest rate ceiling on investment loans (for instance, not exceeding 8 percent) and that helps create a long-term lending focus within the financial institutions. The specific financial needs of producers include:

- Short-term funds: Small-scale loans which would be repaid within a year and which would be used for purchasing inputs and for crop processing and storage.
- Medium-term funds: These would be used to rehabilitate or extend plantations and to maintain plants. The loan term would be between two and four years.
- Long-term funds: These could be made available with terms exceeding five years and could be used for long-term projects such as establishing new plantations and erecting processing plants.

Moreover, to stimulate and increase private sector investment in the oil palm industry, additional tax incentives could be created. According to Oyaide (2004), these tax incentives should include the following:

- Reduce corporate tax to 10 percent
- Allow location rebate for agro-industries of 50 percent
- Waive withholding tax on dividend
- Allow accelerated depreciation on equipment
- Investments on social infrastructure by estate owners for host communities and the estates should be tax deductible
- Locally produced vegetable oil to be exempted from VAT (Value Added Tax)
- Tax holiday for investment in the subsector should be extended from seven to ten years
- Import duty on plants, machinery, equipment, implements and consumables for the production, processing, and marketing of vegetable oil to be reduced across the board to 2.5 percent
- Suspend Manufacture-Inbound-Scheme (MIPS) for oils, fats and oil seeds
- Finished products of high oil content such as cakes, cookies, candy, and biscuits that compete with locally manufactured goods should attract 65 percent duty and a 10 percent levy to be paid into the ADTF account for vegetable oil development
- Exempt vegetable oil from ETLS until ECOWAS tariff for the commodity is harmonized.

The potential benefits of creating incentives for increased private sector investments are obvious. Besides the government, private sector entities possess the capital required to help

boost the industry. Moreover, by ensuring that their profit margins remain reasonable (in comparison with the associated cost of doing business), the private sector plays an important role in helping to increase the quality and productivity of the oil palm industry.

For instance, Presco Plc, one of the major investors in Nigerian oil palm development, has recently expanded its development business plan for the period 2003-2012. Accordingly, the company will almost double its holdings from 8 300 hectares over the period, at a total cost of 6 billion NGN. In addition, Presco is willing to assist smallholders in Edo and Delta States (not directly within close proximity) if so contracted under the VODEP (Oyaide, 2004). The potential impact that Presco could have is considerable, and when evaluated in light of other private sector investors, the overall magnitude could be significant.

While creating incentives to encourage private sector investments, the government could also seek to protect investors by implementing an appropriate tariff structure on the importation of palm oil and other vegetable oils. Although the government has banned the importation of vegetable oil into Nigeria, porous borders and various disguises have effectively rendered this ban unenforceable. Accordingly, stronger collaboration is required among ECOWAS member countries to create the right policy environment for protecting the burgeoning industry.

## **ENVIRONMENTAL**

### **Use of by-products**

Palm oil processing produces a large amount of waste, including empty bunch refuse, sludge, palm oil mill effluent, fibre, and palm kernel shell, all of which constitute grave environmental concerns. Research at NIFOR has concluded that these waste materials possess economic value and they can be used in poultry feed formulation and as fuel energy when converted into briquettes.

In order to curb negative impacts on the environment, while concurrently increasing income generated to smallholders, information on the proper disposal and transformation of these hazardous waste materials should be appropriately disseminated to producer associations and subsequently to individual producers. This could be done through a joint-effort between FMARD, NIFOR, the various oil palm initiatives, extensionists, and buyers without added costs, since interventions are already underway to reach smallholders. This additional information could be included through training, print media, rural communications and so on.

## 4. Discussion and Conclusions

This case study has sought to present the main factors that have impacted the decline in production and quality of Nigerian oil palm produce. Beginning with an overview of the macroeconomic factors that have influenced African export commodity markets since the 1960s, this paper has attempted to paint a clear picture of how these, coupled with key elements of the microeconomy, have removed Nigeria from its place of prominence in oil palm production.

A series of recommendations have been presented to aid in re-creating value both at the domestic and at the export level to help boost smallholder earnings. While these interventions have the potential to impact the industry considerably, a tremendous amount of planning and dedication of all key stakeholders will be required. Furthermore, control and support measures will be required to ensure transparency and to ensure that smallholders are better integrated into the value chain, thus enabling adequate flows of all associated benefits to trickle down to the producers. Among the suggested actions, requisites for improving viability, stimulating the domestic market, and regaining export competitiveness have been outlined for policy reforms including technical, financial, economic, institutional and environmental measures. If implemented successfully, these strategies have the potential of radically impacting the oil palm industry.

The present government's interest in, with concurrent efforts at reviving agricultural production are certainly laudable. In fact, the various initiatives and schemes created to boost various agricultural industries have helped to increase overall production in the past few years. In the case of oil palm, the PITC, in collaboration with the other programmes and projects mentioned in this paper, have brought together key stakeholders in an effort to bridge the gap between the country's present supply of palm oil and palm kernel oil and the domestic demand. Once the shortfall of about 300 000 metric tonnes has been addressed, the medium to long-term goal is to regain a sizeable share in the world market.

To that end, the president has proposed to plant one million hectares of oil palm over a five year period and has set aside 50 billion NGN to that end. A closer look at this ambitious target raises a few questions that invite further deliberation and planning. According to Okemini (2004) planting 200 000 hectares of oil palm annually (to achieve one million hectares after five years) would entail:

- An annual agricultural investment of 45 billion NGN
- Raising 30 million seedlings annually
- Planting 28 million seedlings annually

A project of this magnitude and scope would require considerable logistical planning and it is unclear whether this has been taken into account. A significant management team would be required that would carefully plan and monitor seedling production and distribution from NIFOR to the various nursery points throughout each local government area. This would therefore require an increase in resources, staff and infrastructure at NIFOR to be able to produce such a vast number of seedlings annually. Additionally, the logistical management for the creation of high quality nurseries throughout the oil palm belt would require a tremendous budget and certified quality control personnel to oversee the process. In addition, the transplanting of this large number of seedlings would stimulate added expenditures and labour. Finally, the likely investments required for erecting new plants and for acquiring and producing processing machinery could be as much as US\$ 1.5 billion. As such, further deliberation is required to ensure that all these considerations are thoroughly examined to ensure the success of this initiative, because oil palm development is a long-term, capital (and time) intensive process that requires managerial and technical know-how.

Furthermore, the large number of initiatives created to help boost oil palm production raises the question of how effective each one is. It would seem that the sheer volume of interventions and proposals would make for a large amount of redundancy, which would limit impact. It would therefore be beneficial to evaluate the success of each initiative and try to streamline them in order to achieve greater efficiency and efficacy.

In addition to revisiting the proposed increase in oil palm production, further discussion on the issue of land tenure is required. This is because of the fact that the majority of rural land falls under communal land ownership. This necessitates resistance to selling rural community land for use in smallholder oil palm development programmes. This issue is further compounded by the long gestation period of the oil palm crop. There is the 'fear' that by yielding land for its cultivation, ownership is effectively being transferred to individual producers who will have managerial rights to the land for a number of years. This is a real issue that needs to be addressed and that will require further deliberation and strategic planning. As such, dialogue among rural stakeholders, rural communities, and the government should be heightened.

Certainly, the Nigerian oil palm industry has considerable potential to regain export competitiveness and to reclaim a significant position in the world market. However, the immediate objective should be to meet the local demand, since the country boasts a large domestic market, and to focus on improving local processing quality standards. Once this has been achieved, the country will be well on its way to maximize its competitive advantage and to compete effectively with Malaysia and Indonesia.

Another issue for further discussion is the high FFA level of locally consumed palm oil. While this is the preference of the domestic palate, it raises serious public health concerns, and as such invites measures to help educate the masses on the risks involved with consuming such high levels of FFAs. In addition, the overall low quality with high iron content (residues from oil machines) might also endanger the health of the poorest who consume the lowest quality oils available.

## Annex 1.

### World production of major oilseeds

	2003/04	2004/05 Estimate	2005/06 Forecast
	million tonnes		
Soybeans	184.9	215.8	218.3
Cottonseed	36.2	44.6	42.5
Rapeseed	38.9	46.0	47.8
Groundnuts (unshelled)	34.4	34.5	35.1
Sunflower	26.3	26.0	29.0
Palm kernels	8.2	8.8	9.2
Copra	4.9	5.1	5.2
<b>Total</b>	<b>333.9</b>	<b>380.9</b>	<b>387.1</b>

Source: FAO, 2006

FAO (2006) estimates for the period 2005/06 show a growth in the global production of fats and oils of about 3 percent. It is expected that most of this growth will stem from heightened production of sunflower seed oil, and palm oil (which is forecasted to increase at a rate below 5 percent owing to yield reductions in Malaysia). Palm oil shipments are additionally expected to grow by only 4 percent (as opposed to 13 percent in past years).



## Annex 2.

### World oilseeds and product markets at a glance

	2003/04	2004/05 Estimate	2005/06 Forecast
	million tonnes		
Total oilseeds			
Production	344	391	397
Oils and fats <sup>1</sup>			
Production	131	142	146
Supply <sup>2</sup>	147	158	164
Utilization <sup>3</sup>	131	139	143
Trade <sup>4</sup>	62	67	70
Stock-to-utilization ratio (%)	12	13	15
Oilmeals and cakes <sup>5</sup>			
Production	87	99	101
Supply <sup>2</sup>	97	109	113
Utilization <sup>3</sup>	87	95	97
Trade <sup>4</sup>	49	53	55
Stock-to-utilization ratio (%)	11	13	16

1 Includes oils and fats of vegetable and animal origin

2 Production plus opening stocks

3 Residual of the balance

4 Trade data refer to exports based on a common October/September marketing season

5 All meal figures are expressed in protein equivalent; meals include all meals and cakes derived from oil crops as well as fish meal

Source: FAO, 2006





## Annex 3.

### Selected international prices for oil crop products and price indices

PERIOD	International Prices (US\$ per tonne)					FAO Indices (1998-2000=100)		
	Soybeans <sup>1</sup>	Soybean Oil <sup>2</sup>	Palm Oil <sup>3</sup>	Soybean Cake <sup>4</sup>	Rapeseed Meal <sup>5</sup>	Oilseeds	Edible/Soap Fats/Oils	Oilcakes/Meals
<b>Annual (October/September)</b>								
2001/02	201	411	357	175	129	95	84	111
2002/03	243	539	428	191	141	114	102	117
2003/04	322	632	488	257	178	143	118	144
2004/05	275	545	419	212	130	125	110	130
<b>Monthly</b>								
2005 – May	284	536	418	218	121	129	109	131
2005 – June	306	562	416	219	117	134	110	132
2005 – July	298	562	417	224	118	129	109	136
2005 – August	273	550	409	220	130	122	106	137
2005 – September	263	545	420	212	130	120	108	135
2005 – October	258	582	444	202	129	118	112	138
2005 – November	256	558	445	199	124	116	110	141
2005 – December	260	539	428	207	135	117	106	144
2006 – January	257	534	424	205	136	116	107	146
2006 – February	256	533	443	204	135	116	108	145
2006 – March	256	539	439	192	133	117	108	142
2006 – April	259	541	440	193	129	120	111	142
2006 – May	268	573	441	197	123	124	113	143

1 Soybeans (US, No.2 yellow, c.i.f. Rotterdam)

2 Soybean oil (Dutch, fob ex-mill)

3 Palm oil (Crude, c.i.f. North West Europe)

4 Soybean cake (Pellets, 44/45 percent, Argentina, c.i.f. Rotterdam)

5 Rapeseed meal (34 percent, Hamburg, f.o.b. ex-mill)

Note: The FAO indices are calculated using the Laspeyres formula; the weights used are the average export values of each commodity for the 1998-2000 period. The indices are based on the international prices of five selected seeds, ten selected oils and fats and seven selected cakes and meals.

Sources: FAO and Oil World



## Annex 4.

### World vegetable oil production (Million Metric Tonnes)

PRODUCT	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Soybean	24.64	26.75	28.87	30.57	28.12
Palm Oil	21.80	24.28	25.42	27.21	28.13
Sunflower Seed	9.55	8.47	7.61	8.33	9.25
Rapeseed	13.70	13.03	12.68	11.75	13.13
Cottonseed	3.55	3.50	3.82	3.48	3.75
Peanut	4.22	4.34	4.88	4.34	4.92
Coconut	3.34	3.64	3.23	3.17	3.33
Olive	2.37	2.48	2.78	3.16	2.81
Palm Kernel	2.79	3.06	3.12	3.29	3.50
Total	86.06	89.56	92.40	94.32	100.94

Source: Oilseeds World Markets and Trade Series (November, 2003)

### World vegetable oil consumption (Million Metric Tonnes)

PRODUCT	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Soybean	24.15	26.27	28.70	31.32	31.94
Palm Oil	21.13	24.35	25.85	27.59	27.73
Sunflower Seed	9.30	8.61	7.71	8.32	9.29
Rapeseed	13.39	12.95	12.72	11.82	13.00
Cottonseed	3.56	3.42	3.83	3.48	3.92
Peanut	4.12	4.27	4.81	4.36	4.79
Coconut	2.89	3.53	3.47	3.48	3.47
Olive	2.45	2.58	2.62	2.55	2.62
Palm Kernel	2.71	2.63	2.93	3.15	3.31
Total	83.70	88.61	92.65	96.07	100.37

Source: Oilseeds World Markets and Trade Series (November, 2003)

Oil palm and its products account for more than 3 percent of vegetable oil consumed worldwide, second only to soybean oil. While production grew at an average of 3 percent annually, consumption is also growing at about 3 percent (Okemini, 2004).



## Annex 5.

### Nigerian vegetable oil production and consumption

	1998/99	1999/00	2000/01	2001/02	2002/03
Production	1131	1157	1128	1172	1188
Consumption	1240	1297	1342	1426	1443
Imports	144	185	251	274	285
Palm Oil Import	140	180	250	270	250

Source: Oilseeds World Markets and Trade Series (November, 2003)



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