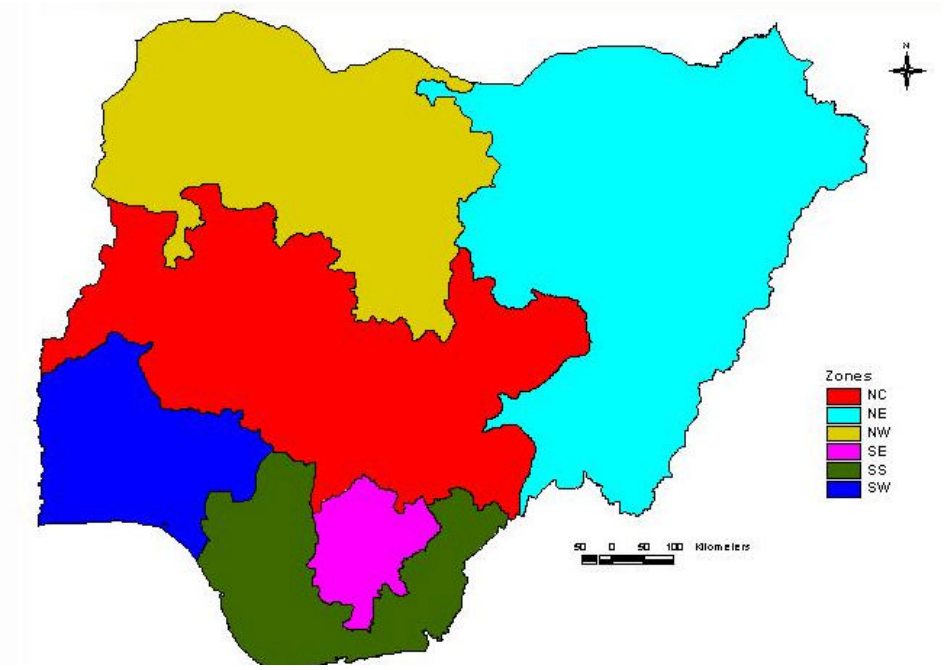
AGRICULTURE IN NIGERIA:

Identifying Opportunities for Increased Commercialization and Investment



Main Report

By

Manyong, V.M., A. Ikpi, J.K. Olayemi, S. A. Yusuf, R. Omonona, and F.S. Idachaba

From

International Institute of Tropical Agriculture

And

University of Ibadan

For

USAID/NIGERIA

AGRICULTURE IN NIGERIA:

Identifying Opportunities for Increased Commercialization and Investment

Main Report

By
Manyong, V.M., A. Ikpi, J.K. Olayemi, S. A. Yusuf, R. Omonona, and F.S. Idachaba

This Research was funded by USAID/Nigeria.

Implementation was by
International Institute of Tropical Agriculture (IITA),

In collaboration with
University of Ibadan (UI)

November, 2003

AGRICULTURE IN NIGERIA STUDY:

IMPLEMENTATION COMMITTEE (IC) MEMBERS

1. Prof. F. Idachaba, Agriculture in Nigeria Study /IC Chairman, University of Ibadan
2. Dr. V.M. Manyong –IC Secretary, Agriculture in Nigeria Study Coordinator, IITA
3. Prof. J.O. Olayemi, University of Ibadan
4. Prof. A. Ikpi, Head, Department of Agric. Economics, University of Ibadan

   Assisted by Drs. S. A. Yusuf, R. Omonona, and V. Okoruwa (University of Ibadan) and Miss B. Koleosho (Project Administrative Assistant, Agriculture in Nigeria Study, IITA)

AGRICULTURE IN NIGERIA STUDY:

STEERING COMMITTEE (SC) MEMBERS

1. Federal Ministry of Agriculture and Rural Development, FMARD
2. Nigerian Association of Chamber of Commerce, Industry, Mines and Agriculture, NACCIMA
3. Nigerian Institute for Social and Economic Research, NISER
4. Farmers' Association and Development Union, FADU
5. Central Bank of Nigeria, CBN
6. Union Bank of Nigeria PLC, UBN
7. International Fertilizer Development Corporation, IFDC/DAIMINA
8. United States Agency for International Development, USAID/Nigeria
9. Department for International Development, DFID/Nigeria
10. Department of Agricultural Economics, University of Ibadan, UI
11. International Institute of Tropical Agriculture, IITA

AGRICULTURE IN NIGERIA STUDY:

Field Technical Teams

Team 1: Southwest Zone: Dr. (Mrs.) Akanji B. (NISER) and Dr. Okoruwa V. (UI)

Team 2: Southeast Zone: Dr. Yusuf S. A. and Mr. Samuel Awoniyi (UI)

Team 3: South-south Zone: Dr. Omonona (UI) and Dr. Udoh E. (Univ. of Uyo)

Team 4: North-central Zone: Dr. Ayoola G. (Univ. of Makurdi)

Team 5: Northwest Zone: Dr. Ahmed B. and Dr. (Mrs.) Sanni (ABU)

Team 6: Northeast: Dr. Amaza P. (Univ. of Maiduguri) & Femi Agboola (UI)

AGRICULTURE IN NIGERIA STUDY:

COLLABORATING INSTITUTIONS

1. International Institute of Tropical Agriculture (IITA)
2. University of Ibadan (UI)
3. University of Uyo (UNUYO)
4. Ahmadu Bello University, Zaria (ABU)
5. University of Maiduguri, UNIMAID
6. Federal University of Agriculture, Makurdi
7. Nigerian Institute for Social and Economic Research (NISER)

TABLE OF CONTENTS

TABLE OF CONTENTS vii

LIST OF TABLES ix

LIST OF FIGURES x

LIST OF APPENDICES xi

EXECUTIVE SUMMARY xii

CHAPTER ONE: INTRODUCTION 1

1.1 Socio-economic and Development Challenges in Nigeria's Agriculture 1
1.2 Focus of Nigeria's Agricultural Development Priorities 1
1.3 Scope and Objectives of the Study 2
1.4 The Interface among the study, IEHA and USAID/Nigeria Strategic Objectives 2
1.5 Plan of the Report 3

CHAPTER TWO: CONCEPTUAL FRAMEWORK AND METHODOLOGY 6

2.1 Conceptual Framework 6
2.2 Defining Development Domains of Nigeria 11
2.3 Sources of Data and Methods of Data Collection 12
2.4 Methods of Analysis 14

CHAPTER THREE: THE PERFORMANCE OF NIGERIA'S AGRICULTURE 18

3.1 Evidence from Literature 18
3.2 Stakeholders' Perception of the Performance of Nigeria's Agriculture 24

CHAPTER FOUR: A REVIEW OF AGRICULTURAL POLICY IN NIGERIA 26

4.1 Past Government Policies in Agriculture 26
4.2 Constraints to Effectiveness of Past Agricultural Policy 35
4.3 The New Nigerian Agricultural Policy 35
4.4 Key Agricultural Development, Supportive and Service Delivery Programs of the Federal Government 38
4.5 Other Policies, Institutions and Legal Framework 40
4.6 Stakeholders' Perspective on the Effectiveness of Policies, Regulations and Institutions on Nigerian's Agriculture 42

CHAPTER FIVE: ASSESSMENT OF INVESTMENT IN NIGERIA'S AGRICULTURE 44

5.1 Past Investment Trends in Nigeria's Economy 44
5.2 Levels and Trends of Investment in Nigeria's Agriculture 45
5.3 Determinants of Investment in Nigeria 48

CHAPTER SIX: CONSTRAINTS TO PRIVATE SECTOR INVESTMENT IN NIGERIA'S AGRICULTURE 53

6.1 Evidence from Literature 53
6.2. Stakeholders' Assessment of Nigeria's Economic Climate for Private Investment in Agriculture 53
6.3 Stakeholders' Perspectives on Constraints to Private Sector Investment in Nigeria's Agriculture 55
6.4 The Persistence of Constraints to Investment in Nigeria's Agriculture 64
6.5 Effects of Constraints on Commercialization and Investment in Nigeria's Agriculture 69

CHAPTER SEVEN: INVESTMENT OPTIONS IN NIGERIA'S AGRICULTURE 76

7.1. Attractiveness of Agricultural Enterprises to Private Investors 76
7.2 Priority Commodities for Investment in Nigeria's Agriculture 79
7.3. Evaluations of Agricultural Investment Options: Partial Equilibrium Approach 81

CHAPTER EIGHT: RECOMMENDED INTERVENTION STRATEGIES 95

8.1 Strategies for Accelerated Investment in Nigeria's Agriculture 95
8.2 Strategies for Increased Commercialization 96
8.3 Strategies for Mitigating Negative Impacts of Commercialization on Gender and Equity 98
8.4 Strategies for Enhanced Food Security 98
8.5 Strategies for Sustainable Environmental Management 99

8.6 Sectoral Policies for Specific Priority Commodities 100
8.7. Regional Development Hubs 100
8.8. Recommended Future Studies 100

REFERENCES 103

APPENDICES 106

LIST OF TABLES

Table 1.1: Analysis of Study Objectives....4
Table 2.1: Number of Instruments Administered in the Different Zones of the Country....14
Table 3.1: Indicators of Agricultural Sector Performance (in Mean Annual Values)....18
Table 3.2: Mean Annual Percentage Growth Rates of Agricultural Sector Performance Indicators....20
Table 3.3: Variability in Agricultural Sector Performance Indicators (Coefficients of Variation in Percentage)....22
Table 3.4: Performance Indicators in Recent Years (1996-2000)....22
Table 3.5: Performance of Nigeria's Agriculture by Development Zones since 1999....25
Table 3.6: Factors enhancing the Performance of Enterprises in Nigeria in order of importance....25
Table 4.1: Effectiveness of Policies, Regulations and Institutions on Nigeria Agriculture....42
Table 5.1: Real Domestic Public Investment (₦'million)....45
Table 5.2: Summary of Direction of Foreign and Domestic Investment Flows to Agriculture by Zone*....47
Table 5.3: Augmented Dickey Fuller (ADF) Unit Root Test for the Variables Used in Regression Analysis....49
Table 5.4: Cointegration Test of the Dependent Variable....49
Table 5.5: Determinants of Domestic Private Investment....51
Table 5.6: Determinants of Foreign Direct Investment....51
Table 6.1: Assessment of Nigeria's Economic Climate for Foreign Private Investment in Agriculture and Agro-Allied Industries....54
Table 6.2: Assessment of Nigeria's Economic Climate for Domestic Private Investment in Agriculture and Agro Allied Industries....55
Table 7.1. Attractiveness of Agricultural Enterprises to Foreign and Domestic Private Investors by Zones....78
Table 7.2. Agricultural Commodities in which Development Domains have Comparative Advantage in the Domestic, Regional or World Market by zones....79
Table 7.3. Factors Accounting for Development Domains' Comparative Advantage in the Domestic, Regional or World Market....80
Table 7.4: Commodities with Comparative Advantage for Investments as Ranked by Stakeholders in Each Development Domain....83
Table 7.5: Technology parameters and adoption for the ex-ante assessment of returns to investments in research and development (R&D) in Nigeria....84
Table 7.6. Commodity Ranking by Total Benefit in each Development Domain of Nigeria....88

LIST OF FIGURES

Figure 2.1: A flow chart of Investment and Sustainable Livelihood 8
Figure 2.2: Flow Chart of the Constraints to Investment and Commercialization in Agriculture 10
Figure 2.3. Development Domains of Nigeria 12
Figure 6.1. Relative Frequency Distribution of Constraints to Foreign and Domestic Investment in Nigeria's Agriculture (Percentage of responses by institutions surveyed) 56
Figure 6.2. Intensity of Constraint to Foreign and Domestic Investments across Development Domains of Nigeria (% of Responses by Domain) 56
Figure 6.3. Intensity of Technical Constraint Affecting Agriculture by Development Domains of Nigeria 57
Figure 6.4. Intensity of Infrastructural Constraint Affecting Agriculture by Development Domains of Nigeria 58
Figure 6.5. Intensity of Economic Constraint Affecting Agriculture by Development Domains of Nigeria 58
Figure 6.6. Intensity of Financial Constraint Affecting Agriculture by Development Domains of Nigeria 59
Figure 6.7. Intensity of Political Constraint Affecting Agriculture by Development Domains of Nigeria 59
Figure 6.8. Intensity of Socio-cultural Constraint Affecting Agriculture by Development Domains of Nigeria 60
Figure 6.9. Intensity of Health Constraint Affecting Agriculture by Development Domains of Nigeria 60
Figure 6.10. Intensity of Macroeconomic Policy Constraint Affecting Agriculture by Development Domains of Nigeria 61
Figure 6.11. Intensity of Microeconomic Policy Constraint Affecting Agriculture by Development Domains of Nigeria 62
Figure 6.12. Intensity of Institutional Constraint Affecting Agriculture by Development Domains of Nigeria 62
Figure 6.13. Intensity of Environmental Constraint Affecting Agriculture by Development Domains of Nigeria 63
Figure 6.14. Intensity of Land Tenure Constraint Affecting Agriculture by Development Domains of Nigeria 64
Figure 6.15. Intensity of Labour Constraint Affecting Agriculture by Development Domains of Nigeria 64
Figure 7.1: From DREAM analysis: identifying for investments in research and development in Nigeria – based on streams of benefits to producers and consumers by 2015 as a result of existing portfolio of technologies 86
Figure 7.2: From DREAM analysis: identifying for investments in research and development in Nigeria – based on streams of benefits to producers and consumers by 2015 as a result of a one time 1% increase in productivity (IFPRI 2003) 87
Figure 7.3: Ranking of Development Domains for Root and Tuber Crops 89
Figure 7.4: Ranking Development Domains for Cereals 90
Figure 7.5: Ranking of Development Domains for Grain Legumes 91
Figure 7.6: Ranking of Development Domains for Vegetables 92
Figure 7.7: Ranking of Development Domains for Tree Crops 93
Figure 7.8: Ranking of Development Domains for Livestock Products 94

LIST OF APPENDICES

Appendix 4.1: Agricultural Sector Policies.....107
Appendix 6.1: Summary of Investment Constraints.....119
Appendix 6.2: Causes of Persistence of Constraints in the Different Zones of Nigeria 123
Appendix 6.3: Gainers from Persistence of Constraints and Nature of Gains.....127
Appendix 6.4: Losers from Persistence of Constraints and Nature of losses 130
Appendix 6.5 Effects of Constraints to Investment in Nigeria's Agriculture 133
Appendix 7.1: Reasons for Attractiveness of Enterprises to Foreign Investors by Zones 137
Appendix 7.2: Reasons for Attractiveness of Enterprises to Domestic Investors by Zones 139
Appendix 7.3: Priority Primary Commodities for Investment Across Zones in Nigeria 142
Appendix 7.4: Investment Priorities in Downstream Agricultural Activities……..144

EXECUTIVE SUMMARY

1.The USAID/Nigeria Mission contracted the International Institute Tropical Agriculture (IITA) to conduct a study on identifying opportunities for increased commercialization and investment in Nigeria's agriculture. IITA teamed up with the University of Ibadan to implement the study. The primary purpose of the Agriculture in Nigeria (AIN) study was to provide USAID/Nigeria with the analytical basis for the Mission to design its new Agricultural Policy Strategy that contributes to unlocking constraints to commercialisation and investment in the Nigerian agricultural sector for a sustained economic growth; enhanced food security; increased competitiveness of products in the domestic, regional, and international markets; sustainable environmental management; and poverty alleviation.

2. The key issue in the study was the identification of constraints to investment in the agriculture sector and the evolvement of strategies and priority areas for intervention by USAID/Nigeria, other donors, the home governments and private sectors for the purpose of providing catalytic support for the flow of investment into the agricultural sector.

3. The AIN study is in line with both the strategic five pillars (science and technology, improved agricultural trade and market systems, building human capital, infrastructure and institutional capacity, promoting sustainable environmental management, and supporting community organizations) of the US President Initiative to End Hunger in Africa (IEHA) and the long-term USAID/Nigeria new strategic directions for a sustainable agricultural and diversified economic growth.

4. The country was divided in six development domains on the basis of differences in agro-ecology, population density, market opportunities, farming systems, and geo-political division of the country.

5. In this study, *investment* is defined as additions to stock of capital that are the sources of future income streams, while *commercialization* should be understood to be the movement from a subsistence production system to a market-based system. The importance of investment derives from the fact that agricultural growth requires increasing doses of investible fund. This fund translates into capital, which, in turn, transforms various developmental variables to create the ultimate impact, which is economic growth and development (see Figures 2.1 and 2.2. for schematic representations of the conceptual framework).

6. The focus of analysis in the study was on constraints taxonomy, constraints domain characterization, constraints cause identification, constraints function transformation, constraints range characterization, constraints impact analysis, constraints persistence analysis, identification of gainers and losers from constraint persistence, policies, regulations and institutions analysis, investment priority determination, comparative advantage analysis, recommendation of new policies, regulations and institutions for enhancing comparative advantage and for improving investment climate, determination of strategic options for supporting IEHA interventions in Nigeria, and identification of areas of intervention to promote priority commodities in different zones of the country.

7. With respect to sources of data and methods of collection and analysis, both primary and secondary data were used in this study. Primary data were collected from selected respondents, using prepared questionnaires. Secondary data were collected from local and international publications and reports. The methods adopted in the collection of primary data involved the use of two survey instruments (questionnaires), one addressed to policy makers and implementers and the other addressed to the private sector and other stakeholders in agriculture, like associations and individual investors.

8. The defined development domains plus Abuja Federal Capital Territory (FCT) were adopted as the primary frame for data collection. Two states were then selected per domain for the survey, in addition to the Abuja FCT. The respondents were purposively selected to cover a wide range of stakeholders in each zone. The combination of field survey methods employed included in-depth interviews, focus group discussions, individual completion of questionnaires and taped interviews. Methods of analysis included descriptive statistical analysis, constraints mapping, development domain mapping, regression analysis, and partial equilibrium models.

9. The assessment of agricultural policy and investment in Nigeria presented in this study covers an assessment of the performance of Nigeria's agriculture sector, a review of past policies affecting agriculture, an assessment of investment processes in Nigerian agriculture, an analysis of constraints to private sector investment in Nigerian agriculture, and an evaluation of investment options.

10. The results of performance analysis show a mixed performance. The share of agriculture in both aggregate GDP and non-oil GDP increased only marginally in the 1981-2000 period covered. The share of total bank credit going

into the agricultural sector first increased rapidly between the 1981-85 and 1991-95 sub-periods and then declined in the 1996-2000 period. The share of federal government's total capital expenditure going to the agricultural sector declined almost persistently over the period. Finally, the share of total labor force employed in the agricultural sector also declined over the period. Generally, there was a lack of consistency in the growth performance of the agricultural sector in the 1981 to 2000 period, with some evidence of unstable or fluctuating trends, probably due to policy instability and inconsistencies in policies and policy implementation.

11. Factors constraining agricultural performance in the country include those relating to technical constraints, resource constraints, socio-economic constraints and organizational constraints.

12. A review of past government policies in agriculture shows that in the pre-structural adjustment period, sector-specific agricultural policies were designed to facilitate agricultural marketing, reduce agricultural production cost and enhance agricultural product prices as incentives for increased agricultural production. Major policy instruments included those targeted to agricultural commodity marketing and pricing, input supply and distribution, input price subsidy, land resources use, agricultural research, agricultural extension and technology transfer, agricultural mechanization, agricultural cooperatives, and agricultural water resource and irrigation development.

13. Macro and institutional policies as well as legal frameworks complemented sector-specific policies. The structural adjustment period was governed largely by structural adjustment policies. Broadly, structural adjustment policies in Nigeria covered public expenditure-reducing or demand management policies, expenditure switching policies, market liberalization policies and institutional or structural policies. Like in the pre-structural adjustment period, there were microeconomic, macroeconomic, institutional and legal framework policy instruments put in place to address these issues. But, there was much more emphasis on macroeconomic and institutional policies in this latter period than before.

14. Constraints to agricultural policy effectiveness are identified to include those of policy instability, policy inconsistencies, narrow base of policy formulation, poor policy implementation and weak institutional framework for policy coordination.

15. The objectives of the new agricultural policy are (i) the achievement of food self-sufficiency and food security, (ii) increased production of raw materials for industries, (iii) increased production and processing of export crops, (iv) generation of gainful employment, (v) rational utilization of agricultural resources, (vi) promotion of increased application of agricultural technology, and (viii) improvement in the quality of rural life.

16. The key features of the new policy include (i) the evolution of strategies for achieving food self-sufficiency and improved technical and economic efficiency in food production, (iii) reduction of risks and uncertainties in agriculture, (iii) a unified national agricultural extension system under the ADPs, (iv) promotion of agro-allied industries, and (v) provision of agricultural incentives.

17. The new policy direction involves (i) creating a conducive macro-environment for private sector investment in agriculture, (ii) rationalizing the roles of tiers of government and the private sector, (iii) reorganizing the institutional framework in the agricultural sector, (iv) implementing integrated rural development programs, (v) increasing budgetary allocation to agriculture, and (vi) rectifying import tariff anomalies in respect of agricultural products.

18. Agricultural commercialization calls for increased investment and capital formation for more intensive production. Hence, the level of commercialization and the size of investment are positively correlated. A review of past investment trends in the Nigerian economy reveals that both domestic and foreign flow of private investment into the Nigerian economy as a whole suffered a declining trend between 1970 and 1985. Gross investment in the economy expressed as a percentage of the GDP first increased from about 17 percent in 1970 to about 26 percent in 1975, but declined to about 24 percent in 1980 and to 12 percent in 1985. The patterns of domestic and foreign private investment over this period were highly correlated with the changing states of political and policy instability.

19. In the post-1985 period, gross domestic investment increased consistently between 1987 and 1997, but declined in 1998 and 1999. Similarly, cumulative foreign investment increased consistently between 1990 and 1998, but declined in 1999. Real foreign net private investment flow into the Nigeria's agriculture sector increased between 1981-85 and 1991-95 sub-periods and then declined in the 1996-2000 sub-period. However, agriculture's share of total foreign net private investment was very low, being on the average, less than of 4 percent in the entire 1981 to 2000 period. There were negative flows (i.e. actual outflow) of foreign investment into agriculture in 1980, 1995, 1987 and 1994.

20. Agriculture's share of cumulative foreign investment declined almost consistently in the 1981-2000 period, from about 2 percent in the 1981-85 sub-period to about 1 percent in the 1996-2000 sub-period. The pattern of both domestic and foreign investment in Nigeria in the period under review tended to be volatile, displaying highly variable growth rates and high degrees of instability. This pattern was a direct reflection of the generally unstable investment climate in the country in the period. A comprehensive summary of the economic, social, political, institutional, legal/regulatory and external environmental determinants of private investment flow into the agricultural sector is provided in the report.

21. Levels and trends of investment in Nigeria's agriculture show that gross fixed capital formation was used as a proxy for gross domestic investment. In this regard, gross fixed capital formation's share of the gross domestic product declined consistently over the 1981-2000 period. However, agricultural sector's share of aggregate gross fixed capital formation increased consistently over the 1981-2000 period, implying that the sector performed better than the economy as a whole in terms of gross fixed capital formation.

22. Thirteen categories of constraints to investment in the agriculture sector are identified from both literature search and stakeholders' perspectives. Infrastructural constraints (bad or poor state of roads, poor processing facilities and marketing outlets, epileptic power supply, poor state of telecommunication facilities, etc.) were ranked first by more than 90% of respondents throughout the Federation. It was followed, in decreasing order of importance, by financial, technical, and economic constraints (>80% of respondents); macro-economic policy and socio-cultural constraints (>70%); labor, environmental, and political constraints (>50%); micro-economic policy, institutional, health, and land tenure constraints (<50%).

23. The severity of constraints was varied among development domains except for infrastructural constraints. For example the technical constraints were assessed very high (>75% of respondents) in the far northern zones while environmental constraints were very high in Southeast Domain. The intensity of the economic constraints (high cost of production, low returns to investments, or low income, etc.) was very high in Northeast Domain. Socio-cultural constraints were found everywhere such as corruption, insecurity, high crime rates, and ethnic strife/crisis. Religious strife for northern domains and availability of mineral resources especially crude oil were found to be elements of ethnic strife.

24. The causes and source of constraints were investigated for each constraint. For example poor credit policy coupled with ineffective policy implementation, high rate of interest and unstable exchange rate were the main causes of the persistence of financial constraints to investment in agriculture. Poor leadership, political instability, poor governance, and non-participatory governance were sources of political constraints. An example of technical constraints is on inconsistencies in agricultural input policies that constrained producers, including small-scale farmers to acquire modern farm inputs.

25. Gainers and nature of gains from the persistence of constraints were identified. Within Nigeria, gainers include government officials (political appointees, policy makers, policy implementers, and lower cadre civil servants). They derive benefits ranging from hard currency, receipt of financial kickbacks from suppliers and contractors. At the foreign level, the main gainers from the persistence of above constraints in Nigeria are some of the foreign investors, technical partners, and foreigners who take advantage of the precarious situation. This group of gainers imports all sorts of goods to derive/make non-deserved maximum benefits.

26. Losers include a long range of stakeholders. Entrepreneurs, marketers and processors are affected in the area of low capacity utilization, high cost of power generation, and reduced output. bankers, lenders are also affected by the persistence of financial constraints. The nature of these losses includes high transaction costs, low investment, lack of investible capital, and loss of employment. Farmers and women are among the vulnerable groups of the society. Farmers' losses include low access to modern inputs, reduced outputs, low income, and high poverty incidence.

27. About 33 types of effects of constraints to commercialization were identified along the food chain.

28. There are 13 areas in which investors (foreign and domestic investors) are willing to put their money in attractive enterprises. These are: input production and supply enterprises, livestock production, fisheries, forestry, and commodity processing and storage enterprises. Others are commodity marketing, agro-industry manufacturing, agricultural commodity export, and agricultural support services. The general inference is that agricultural enterprises in Nigeria are fairly attractive to domestic investors while they are less attractive to foreign investors. Nine out of the thirteen enterprises are hardly attractive to foreign investors while three were fairly attractive.

29. The study identified 32 commodities in which the Development Domains are perceived to have a comparative advantage in the domestic, regional, or world market. The identified commodities were grouped into five categories namely staple crops (9 commodities), industrial crops (12 commodities), livestock (5 commodities), fishery (3), and forestry (5). Reasons for the attractiveness to private sector investment were given for each commodity.

30. Ex-ante evaluation of returns to investment was completed for 26 commodities for which data were readily available (for example all the forestry commodities did not enter the partial equilibrium DREAM model because of lack of data). Given the current level of the technology portfolio available for each commodity, cassava emerged as commodity 1 to invest on for estimated gross returns of $570 m per year over the period of 17 years from 1999 to 2015. The next nine ranked commodities are yam, maize, millet, groundnut, rice, sorghum, poultry, leafy vegetables, and cowpea. The second group of priority commodities includes pepper, beef, oil palm, fish, melon, tomato, soybean, onion, rubber, and cocoa. The lower ranked commodities include ginger, pork, goat, mutton, benniseed, and cashew nut. The above results compare favourably with results from a similar analysis by IFPRI in West Africa. The first ten ranked commodities were yams, rice, cassava, vegetables, beef, millet, groundnut, sorghum, cotton, and maize in decreasing order of importance.

31. Major regional differences were recorded in the returns to investments. For root and tubers, cassava gives highest returns in North-central, Southsouth, Southeast, and Southwest in decreasing order of returns. Yams stand high in North-central, followed by South-south. Patterns are uneven for cereals: rice is exclusive in Northcentral; maize is better promoted in Northwest, Northcentral, and Southwest. Millet is profitable only in Northwest and Northeast. Sorghum and benniseed are crops for the three northern Domains. Grain legumes (groundnut, soybean, and cowpea) give high returns in the three northern Domains. The patterns for grain legumes were observed for the group of vegetables except for leafy vegetables that grow well throughout the country. As expected, tree crops such as oil palm (South-south and Southeast), cocoa (Southwest), and rubber (Southsouth) produce better in the humid domains of the country. In contrast, cashew nut and ginger are commodities for Northcentral and Northwest. Livestock also indicates a specialization across Development Domains. Ruminants (cattle, mutton, and sheep) are important in the three northern Domains though goat has a smaller but significant presence in the southern Domains. Pork and fish are important in South-south. As expected, poultry is found everywhere with a major presence in South-south.

32. In addition to investments in commodities with high returns to investments, other strategies for increased commercialization include the adoption of a development model that links producers to processors and consumers along the continuum. Four possible models are suggested in this paper.

33. Strategies for mitigating negative impacts of commercialization on gender and equity include but not limited to promoting the facilitation of women' involvement in downstream activities, better education for girls, and empowerment of women through income-generating activities and the creation of marketing lobbies for women.

34. Strategies for enhanced food security include increasing the agricultural productivity, reducing post-harvest losses, promoting a database for early warning systems, and building capacity of government officials in monitoring the status of food security in the country.

35. Increased commercialization in the agriculture sector is likely to pose threat to environment through land degradation, pollution of the ecosystem, or the extension in the use of other agricultural resources.

36. Sectoral policies for specific priority commodities would be needed to attract investment towards a commodity through the promotion and creation of lobbying groups, design and adoption of grades and standards that favor the utilisation of the commodities, and the creation of an enabling macro-policy environment in the country.

37. Three regional development hubs are being recommended to USAID for consideration for their investments: the northern development hub, the central development hub, and the southern development hub. These regional hubs are made to integrate the designed strategies for increased investment and commercialization in Nigeria's agriculture. The regional development hubs would be centred on a group of priority commodities and would aim at integrating the objectives of wealth creation, food security, sustainable development, equity, and gender.

38. Finally, three studies are recommended in order to move forward in the implementation of the above strategies namely a subsector concentration analysis, a downstream agricultural activities study, and an integrated monitoring and evaluation program design.

CHAPTER ONE
INTRODUCTION

1.1 Socio-economic and Development Challenges in Nigeria's Agriculture

Nigeria is one of the largest countries in Africa, with a total geographical area of 923,768 square kilometres and an estimated population of about 126 million (2003 estimate). It lies wholly within the tropics along the Gulf of Guinea on the western coast of Africa. Nigeria has a highly diversified agro-ecological condition, which makes possible the production of a wide range of agricultural products. Hence, agriculture constitutes one of the most important sectors of the economy. The sector is particularly important in terms of its employment generation and its contribution to Gross Domestic Product (GDP) and export revenue earnings.

Despite Nigeria's rich agricultural resource endowment, however, the agricultural sector has been growing at a very low rate. Less than 50 percent of the country's cultivable agricultural land is under cultivation. Even then, smallholder and traditional farmers who use rudimentary production techniques, with resultant low yields, cultivate most of this land. The smallholder farmers are constrained by many problems, including those of poor access to modern inputs and credit, poor infrastructure, inadequate access to markets, land and environmental degradation, inadequate research and extension services and so on.

Since the collapse of the oil boom of the 1970s, there has been a dramatic increase in the incidence and severity of poverty in Nigeria, arising in part from the dwindling performance of the agricultural sector where a preponderant majority of the poor are employed. Furthermore, poverty in Nigeria has been assuming wider dimensions, including household income poverty food poverty/insecurity, poor access to public services and infrastructure, unsanitary environment, illiteracy and ignorance, insecurity of life and property, poor governance and so on (NPC and UNICEF, 2001). In response to the dwindling performance of agriculture in the country, governments have, over the decades, initiated numerous policies and programs aimed at restoring the agricultural sector to its pride of place in the economy. But, as will be evident from analyses in subsequent chapters, no significant success has been achieved, due to the several persistent constraints inhibiting the performance of the sector.

From the perspective of sustainable agricultural growth and development in Nigeria, the most fundamental constraint is the peasant nature of the production system, with its low productivity, poor response to technology adoption strategies and poor returns on investment. It is recognized that agricultural commercialization and investment are the key strategies for promoting accelerated modernization, sustainable growth and development and, hence, poverty reduction in the sector. However, to attract investment into agriculture, it is imperative that those constraints inhibiting the performance of the sector are first identified with a view to unlocking them and creating a conducive investment climate in the sector. The development challenges of Nigeria's agriculture are, therefore, those of properly identifying and classifying the growth and development constraints of the sector, unlocking them and then evolving appropriate strategies for promoting accelerated commercialization and investment in the sector such that, in the final analysis, agriculture will become one of the most important growth points in the economy.

1.2 Focus of Nigeria's Agricultural Development Priorities

In spite of the existence of a well-articulated agricultural policy document for Nigeria since 1988, the country has never established a systematic focus in her agricultural planning history that shows a conscious effort to purposely prioritise her agricultural development based on the generally identified components that constitute modern agriculture. Normally, in terms of concentrating on the development of the various parts of the agriculture continuum, the government of Nigeria (GON) should have adopted a prioritization scheme in which, for some specified time periods, it would consciously emphasize on one or more of the areas of commodity production, commodity processing (to add some value), commodity marketing (for either internal commercialization or external trade or both), and institutional support services for agro-industry.

What has happened instead is that, over the years, there has been the development and adoption of programs that tended to generally support only increased production of commodities in the country. Such programs have included among others the following key ones:

- *Farm settlement schemes (FSS)* in the early-to-mid 1950s for creating farmsteads of the Israeli Moshav-type agriculture intended to increase commodity output and create employment for young school leavers;

- *River basin development authorities (RBDAs)* for the purpose of harnessing water resources for farmers throughout the country;
- *Green revolution scheme (GRS)* that encouraged all Nigerians in both urban and rural areas to go into agriculture for both commerce and provision of food for home consumption; and
- *Agricultural development programs (ADPs)* in all States of the federation to help organize farmers into more productive agriculture through the provision of modern inputs.

Each of these programs/schemes succeeded in momentarily increasing food production only. There were no inbuilt components that purposely catered for the processing and/or commercialization of the food output. Thus, understandably, they failed as efforts aimed at developing the agriculture sector.

Recent attempts that have recognized agriculture's current level of performance and the fact that every aspect of Nigeria's agriculture sector needs attention have only listed specified areas that require attention. For example, the *2001 Rural Development Sector Strategy* identifies the following areas for immediate attention if agriculture and rural development in Nigeria are to make the desired impact on the lives of the people:

- Institutional restructuring and role reassignment in the agricultural extension sub-sector;
- Agricultural technology development and natural resources management;
- Physical and social infrastructural development;
- Public intervention in specified areas of rural agriculture to measure effectiveness; and
- Human capacity building in the agriculture sector.

Similarly, the *2002 Agricultural Policy* document that has listed the new directions that agricultural development in the country should take has also only listed the various components of the agriculture sector without any attempt at prioritising the components. So, in both cases, there is no directed effort at specifying which areas should be the priorities and for what periods so that efforts in developing the agriculture sector can be programmed in a systematic manner, indicating desired impact indices that must be attained within such periods. One of the key recommendations in the investment strategies that are suggested in this report deals with the order of priorities that efforts in developing Nigeria's agriculture must take if there must be positive felt changes in the sector. The key issues involved in such prioritization are highlighted and discussed in detail in various sections of this report based on field data and information analysis from the six geopolitical zones of the country.

1.3 Scope and Objectives of the Study

The primary purpose of the study is to provide USAID/Nigeria with the analytical basis for the Mission to design its new Agricultural Policy Strategy that contributes to unlocking constraints to commercialization and investment in the Nigerian agricultural sector for a sustained economic growth; enhanced food security; increased competitiveness of products in the domestic, regional, and international markets; sustainable environmental management; and poverty alleviation. The study addresses the immediate needs of the Mission of identifying key investment options in various geographic areas of Nigeria. In this respect, the study provides short- and long-term strategic support to USAID/Nigeria that enables the Mission to plan, monitor and evaluate its agriculture portfolio. It provides an analytical basis for identifying key investment options and also monitoring and evaluating the impacts of such investments.

The specific objectives of the study are, therefore, to:

(i) Review previous studies on constraints to commercialization and investment in Nigeria's agriculture;
(ii) Define development domains within the Nigerian political economy framework;
(iii) Identify technical, infrastructural, economic, political, social, policy, and institutional constraints to commercialization and investment in Nigeria's agriculture;
(iv) Explain the persistence and assess the effects of the identified constraints to commercialization and investment in Nigeria's agriculture over time and from regime to regime within a political economy framework; and
(v) Assess the investment options and design appropriate short- and long-term strategies for mitigating the effects of the identified constraints.

The implications, data required, etc. of the above objectives are summarized in Table 1.1.

1.4 The Interface among the study, IEHA and USAID/Nigeria Strategic Objectives

The study is in line with both the new US President Initiative to End Hunger in Africa (IEHA) and the Mission Strategic Objectives for years 2004-2005. Recently, the UN adopted the Millennium Development Goals (MDG) that aim at cutting hunger and poverty in half by 2015. IEHA is being launched to contribute to MDG of halving

hunger by 2015 in Sub-Saharan Africa (SSA). The IEHA focus is on smallholder-based agriculture because only the small farmers can contribute to ending hunger in SSA. However, the IEHA approach is to ignite an economic growth of the agricultural sector to rapidly raise rural incomes and consequently reducing poverty and hunger. Its programmatic concentration is on six focal areas (science and technology, market and trade, producer organisations, human and institutional capacity and infrastructure, vulnerable groups, and environment). IEHA intends to capitalise on regional dynamism and synergism. Therefore, IEHA has selected a few focal countries with potentials for spillover effects in their respective sub-regions. In these focal countries, investments will be based on a rigorous analysis of agricultural investment options. The rigorous analysis requires the development of a strategic and knowledge support system that could guide IEHA investments in Africa and that could help monitoring and evaluation of IEHA projects in a sub-regional context (e.g. East Africa, Southern Africa, and West and Central Africa).

The USAID Mission in Nigeria has just adopted a concept paper about the long-term development strategy for Nigeria. This concept note describes four strategic objectives (SOs) that would guide its intervention in Nigeria namely good governance through transparency, participation, and conflict management (SO5), sustainable agricultural and diversified economic growth (SO6), improved social sector service delivery (SO7), expanded response to HIV/AIDS prevention (SO8). SO6 is in particular directly relevant to. The new program framework for SO6 intends to improve the performance of the agricultural sector in the areas of (1) production and productivity, (2) commercialization, and (3) environmental sustainability. In addition to agriculture, the other sectors of a paramount importance for SO6 are increasing the private sector's access to critical financial services and improving the environment for private sector growth.

The AIN study, as described in its above scope and objectives, is in line with both IEHA and the long-term USAID/Nigeria new strategic directions for a sustainable agricultural and diversified economic growth. The focus of the study is on agriculture that is dominated by smallscale farmers. The study will be based on a rigorous analysis that also gives voice to stakeholders. The study team will combine the art of science and technology and the field experience of stakeholders, including producer organisations to implement the study. Its outcomes will contribute to improving our understanding of constraints that mitigate against increased commercialisation and investment in Nigeria's agriculture. Therefore, the study will provide a strategic information for the USAID/Mission and IEHA to design programs and projects that would contribute significantly to the achievements of objectives of wealth generation, poverty elimination, and ending of hunger in Nigeria.

1.5 Plan of the Report

Following chapter one, chapter two discusses the conceptual framework and methodology of the study. Chapter three examines the performance of Nigeria's agriculture. Chapter four is on the review of agriculture policy. Chapter five focuses on the assessment of investment in Nigeria's agriculture. Chapter six examines constraints to private sector investment in Nigeria. Chapter seven identifies investment options in Nigeria's agriculture. Finally, chapter eight contains recommendations that arise from the study.

Table 1.1: Analysis of Study Objectives

Objectives		Implications	Data Required	Analytical technique	Sources of data	Expected output
1.	Review previous studies on constraints to commercialization and investment in Nigeria agriculture	To critically examine past studies in order to identify gaps in the understanding of constraints to commercialization and investments in Nigeria agriculture.	Literature	Narrative descriptive	Library search	Identifica-tion of gaps in knowledge
2.	Define development domains within Nigeria political-economic framework	To classify Nigeria on the basis of biophysical, socioeconomic and political considerations.	(i) States in Nigeria (ii) agro-ecology and climate (iii) market access (iv) population (v) agricultural practices	GIS and descriptive statistics	IITA, FOS, FMARD, Library search	Maps of development domains
3.	Identify technical, infrastructural, economic, political, social, policy, gender, and institutional constraints to commercialization, and investment in Nigeria agriculture.	To recognize and prioritize the different constraints	Different constraints identified by sources, types, and domains	Descriptive analysis	Library search, Field survey	List of prioritized constraints
4.	Explain the persistence and assess the effect of the identified constraints to commercialization and investment in Nigeria agriculture over time and from regime to regime within political economic framework.	(1) To understand the nature, extent and dynamics of these constraints to commercialization, and investment in Nigeria agriculture (ii)To analyze the effects of the identified constraints on commercialization, and investment in Nigeria agriculture.	Level of investment by product, extent of commercialization by product, origin of constraints, extent of the constraints i.e. how bad is the situation e.g. telecommunication, road network (quantity and quality), markets, and their facilities, health care facilities, educational facilities etc. Both *cross-sectional and time series data will be required*	Descriptive statistics, regression, input-output analysis, scoring/ran-king mapping	Field survey, CBN reports, FOS, infrastructure survey, MAN, NACCIMA, ADP, National Data Bank, Input-output table	1. Output of political framework indicating the inventories of gainers and losers. 2. factors that has perpetuated the constraints 3. Maps of relative inventory of constraints.
5.	Assess the investment options.	(i) To identify the investment options in each development domain (ii) To analyze the effects of	List of commodities, prices, production, consumption, elasticities of production and demand,	DREAM, descriptive statistics, regression	Primary data, survey, secondary data from FOS,	Returns to items of priority commodities in each development

		each investment option on welfare in each development domain. (iii) On the basis of analysis, rank the investment options.	amount to be spent on each investment option.	analysis and ranking/ scoring	CBN, IITA and other past studies for elasticities.	domain.
6.	Design appropriate short and long term strategies for mitigating the effects of the identified constraints	(i) Identify and rank short and long term strategies for mitigating constraints.	Findings of the study from items 1-5.	Narrative	Reports from 1-5	List of short and long term strategies.

CHAPTER TWO
CONCEPTUAL FRAMEWORK AND METHODOLOGY

2.1 Conceptual Framework

The challenge facing Nigeria is to eradicate poverty, attain food security, agricultural competitiveness and the sustainable management of the environment through accelerated commercialization and investment in Nigeria's agriculture. The approach is to rely on marketed oriented agriculture that relies primarily on the private sector for the needed investment and commercialization of agriculture.

Investment in this study is defined as additions to stocks of capital that are the sources of future income streams. This study takes a generalized approach to capital that includes real tangible physical capital such as dams, irrigation structures, grain silos, farm machinery and implements, hoes, machetes, and rural roads. It also includes social capital such as human capital through education and health, and on-the-job training through intergenerational transfer of farming skills. This generalized approach to capital formation and investments also includes institutional capital accumulated through investments in organizations and the regulatory environment. Investment can be gross, including investments to replace depreciated capital " stock, or it can be net, to include only net additions to the capital stock. It can be referred to as net capital formation as with expenditures on new farm machinery, irrigation infrastructure, storage facilities, etc over and above the requirements for the replacement of existing capital, which are used in the production of goods and services for future use as opposed to present consumption. From a broader perspective, investment can be viewed as sacrificing certain present values of consumption for future consumption. It is the commitment of money in order to earn future benefits. . Fixed investment is defined as purchases by firms of newly produced capital goods such as production machinery, newly built structures, office equipment etc. Inventory investment on the other hand is the change in stock of finished products and raw materials firms keep in their warehouses. Replacement investment is investment made to replace worn out capital goods resulting from their use in the production process. It is also known as disposable investment. In this study investment can be from public (government), and/or the private sectors, which can be foreign and/or domestic.

Commercialization, on the other hand, is the movement from a subsistence production to a market-based system of production. It involves raising the cash earnings of small-scale agricultural-related enterprises. Commercialization can be brought about by increasing the unit of output, raising the value added or both, and producing for domestic and foreign markets.

Commercialization is, however, contingent upon the availability of both input and output markets. This assumes inter-sectoral linkages within the economy as the inputs needed for commercialization are obtained from the different sectors of the economy or from abroad while the outputs from commercialization are also distributed to the different sectors of the economy or to abroad.

In a fundamental sense, a conceptual framework provides a guide to the organization of ideas and issues in a study. It acts as a filing cabinet for sorting ideas and issues into neat compartments - As such, a conceptual framework must derive its validity from the objectives of a study while it, in turn, guides the study towards the achievement of its objectives.

In its broad perspective, the overarching research issue in this study is the dynamics of investment flow for the development of the agricultural sector of the economy. The importance attached to investment flow for agricultural development derives from the theoretically and historically valid assumption that the sector requires an increasing

dosage of investible capital from all feasible sources. This capital translates into investment, which, in turn, transforms various developmental variables in and outside the agricultural sector to create the ultimate impact, which is economic growth and sustainable development. The relationships among the variables are very complex. But in order to capture the essential highlights of these relationships, a schematic representation of the patterns of interactions among major variables is depicted in Figure 2.1.

As shown in Figure 2.1 investible capital kick-starts the process that ultimately leads to agricultural growth and overall sustainable livelihood of households operating in the agricultural sector. The process, as depicted in the chart is a follows.

1. Investible capital, which is made up of both private and public capital, flows in from foreign private and public sources as well as from domestic private and public sources.
2. This capital from various sources creates investment that, in turn, creates increasing commercialization and employment and generates increasing outputs of various kinds as driven by the pattern of demands. Agricultural outputs come from corporate business organizations as well as from individuals or groups of producers,
3. Corporate outputs generate corporate profits that are distributed in various ways. Part of the profits is ploughed back into further investment; part goes to households say, as dividends; part constitutes a leakage from the economy, say, as profit repatriation from the country by investors; and part goes in the form of income transfers for the welfare of vulnerable groups and the poor as well as for other welfare interventions like environmental management and repairs of environmental damage done in the course of production.
4. Households earn their incomes from four main sources, namely share of corporate earnings, income from their own production, wage earnings by household members and net income transfers to the household.
5. Households distribute their incomes to finance consumption, to finance further investment and to support vulnerable members or other outside groups.
6. The net impact of these complex processes is sustainable livelihood of households, meaning that there is sustained economic growth, declining poverty, increasing food security and enhanced environmental sustainability. The process is dynamic and involves various lags between stimuli and responses in the economic system.
7. The major purpose of this study is to evolve strategies and identify areas of intervention by the USAID, other donors, the home governments and the domestic private sector to provide a catalytic support for an increasing flow of agricultural investment, leading to the positive socio-economic impact outlined above. But as far as the USAID is concerned, the five pillars of U.S.A. support for this process are, as outlined in Figure 2.1:
    (i) Technological support
    (ii) Improving agricultural trade and market systems
    (iii) Building human capital, infrastructure and institutional capacity
    (iv) Promoting sustainable environmental management, and
    (v) Supporting community organizations

These five forms of catalytic support are encapsulated in a U.S.A. initiative known as the Initiative to End Hunger in Africa (IEHA). An important purpose of this study is, therefore, to identify strategies for the successful implementation of this initiative.

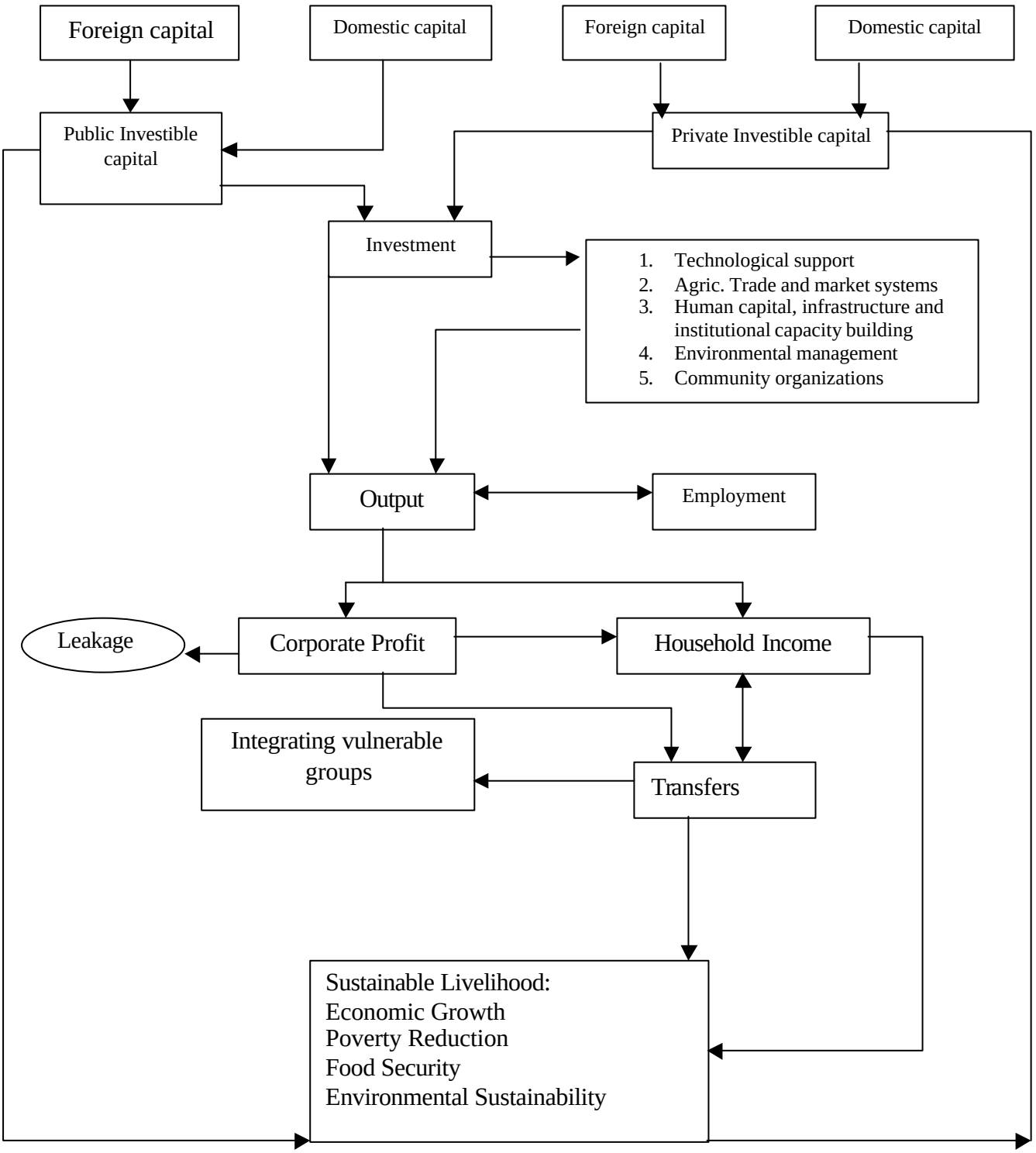


Figure 2.1: A flow chart of Investment and Sustainable Livelihood

It is easy to observe that the pattern of inter-relationships among the economic variables represented in figure 2.1 is complex and elaborate. It is, therefore, impossible to cover the entire breadth and depth of all the inter-relationships in this phase of the study, given time and other constraints. In the event, a simpler, narrower subset has been carved out for research attention at this stage. The study will cover the identification and mapping of key constraints to investment and commercialization in agriculture, but with particular reference to the various development domains in Nigeria, explain the persistence and assess the characteristics, sources and effects of the constraints, design strategies for the mitigation of the constraints and establish the linkage between the designed strategies and IEHA and Nigeria's agricultural investment priorities.

For this short-term phase of the study, a schematic representation of key variables of research interest and their inter-relationships is shown in figure 2.2 as already mentioned is a sub-set of Figure 2.1. The link between commercialization and investment is bi-directional as shown in Figure 2.2. For example, investment in agriculture can or will lead to commercialization of the agricultural sector while commercialization, on the other hand, can also spur investment. Investment and commercialization are key to sustained economic growth, enhanced food security, increased competitiveness of products, poverty reduction and sustainable environmental management.

Constraints to the inflow of private sector investment and commercialization in Nigeria's agriculture include technical, infrastructural, economic, financial, political and social. Others are policy constraints, institutional constraints, environmental constraints, external constraints, land tenure constraints, and agricultural labor market and wage constraints. Unlocking these constraints will promote investment and commercialization in the agricultural sector. This study is, therefore aimed at analyzing the constraints to private sector investment and commercialization in Nigeria's agriculture. The study will prioritize the strategic areas of intervention by USAID in order to remove the bottlenecks to investment and commercialization in Nigeria (see Figure 2.2)

The key questions to address in this study are:

- What are the elements of the constraint domain?
- What are the characteristics or features of elements of the constraint domain?
- What are the causes of each element of the constraint domain?
- What are the consequences of each element of the constraint domain? The consequences form the elements of the constraint range, that is, the end results of the transformation of the elements of the constraint domain into consequences.
- What are the effects of the identified constraints on investment and commercialization of Nigeria's agriculture? What is the ranking (quantitative or qualitative) of these constraints as measured by the relative magnitude of their adverse effects on investments and commercialization, and how might these guide the prioritization of intervention strategies for unlocking these constraints?
- Why have the identified constraints persisted over time and from one regime to the next? Who are the gainers and losers from the existence of these constraints, that is, from the elements of the constraint domain? Who are the gainers and losers from the consequences of the constraints; that is, who are the gainers and losers from the elements of the constraints range? Why have the gainers prevailed over the losers from the continued existence of these constraints? What are the explanatory variables for the persistence of these constraints and how might an interventionist strategy tackle these within a political economy framework?
- What policies, regulations and institutions have promoted or inhibited agricultural investment and commercialization?
- What are the investment priorities in different zones of the country and what are the determinants of these priorities?
- In what crops, livestock products, fishery, forestry, agro-industries, etc, does Nigeria have comparative advantage and high degree of competitiveness in the world market?
- What specific policies, regulations and institutions can be adopted to enhance this comparative advantage?
- What new policies, regulations and institutions can be adopted to improve the investment climate in Nigeria's agricultural sector?
- What strategic options are available for supporting IEHA interventions in Nigeria?
- What are the primary interventions required for promoting the identified priority commodities in the zones?

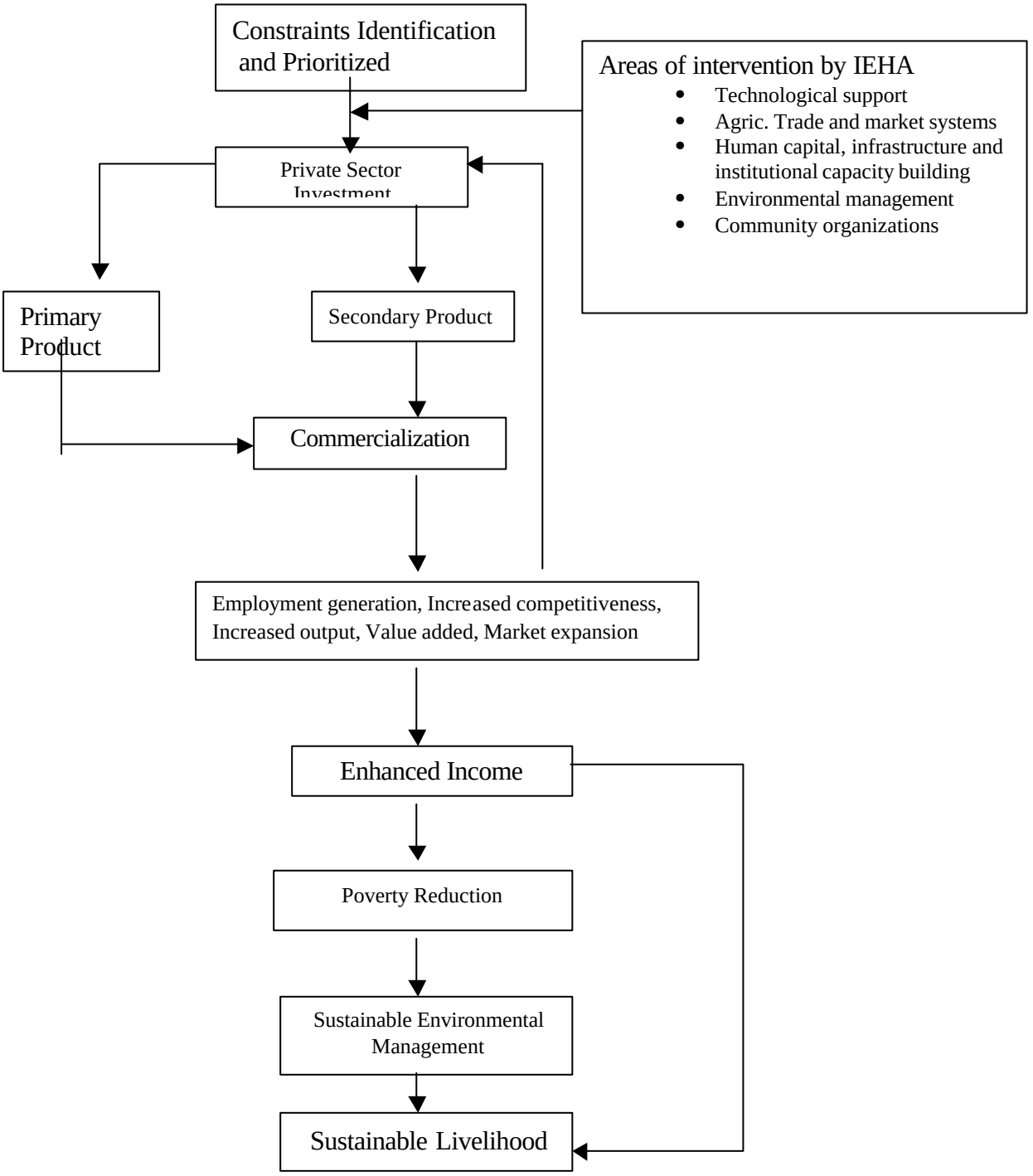


Figure 2.2: Flow Chart of the Constraints to Investment and Commercialization in Agriculture

The study recognizes the challenges and opportunities inherent in Nigeria's diverse agro-ecologies, resource endowment and agricultural production systems, hence the study will focuses critically on Nigeria's diverse agricultural zones as development domains. In principle, the demarcation of development domains is based on a composite set of factors which includes market access, population density, ecology, agricultural production systems and geo-political considerations. But due to a number of important considerations, this study will adopt Nigeria's six geo-political zones (simply referred to as development domains) in this study. These geo-political zones, incidentally, largely reflect the geo-ecological and other diversities of the country.

Development domain mapping will be carried out in this study to indicate the agricultural production and investment priorities in the various development domains. Finally, appropriate strategies or strategic options will be identified for facilitating the process of agricultural investment flow and commercialization in the development domains.

The selection of priority commodities and technology options for the development domains often involves the use of a complex set of criteria that will include the following:

(i) Commodities that have large markets and high future demand opportunities in the domains, in other domains within the country or in the export market.
(ii) Commodities that constitute predominant sources of household income.
(iii) Commodities that enjoy comparative advantage of high competitive advantage in domestic and export markets.
(iv) Commodities that are already being produced in large quantities with familiar technologies.
(v) Commodities that have high actual or potential growth rates in production and productivity.
(vi) Commodities that have potential for high value added and spillover benefits through agro-processing and other downstream transformations either within the domain or in other domains within the country.
(vii) Commodities, the production of which has minimal adverse effects on the environment or enhance environmental management.
(viii) Commodities, the production of which largely benefits smallholder farmers, the poor and the vulnerable groups in and outside the domains.

In this study, commodities selection was based on one or a combination of the criteria above except 3 and 7.

2.2 Defining Development Domains of Nigeria

The first task is to define zones that could form the basis for investments into agriculture for the highest economic returns. Defining development zones of Nigeria would be based on such factors as agro-ecology, population density, market opportunities, infrastructure, farming systems, incidence of poverty and malnutrition, soils, political factor, etc. For the study, four factors were first combined on the basis of available geo-referenced data, namely the ecology (potentials for agricultural production), population density and road density (potentials for agricultural intensification and diversification and commercialization of both inputs and outputs) and farming systems (potentials for conversion of natural resources into crop products). A fifth factor about the geo-political division of the country that is the basis for the overall guidance of investment and political decisions in Nigeria. Overlaying maps of the above features resulted in the definition of six development domains for Nigeria. These are the North-West Zone (NW), North-East Zone (NE), North-Central Zone (NC), South-West Zone (SW), South-East Zone (SE), and South-South Zone (SS) (Figure 2.3). These development domains match very well with the so-called six geo-political zones of Nigeria.

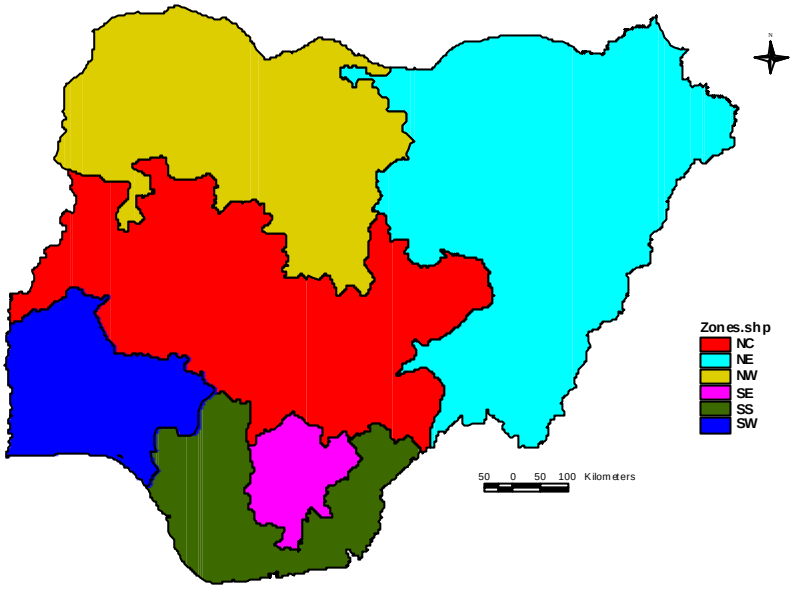


Figure 2.3. Development Domains of Nigeria

2.3 Sources of Data and Methods of Data Collection

2.3.1 Sources of Data

The data for this study were derived from both primary and secondary sources. The data needs were identified on the basis of the objectives of the study. The data needs are already presented in chapter one (Table 1.1). Each data source and the method of collection adopted are explained as follows.

The secondary data used for this study were obtained from publications of local and international agencies. The local agencies included the Federal Office of Statistics (FOS), the Central Bank of Nigeria (CBN), the Federal Ministry of Agriculture and Rural Development (FMARD), the Projects Coordinating Unit (PCU), State-wide Agricultural Development Programs (ADPs) and the National Data Bank (NDB). The international sources of secondary data included the World Bank, and the International Monetary Fund.

Key data elements collected from the various secondary sources were agricultural commodity output, agricultural commodity consumption, prices of agricultural products, Gross Domestic Product, terms of trade, external reserves, foreign and domestic investment, policies (macro and micro related), inflation rate, consumer price index, debt service, exchange rate and credit to the domestic economy among others.

2.3.2 Methods of Data Collection

The primary data were collected with the aid of two survey instruments designed separately, one for policy makers/implementers and the other or private sector and other stakeholders in agriculture. The two instruments dwelt extensively on the perception of respondents on trends in agricultural investment, the pattern of flow, the state of investment climate, constraints to increased investment and so on. Specifically, the questionnaire for policy makers, policy implementers and bureaucrats addressed issues such as those relating to the identification of specific policies, regulations and institutions designed to promote agricultural development, the factors accounting for the effectiveness or ineffectiveness of policies, investment priorities in he upstream and down stream activities of agriculture across the geo-political zones of the country and the criteria used to determine investment priorities. Other salient issues addressed in the questionnaire were areas of Nigeria's comparative advantage, ways of strengthening Nigeria's comparative advantage, the prevailing climate and opportunities for investment in agriculture, and the policies, institutions and strategies for accelerating the pace of agricultural development.

The second survey questionnaire was addressed to agribusiness associations, individual investors and other private sector operators in agriculture. The key issues addressed were the rating of agricultural performance since 1999, the factors affecting the performance of different enterprises, the assessment of investment trends in the different enterprises, and the attractiveness of agribusinesses to private investors. In addition, issues such as the nature, sources and effects of various constraints to investment in agriculture, the persistence of constraints, beneficiaries and losers from the persistence of constraints, the nature of benefits and losses and the specific policies, regulations and institutions affecting development issues. Other issues covered in the questionnaire were those relating to priority areas of investment in Nigeria's agriculture across the geo-political zones, areas of Nigeria's comparative advantage, assessment of Nigeria's economic climate for investment in agriculture, policies programs and strategies for accelerated investment in agriculture, and suggested new policies, programs and strategies for promoting rapid agricultural development.

For the purpose of the study, the existing six development zones were adopted as strata for data collection. In addition the Federal Capital Territory (FCT) was treated as a zone on its own. A sample of two states per zone was selected for the survey, in addition to the FCT. The states were Benue and Kogi states in the North-Central Zone, Borno and Adamawa states in the North-East Zone, Kaduna and Kano states in the North-West Zone, Abia and Ebonyi states in the South-East Zone, Akwa-Ibom and Cross River states in the South-South Zone and Oyo and Ondo States in the South-West Zone.

Seven teams of two persons per team were dispatched to the different zones and the FCT to administer the survey instruments. The field survey lasted for four weeks. The teams ensured an all-inclusive coverage of wide range of stakeholders in their interviews.

A combination of field survey methods was employed for the study. These are discussed as follows:

1. *In-depth Interview*: This was held where the respondents preferred to respond to the contents of he questionnaires in the presence of the field enumerators. The contents of the questionnaires were explained to the respondents and their responses recorded.
2. *Focus Group Discussions (FGDs)*: This method was adopted for most groups and associations, which preferred to have their members together in the process of administering the instruments. This method enriched the responses of the groups as it allowed for diversity of views expressed while, at the same time giving room for consensus among the participants.

3. *Individual Completion of Questionnaires*: This involved leaving the questionnaires with individual respondents (on request) to be completed at their convenience, but to be returned on an agreed date. This method was adopted mostly for the organized private sector/ and the ministries/ parastatals.
4. *Taped Interviews*: Auto-taped interviews were used to capture some important opinions or to serve as strategic entry points for other major issues to be discussed during interviews.

The number of different agencies visited across the zones is shown in Table 2.1.

Table 2.1: Number of Instruments Administered in the Different Zones of the Country

Zones	Policy Makers		Private Organizations[1]	
	No Lodged	No Retrieved	No Lodged	No Retrieved
North-central	6	6	16	16
North-east	2	2	17	17
North-west	5	5	19	19
South-east	8	3	14	13
South-south	6	4	18	10
South-west	16	12	38	30
FCT	8	6	-	-
Total	51	38	122	105

Source: Field survey, February/March, 2003

2.4 Methods of Analysis

A multiple of analytical methods will be used to analyze the identified constraints in this study. These will include descriptive statistics, constraint mapping, development domain mapping, and regression analysis and the dream model.

2.4.1 Descriptive Statistical Analysis

This involves the use of means (averages), average growth rates, frequency distribution and measures of dispersion, like variance, standard deviation and coefficient of variation. The focus will be on the analysis of levels, trends and variability in key variables of interest to provide insight into their pattern of movement over time and over space.

2.4.2 Constraint Mapping

The field survey to be conducted for this study will be used to collect data on the relative prevalence and depth of the effect of various constraints to investment in agriculture in the six defined development domains of the country. This information will be superimposed on a map which will show how prevalent each investment constraint is in each zone, such that it will be easy to see at a glance which investment constraints are relatively more prevalent in each zone, using colour codes.

2.4.3 Regression Analysis of the Determinants of Private Investment

The conceptual framework developed earlier for this study has indicated the relationship between investment and some variables. The emphasis of the study which is on unlocking/reducing the major constraints to investment and

[1] The private organizations interviewed included farmers' organizations, commodity processors, input producers, agro-allied companies, Chambers of Commerce and Industries, and National Association of Small Scale Industrialists.

commercialization in Nigeria's agriculture itself implies that an empirical investigation needs to be conducted to identify the favorable and unfavorable factors affecting the investment climate in Nigeria. In the light of the foregoing, it is considered necessary to provide an analytical framework to be used to investigate the significant determinants of both domestic private investment and foreign private investment in Nigeria. The proposed models benefit substantially from the studies of Obadan (1990), Ajakaiye (1995), Serven and Solimano (1991), and Greene and Villanueva (1991). Others are: Rama (1990); Frot and Krugman (1990) and Cardoso (1993). Chete and Akpokodje (1997) and Salako and Adebusuyi (2000) have provided an excellent review of these studies and others. On the basis of the insight provided by these authors with respect to the expected relationship between investment flows and some causal variables, this study presents the following proposed models in general forms:

2.4.3.1 ***The Models for the Regression Analysis***

(a) Domestic private investment is hypothes ized to be determined as:

$DPI_t = f(GI_{t-i}, INFL_t, RER_t, DSR_t, \Delta TOT_t, DeY_t \quad C_{t-1}; v)$

Where:

DPI = Domestic private investment as ratio of GDP

GI = Public investment as ratio of GDP

GR = Growth rate of real GDP

INFL = Inflation rate

RER = Real exchange rate which is defined as nominal exchange rate with respect to the US Dollar multiplied by the ratio of the US CPI to domestic CPI

DSR = Debt service charge expressed as a ratio of the total exports value of goods and services

ΔTOT = Changes in terms of trade

DeY = Economic instability index proxied by the deviation of actual GDP from its trendline values.

ΔC = Change in domestic credit to private sector plus not foreign capital inflow

v = Stochastic error term

The expected relationships between the dependent variable and its determinants are as follows. Both GI and GR can have either positive or negative relationship with domestic private investment. On the other hand, TNF, RER, DSR, ΔTOT and DeY are expected to negatively influence domestic private investment. Lastly, it is expected that ΔC will have a positive association with domestic private investment.

(b) The determinants of foreign direct investment is specified as:

$FDI = f(GI_{t-i}, GR_{t-1}, INFL_t, RER_t, DSR_t, \Delta TOT_t, DeY_t \ \Delta C_t; e_i)$

Where:

FDI = Inflow of foreign direct investment as ratio of GDP.

Where: GI, GR, INFL, RER, DSR, ΔTOT, DeY, and ΔC are as defined above; e is the stochastic error term.

The direction of the relationship between foreign direct investment and its determinants can be positive or negative. GI, GR, and ΔTOT can have either positive or negative influence on foreign direct investment. A negative relationship is expected between INFL, DSR and DeY and foreign investment. RER and ΔC are expected to positively influence foreign direct investment.

In order to have an appropriate specification, variants of the models will be experimented with, in the regression equations. The time series characteristics of the model will be examined to avoid spurious results, which can come as a consequence of regressing two or more non-stationary series. In this respect a co-integration analysis, which ensures a long-run relationship among non-stationary series, will be carried out. This will be done in a two-step procedure using the Augmented Dickey Fuller (ADF) test statistics. The first step is to test for stationarity of the

different variables while the second step involves co-integration test of the dependent variables against the independent variables.

2.4.3.2. ***Data Requirement and Sources for the Regression Analysis***

The data required for this analysis are time series in nature and will cover the years between 1970 and 2001, if all required data are available. The variables of interest on which data is collected are:

- Domestic private investment (total and agriculture)
- Foreign direct investment (total and agriculture)
- Public investment
- Debt service charge
- Value of export, value of import
- Terms of trade index
- Inflation rate
- GDP at 1984 constant factor cost (total and agriculture)
- Growth rate of real GDP
- Nominal exchange rate ₦/USD
- Nigeria's consumer price index
- US consumer price index
- Foreign exchange receipts
- Interest rate in Nigeria
- Interest rate in the US
- Domestic credit to the private sector
- Growth rate of money supply
- International reserves
- Import capacity
- Foreign capital inflow

The data are from local and international sources. Terms of trade index, US consumer price index, import capacity of Nigeria and lending rate of US are sourced from World Debt Tables of the World Bank. Also, the data on private and public investment are sourced from IFC discussion papers on trends in private and investment in developing countries. Other data are to be sourced from the CBN Statistical Bulletin.

This analysis is only exploratory, as it has not examined the interdependence of investment, trade and growth in Nigeria, which will require the use of a simultaneous equation model. The data requirement for such a simultaneous equation model is beyond the scope of the present study. In the circumstance, a single-equation regression model is used in this study.

2.4.4 The Dream Model

One of the key tools of analysis in this study is the IFPRI DREAM (Dynamic Research Evaluation for Management) Model (Wood et al, 2000). DREAM is designed to measure economic returns to commodity-oriented research under a range of market conditions, allowing price and technology spill over effects among regions as a consequence of the adoption of productivity-enhancing technologies or practices in an innovating region. Linear equations are used to represent supply and demand in each region with market clearing enforced by a set of quantity identities and price identities. It is a single-commodity model without explicit representation of cross-commodity substitution effects in production and consumption --- although, of course, these aspects are represented implicitly by the elasticities of supply and demand for the commodity being modelled. In particular, DREAM assumes all commodities are tradable between regions (although a spectrum of possibilities from free trade to autarky can be represented). The supply, demand and market equilibrium are defined in terms of border prices which will differ from prices received by farmers (or paid by consumers) because of costs of transportation, transactions, product transformation, and so on that are incurred within regions between the farm and border. The linearity of DREAM model is good for small equilibrium displacements such as those single-digit percentage shifts of supply or demand, which is common for most of agricultural technology changes. Alston and Wohlgenant (1990) showed that changes

in benefits estimates from comparatively small equilibrium displacements of linear models provides a reasonable approximation of the same shifts (in this case parallel shifts) with various other function forms. Small shifts have the added virtue that the cross-commodity and general equilibrium effects are likely to be small (and effectively represented within the partial equilibrium model), and that the total research benefits will not depend significantly on the particular elasticity values used (although the distribution of those benefits between producers and consumers will). Even with all these simplifications, which make the DREAM model tractable, significant effort is needed to parameterise and use the model to simulate market outcomes under various scenarios (Alston et al, 1995; Alston et al, 2000).

The primary parameterization of the model's supply and demand equations is based upon a set of demand and supply quantities, prices, elasticities in a defined "base" period. DREAM also allows for underlying growth of supply and demand to be built into the model to project a stream of shifting supply and demand curves into the future that we can solve for a stream of equilibrium prices and quantities, in the "without research" scenario. These "without research" outcomes can be compared with "with research" outcomes, which are obtained by simulating a stream of displaced supply curves, incorporating research-induced supply shifts. The research-induced supply shifts are defined by combining an assumption about a maximum percentage research-induced supply shift under 100 percent adoption of the technology in the base year, with an adoption profile, representing the pattern of adoption of the technology over time. Finally, measures of producer and consumer surplus are computed and compared between the "with research" and "without research" scenarios, and these are discounted back to the base year to compute the present values of benefits. In the case that we know the costs of the research that are responsible for the supply shift being modelled, DREAM will compute a net present value or internal rate of return (IRR).

DREAM has been developed into a computer software package (Wood et al, 2000). It has menu-driven, user-friendly interface which hides the complex computation to allow user to focus on methodology, data collection and policy interpretation. DREAM explicitly includes four market types: horizontal multi-market, open economy, closed economy, and three-level vertical market. The region in DREAM can be any spatial unit, either geopolitical region such as country, province, county or agro-ecological zones such as humid and temperate zone, tropics and arid zone. DREAM allows users to specify technology shifts, adoption, elasticities, and exogenous growth rates that change over the simulation period. It provides a framework for exploring various kinds of policy, technology, extension and trade issues (Alston et al, 2000).

CHAPTER THREE
THE PERFORMANCE OF NIGERIA'S AGRICULTURE

3.1 Evidence from Literature

The performance of the agriculture sector was assessed using indicators from literature. Five key indicators were used for this purpose, namely mean gross domestic product (GDP) at 1984 constant factor cost, mean amount of guaranteed loan received by farmers under the agricultural credit guarantee scheme fund (ACGSF), mean total bank credit to the agricultural sector and the economy as a whole, mean capital expenditure of federal government on agriculture and on all sectors of the economy and share of labor force employed in agriculture. Four sub-periods were considered for this assessment: 1981 – 85, 1986 – 90, 1991 – 95 and 1996 – 2000. For each indicator and for each sub-period, three parameters were taken into consideration: the annual values, the growth rates, and the variability in the growth rates. Details are discussed in the sub-sections below.

3.1.1. Annual Values of Performance Indicators

The results on the average annual values for the key performance indicators of the agriculture sector in Nigeria are summarized in table 3.1. The results show a mixed performance. It may be observed that first, the crops sub-sector dominated the agricultural sector GDP in all the sub-periods. Crops sub-sector alone accounted for between 71 percent and 80 percent of the agricultural sector GDP in the sub-periods. Second, the share of agriculture in both aggregate GDP and non-oil GDP increased only marginally between the 1981 – 85 and 1996 – 2000 sub-periods, but as expected, agriculture's share of non-oil total GDP alone was higher than its share of aggregate GDP. The difference is, however, not as large as expected because the contribution of the oil sector to the country's GDP is not as large as its contribution to national revenues may suggest.

Table 3.1: Indicators of Agricultural Sector Performance (in Mean Annual Values)

S/N	Indicators	1981 – 1985	1986–1990	1991 – 1995	1996-2000
1.	**Mean GDP at 1984 Constant Factor Cost (₦ Millions):**				
	Crops	18,134.2	24,773.3	30,195.1	35,745.0
	Livestock	4,306.8	4,959.0	5,212.0	5,825.0
	Forestry	1,258.7	1,328.6	1,290.0	1,390.0
	Fisheries	1,322.1	1,167.6	1,379.0	1,765.0
	Total agriculture GDP	25,229.2	32,228.5	38,075.9	44,725.0
	Total GDP	67,773.0	78,681.0	99,320.7	111,705.0
	Total Non-Oil GDP	58,368.8	68,486.0	86,445.0	99,160.0
	Share of agriculture in total GDP(%)	37	41	38	40
	Share of agriculture in non-oil GDP (%)	43	47	44	45
2.	**Mean guaranteed loan under ACGSF (₦ Million):**	44.2	103.4	104.6	228.2
3.	**Mean Total Bank Credit (₦ Million):**				
	Total credit to agriculture	1,000.5	3,600.4	15,789.0	37,819.6
	Credit to the economy	12,007.8	25,013.2	89,285.1	391,036.8
	Agriculture's share of total (%)	8.3	14.4	17.7	9.7
4.	**Mean Capital Expenditure of Federal Government (₦ Million):**				
	Expenditure on agriculture	985.4	910.7	2,125.2	6,338.2
	Expenditure on all sectors	6,516.4	8,529.4	24,644.1	159,591.6
	Agriculture's share of total (%)	15.1	10.7	8.6	4.0
5.	**Share of Total Labor**				
	Force employed in agriculture (%)	59.4	55.6	57.0	45.0
6.	**Agriculture's Share of Export Value:**				
	Share of total export	2.9	4.7	2.0	2.4
	Share of non-oil export	71.8	79.1	77.8	84.5

Source: Computed with data extracted from: Central Bank of Nigeria (CBN): Statistical Bulletin, Vol. 11, No.2, December 2000.

Credit flow to the agricultural sector is an indicator of the sector's capacity to invest and grow. This capacity is measured in Table 3.1 by the amount of guaranteed loan that flowed to the sector under the agricultural credit guarantee scheme fund and the total bank credit to the sector. As shown in the table, the nominal flow of guaranteed credit increased astronomically. But when expressed in real terms (i.e. in 1985 constant prices), there was a sharp decline over the sub-periods, from about ₦44.2 million in the 1981–85 sub-period to about 36.5 million in the 1986-90 sub-period and to only about 5.6 million in the 1996-2000 sub-period.

The total flow of credit from the entire banking system depicted a similar trend, with high and increasing flow in nominal terms but a decline over the sub-periods in real terms. But more significantly, the share of total bank credit going to agriculture first increased rapidly from about 8 percent in the 1981-85 sub-period to a peak of about 18 percent in 1991-95 sub-period, before declining to only about 10 percent in the 1996-2000 sub-period. This pattern of movement was a reflection of government priority for agriculture and, more importantly, the degree of compliance of the banking system with agricultural credit guidelines.

Also, in Table 3.1, it is shown that the share of federal government's total capital expenditure going to agriculture declined rapidly and consistently from about 15 percent in the 1981-85 sub-period to only about 4 percent in the 1996-2000 sub-period, probably reflecting the declining trend in federal government's investment priority in the sector. The table shows a declining share of total labor in agriculture, from about 59 percent in 1981-85 to 45 percent in 1996-2000.

Finally, it can be observed from Table 3.1 that agriculture's share of total oil and non-oil export values increased from the 1981-85 sub-period to the 1986-90 sub-period, but declined in the 1991-95 sub-period and remained virtually unchanged thereafter. However, the share of agricultural products in the total value of non-oil exports alone increased in the period from 72 percent in the 1981-85 sub-period to 84 percent in the 1996-2000 sub-period. The implication is that, within the group of non-oil exports, agricultural export performed relatively better by increasing its share. But because non-oil export in the aggregate did not perform as well as oil export, agriculture's share of total export value (oil and non-oil) could only stagnate in the 1981-2000 period.

3.1.2 Growth Rates of Economic Indicators

Table 3.2 shows the average annual rates of growth of a number of agricultural-sector performance indicators over the 1981-2000 period.

Six growth-rate indicators are listed in the table, namely, average annual growth rates of agricultural GDP and those of four sub-sectors of agriculture, average annual growth rates in indices of agricultural production and for five sub-sectors of agriculture, average annual growth rates in the amount guaranteed loans under the ACGSF, average annual growth rates in total bank credit to agriculture and the aggregate economy, and capital expenditures of federal government in the agricultural sector and in the aggregate economy.

The growth rates of the GDP in the agricultural sector and its sub-sectors show that the crops sub-sector performed relatively better than the other sub-sectors and the aggregate sector. Although not high, the crop growth rates improved over the 1981-2000 period, from an average 2.5 percent per annum in the 1981-85 to 4.9 percent per annum in the 1996-2000 sub-period. Growth rates in the livestock sub-sector were positive but declining, from 5.7 percent per annum in the 1981-85 sub-period to 2.7 percent in the 1996-2000 sub-period. Forestry sub-sector's growth rates were still poorer than those of livestock. Fisheries sub-sector displayed high but highly swingin g

growth rates, with high positive growth rates, alternating with high negative growth rates. This was an indication of a high degree of instability in the sub-sector. However, the growth performance of the agricultural sector GDP was, on the whole, slightly better than that of the economy as a whole.

Table 3.2: Mean Annual Percentage Growth Rates of Agricultural Sector Performance Indicators

S/N	Indicators	1981– 1985	1986 – 1990	1991 – 1995	1996 - 2000
1.	**GDP at 1984 Constant Factor Cost (% p.a.):**				
	Crops	2.5	4.7	3.1	4.9
	Livestock	5.7	2.3	1.5	2.7
	Forestry	0.4	-6.0	2.3	2.0
	Fisheries	-16.1	24.6	-10.2	11.7
	Total agriculture GDP	2.1	4.5	2.3	4.8
	Total GDP	-1.5	6.7	2.2	2.8
2.	**Index of Agricultural Production (% p.a.):**				
	Staple crops	4.3	1.4	0.2	3.0
	Other crops	-1.3	6.4	-0.8	5.3
	Livestock	3.8	9.1	1.6	2.2
	Fisheries	-16.7	5.2	-3.9	5.7
	Forestry	-1.2	2.6	1.8	1.3
	Sector aggregate	2.1	12.2	2.6	3.4
3.	**Guaranteed loan under ACGSF (%)**		10.3	16.1	13.1
4.	**Total Bank Credit:**				
	Credit to agriculture	22.0	26.4	48.6	5.8
	Credit to the economy	10.2	15.4	37.0	21.3
5.	**Consumer Price Index (% p.a.):**				
	All items	20.1	33.6	57.5	6.8
	Food items	21.3	38.4	54.6	3.8
6.	**Capital Expenditure of Federal Government (% p.a.):**				
	Expenditure on agriculture		27.5	74.7	9.2
	Expenditure on all sectors		26.5	36.3	47.8
7.	**Agricultural Export Value:**	31.0	70.5	68.5	18.2

Source: Computed with data extracted from: Central Bank of Nigeria (CBN): Statistical Bulletin, Vol. 11, No.2, December 2000.

The trend in the indices of production in the agricultural sector was similar to that of the sector's GDP. There were generally very low but positive growth rates in staple crops, livestock forestry and the sector aggregate production. Fisheries sub-sector displayed highly fluctuating growth rates. The production growth performance of the sector was, on the whole poor in the 1981-2000 period, except in the 1986-90 sub-period, due to the relatively efficient implementation of strut rural adjustment policies in that sub-period.

The trend in guaranteed credit to agriculture under ACGSF showed high nominal growth rates but a negative real growth rate as earlier indicated. But the rate of flow of bank credit was higher than for the economy as a whole, as indicated by the higher annual rate of increase in the amount of total bank credit flowing into agriculture than flowing into the economy as a whole, except in the 1996-2000 sub-period.

The relative rate of increase in the food-item consumer price index was generally lower than that of all items (food and non-food), an indication of relative food price stability in the economy. But the rates of both food and non-food consumer prices rose between the 1981-85 sub-period and the 1991-95 sub-period, although the rate of increase was

lower for food items than for non-food items. But in the 1996-2000 sub-period, the rates of increase in both food and non-food consumer prices declined dramatically, but the rate of decline was higher food than for non-food consumer prices. On the whole, the rate of inflation in food prices was lower than the rate of non-food prices in the entire 1981-2000 period, an indication of a relatively stabilizing food security situation in the country.

It is observed in Table 3.2 that the rate of growth in capital expenditure by the federal government in agriculture was higher than the rate of growth for the economy as a whole from 1981 to 1995, showing an apparently increasing priority given to the sector by the federal government. However, the situation changed dramatically in the 1996-2000 sub-period when the rate of increase in capital expenditure was much lower for the agricultural sector than for the economy as a whole.

Finally, the average growth rate in the value of agricultural export increased astronomically in the 1986-90 sub-period due to the initial impact of SAP, remained a little lower but still high in the 1991-95 sub-period, again due to the effect of SAP, but became relatively low in the 1996-2000 sub-period, as the effect of SAP wore off.

Generally, there had been a lack of consistency in the growth performance of the agricultural sector in the 1981-2000 period, with some evidence of unstable or fluctuating trends, probably due to inconsistencies in policies and policy implementation in the period.

3.1.3 Variability in the Growth Performance of Indicators

In order to throw more light on the degree of instability in the growth performance of the agricultural sector in the period under review, Table 3.3 is presented.

The variability, which is measured in terms of coefficient of variation, shows the average percentage variation in either direction from the mean value from one year to the next. A coefficient of variation of zero percent depicts perfect stability and the higher it is from zero, the higher is the degree of instability, subject to a maximum of 100 percent. Instability in an agricultural performance indicator is a reflection of policy instability and/or implementation inconsistency vagaries of nature (which is a prominent phenomenon affecting most agricultural activities), policy failures, market failures (e.g. unreliable input supply system, instable input and out prices, etc) and other weaknesses of the economy.

Looking at Table 3.3, it could be observed that most of the indicators had high average coefficients of variation (say, > 20%) over the sub-periods under review. These unstable indicators included GDP in the fisheries sub-sector, indices of production of staple crops and fisheries products, amounts of loans guaranteed under the ACGSF, food and all-item consumer pries indices, total flow of bank credit to agriculture and the economy as a whole, and federal government capital expenditure on agriculture and the economy in the aggregate. It is easy to see that these are the types of indicators, which reflect inefficiencies in economic management, market imperfections and policy failures.

It may be concluded that high instability was a hall-mark of the agricultural sector, with most important indicators in the sector displaying wild periodic fluctuations from good performance to bad performance, and vice versa. In fact, it may be stated that very unstable growth pattern characterizes Nigeria's agriculture and points to the need to address the instability-inducing factors identified above.

Table 33: Variability in Agricultural Sector Performance Indicators (Coefficients of Variation in Percentage)

S/N	Indicators	1981 – 1985	1986 – 1990	1991 – 1995	1996 – 2000
1.	**GDP at 1984 Constant Factor Cost:**				
	Crops	8.5	7.9	2.9	6.2
	Livestock	8.8	3.6	1.1	3.5
	Forestry	2.3	1.2	2.0	2.9
	Fisheries	28.8	38.7	34.8	14.2
	Total agriculture GDP	6.0	7.5	2.3	6.1
	Total GDP	4.6	10.7	3.0	3.6
2.	**Index of Agricultural Production:**				
	Staple crops	7.5	22.3	25.4	4.7
	Other crops	5.4	10.4	3.2	8.1
	Livestock	6.6	18.1	1.6	3.5
	Fisheries	29.9	12.6	6.5	8.9
	Forestry	3.2	4.2	1.4	2.1
	Sector aggregate	4.3	18.1	8.2	5.3
3.	**Guaranteed loan under ACGSF:**		22.4	33.4	42.2
4.	**Total Bank Credit:**				
	Credit to agriculture	30.7	35.2	59.8	15.0
	Credit to the economy	15.1	23.0	47.3	33.9
5.	**Consumer Price Index:**				
	All items	42.1	44.8	71.8	10.5
	Food items	36.6	49.3	68.7	6.4
6.	**Capital Expenditure of Federal Government:**				
	Expenditure on agriculture	53.8	58.2	51.4	28.5
	Expenditure on all sectors	-	39.2	53.0	61.6

Source: Computed with data extracted from: Central Bank of Nigeria (CBN): Statistical Bulletin, Vol. 11, No.2, December 2000.

3.1.4 Recent Performance of Nigeria's Agriculture

In order to underscore the performance of Nigeria's agricultural sector in more recent years, a list of five indicators and their measured indices is presented in Table 3.4.

Table 3.4: Performance Indicators in Recent Years (1996-2000)

S/N	Indicators	1996	1997	1998	1999	2000	2001
1.	Share of agriculture in real GDP (%)	39.0	39.4	40.1	41.0	40.6	41.1
2.	Annual growth rate of agriculture's real GDP (%):	4.1	4.2	4.0	5.2	2.9	5.1
3.	Agriculture's share of total value of export (%):	1.3	1.6	2.2	1.0	2.2	-
4.	Average per caput calorie intake from cereals and tubers (Kcal/day):	2145.7	2147.1	2157.6	2161.3	2165.0	-
5.	Average per caput protein intake from animal and fish sources (g/day):	14.2	15.7	16.1	16.2	16.5	-

Sources: Computed with data extracted from:
(1) NISER (2000)
(2) CBN: Annual Report and Statement of Accounts (1999,2000 and 2001 issues)
(3) CBN (2000): Statistical Bulletin

As shown in the table, the share of agriculture in the real value of total GDP recorded only a small increase between 1996 and 2001, moving from about 39 percent to about 41 percent. This, nevertheless, suggests that the overall performance of the agricultural sector was slightly better than that of the economy as a whole.

The growth rate of agricultural sector's real GDP was also fairly high in all the years, except year 2000, especially when compared with the average growth rate in the 1981-1996 period. This, again, is an evidence of significant improvement in the performance of the sector in more recent years. Agriculture's share of total export value from Nigeria, however, remained small, ranging between one percent and two percent. There were also annual fluctuations in the percentage shares, which was an evidence of relative instability in annual agricultural export values.

As indicators of food security situation in Nigeria in recent years, the average daily intake of calorie and protein from major food sources is presented in the table. As shown, average daily calorie intake from cereals and tubers (which provide about 90 percent of calories from all food sources) increased marginally by about one percent in the whole of the 1996-2000 sub-period. Average daily protein intake from animal and fish sources however, increased more substantially by about 16 percent in the whole of the 1996-2000 sub-period. Overall, therefore, it would appear that the average food security situation, measured in terms of calorie and protein intake increased in the 1996-2000 sub-period, but only very marginally. Furthermore, it would appear that overall, the average Nigerian was still marginally below the minimum daily calorie intake of 2250 kilo calories and minimum protein intake from animal sources of 35 grams per day (Olayemi, 1995).

In conclusion, it would appear that Nigeria's agricultural sector recorded a modest improvement in overall performance between 1981 and 2000, both in absolute terms and relative to the entire economy. However, much of this improvement was masked in wide periodic fluctuations in performance, which was an evidence of serious economic instability in the sector.

3.1.5 Factors Constraining Agricultural Performance

The problems constraining the performance of Nigeria's agriculture have been elaborately discussed in the literature by, among many others, Olayemi (1988), Olayemi and Akinyosoye (1989), Njoku (1998), Onyenweaku (2000) and NISER (2001). The major constraints identified are summarized as follows.

3.1.5.1. *Technical Constraints*

Technical constraints include the high incidence of pests and diseases, inadequate infrastructural facilities, dependence on unimproved inputs and rudimentary technology. Others are inadequate extension services, inefficient inputs supply and distribution system and high environmental hazards.

3.1.5.2. *Resource Constraints*

A major problem of agricultural labor supply arises from the increasing migration of able-bodied youths from rural to urban areas. The consequence of the massive migration of youths is seasonal labor shortage, especially at the peak periods of labor demand (during land preparation, planting, weeding and harvesting). There is also the problem of low agricultural labor productivity. There is an increasing population pressure on land as well as a declining quality of land. Rate of land improvement is low because of a low rate of capital investment by the predominantly traditional farmers.

3.1.5.3. *Socio-Economic Constraints*

The socio-economic problems that constrain Nigeria's agriculture include scarcity and high cost of improved farm inputs, inefficient marketing arrangements characterized by high marketing margins, lack of grades and standards,

and lack of legally enforceable ownership and control rights over land which serves as a disincentive to investing in agriculture and which arises from the lack of appropriate land tenure system. Other socio-economic factors are inadequate extension services and credit facilities, low rate of growth in international demand for primary export commodities arising largely from competition with synthetic products; and low income elasticity of demand, and increasing food deficit and high dependence on food import arising from the disequilibria in national agricultural resource base, a largely traditional agricultural production system and some domestic population dynamics.

3.1.5.4. ***Organizational Constraints***

Agricultural production is predominantly in the hands of a multitude of small scale unorganized farmers, scattered across the country. Lack of organization, coupled with the dispersed nature of farm settlements, hinder the participation of farmers in agricultural and rural development. It particularly hinders the supply of extension services, farm credit and other vital inputs to farmers.

3.2 Stakeholders' Perception of the Performance of Nigeria's Agriculture

In order to confirm the performance of the agricultural sector as revealed through the analysis of secondary data, respondents were asked during field survey to indicate their perception of the performance of the sector in the last four years. Seven indicators were selected as presented in Table 3.5. As can be seen from the table, the overall performance of agriculture was rated slightly better than before. This corroborates the result of trend analysis presented in the earlier subsections. However, employment in agriculture remains stagnant. Indeed, agriculture's share of employment has been on the decline as noted earlier. Across the zones, the performance rating of agriculture (using the seven indicators) was perceived to lie somewhere between being unchanged and being slightly better than before. The north-central and south-south zones viewed agricultural performance as remaining at about the same level while the other four zones adjudged it to be slightly better. In particular, the performance in terms of improving the poverty status of farming households, agricultural exports and employment in agriculture were adjudged by two or more zones to have been poor while the performance in terms of the remaining indicators was viewed to have been slightly better by three or more of the zones. Indicators, which showed a slight improvement in the performance of agriculture, included those on food security, rate of return to agricultural enterprises and economic climate for investment in agriculture.

The key performance-enhancing factors for the different enterprises in agriculture are presented in Table 3.6. Across the zones, access to inputs, high demand for products, availability of transport facilities, availability of raw materials and good economic climate are the main enhancing factors. This is not surprising. For instance, access to inputs is facilitated by the sustained activities of the Agricultural Development Programs by providing adequate information on the market situation for the different inputs. Through this, the ultimate users of the different inputs at both the downstream and upstream segments of the agricultural sector are sensitized and enlightened. The population of the country confers on it a high market potential. Hence, there seems to be ready local market for whatever is produced in the country. This was enhanced by the recent increase in public sector salaries thereby improving people's purchasing power. Following from this is the high demand for products.

However, the constraining elements to the performance of the different agricultural enterprises are given in Table 3.7. From the table, it can be seen that high cost of inputs, lack of processing and storage facilities, insecurity and poor infrastructure were frequently mentioned across the zones. Though access to inputs was said to be performance enhancing, high prices of inputs due to high rate of inflation, had tended to constrain performance. In addition, downstream activities that entail the transformation of agricultural products (through value added activities) were constrained by lack of processing/storage facilities. Furthermore, poor infrastructure including epileptic power supply, inadequate supply of potable water, and the skewed distribution of available infrastructure in favor of urban areas were also negatively affecting the performance of enterprises in agriculture. Insecurity of lives and property was also an important performance-inhibiting factor in agriculture.

Table 3.5: Performance of Nigeria's Agriculture by Development Zones since 1999

Indicators	NC	NE	NW	SE	SS	SW	NIGERIA
Food security	3	4	4	4	4	4	4
Poverty Status of Farming Households	3	4	4	4	3	4	4
Agricultural Export	3	4	4	4	3	4	4
Employment in Agriculture	3	4	3	4	3	4	3
Rate of Return to Agricultural Enterprises	4	4	4	4	3	4	4
Economic Climate for Investment in Agriculture	3	4	4	5	4	4	4
Bridging Gender Gap						5	
Overall Average	3	4	4	4	3	4	4

N/B: Much better=5; slightly better=4; about the same=3; worse than before=2; worse than before=1.
Source: Field Survey, February/March 2003.
Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Table 3.6: Factors enhancing the Performance of Enterprises in Nigeria in order of importance

	Rank assigned by respondents					
Factors	**NC**	**NE**	**NW**	**SE**	**SS**	**SW**
Access to inputs	1	1	1		1	2
Availability of cheap labor	2					
High demand for products	3	4	2	4	4	3
Better extension services	4					
Availability of raw materials		2	4		2	
Access to credit facilities		3			3	
Availability of transport facilities		5	5		6	
Good economic climate		6	6			1
Availability of grants				2		
Availability of qualitative input				3		
Import restriction for locally produced goods				6		
Fair producers prices				6		
Improved farming practices				1		
Reduction in input prices			3			
Availability of skilled manpower					5	4
Favorable agro-climatic environment						5
Government patronage						6

Source: Field Survey, February/March 2003.
Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest
The ranking is in descending order of importance.

CHAPTER FOUR
A REVIEW OF AGRICULTURAL POLICY IN NIGERIA

4.1 Past Government Policies in Agriculture

Nigeria' agricultural policy framework has gone through a number of evolutionary processes and fundamental changes that reflected, in a historical perspective, the changing character of agricultural development problems and the roles which different segments of the society were expected to play in tackling these problems. But, in the main, the form and direction of agricultural policy at a point in time were dictated by the philosophical stance of government on the content of agricultural development and the role of government in the development process.

In retrospect, four distinct agricultural policy phases can be identified in Nigeria, The first phase spanned the entire colonial period and the first post-independence decade from 1960 to about 1969; the second covered the period from about 1970 to about 1985; the third phase started from about 1986 in the structural adjustment period; and, the fourth was what could be characterized as the post-structural adjustment era, starting from about 1994.

4.1.1. The Pre-1970 Period

In the pre-1970 era, government philosophy of agricultural development was characterized by minimum direct government intervention in agriculture. As such, government attitude to agriculture was relaxed, with the private sector and particularly the millions of small traditional farmers bearing the brunt of agricultural development efforts. Government efforts were merely supportive of the activities of these farmers and government efforts largely took the form of agricultural research, extension and export crop marketing, and pricing activities. Most of these activities were regional-based towards the end of the colonial era with federal government contribution being confined largely to agricultural research.

The low visibility of governments in agricultural development efforts was borne out of a general philosophy of economic laissez faire. To be sure, some governments were bent on making their presence felt in agriculture, especially in the 1950s and 1960s, by creating government-owned agricultural development corporations and launching farm settlement schemes. But these actions found their justification more in welfare considerations than in hard-core economic necessities.

It was, however, becoming quite clear towards the end of the 1960s that the Nigerian agricultural economy might be running into some stormy weather. Telltale signs of emerging agricultural problems included declining export crop production and some mild food shortages. Even then, most of these problems were ascribed to the civil war and, as such, were considered to be only transitory in nature. But events soon proved these optimistic assumptions wrong as the agricultural sector sank deeper and its problems became much more intractable than anticipated.

4.1.2 Pre-Structural Adjustment Period (1970-1985)

The turn of the 1970s was, therefore, characterized by a state of general apprehension about the condition of the Nigerian agricultural sector. This led to a fundamental change in the philosophy of government on agricultural development from one of minimum government intervention to one of almost maximum intervention, particularly by the federal government. The feeling was pervasive that the solutions to the increasingly serious problems of agriculture and especially those of food supply required the heavy clout of government in the form of multi-dimensional agricultural policies, programs and projects, some of them requiring the direct involvement of government in agricultural production activities. The sudden smile of oil fortune on Nigeria reinforced this feeling. Hence, the decade of the l970s and early 1980s witnessed an unprecedented deluge of agricultural policies, programs, projects and institutions. A highlight of these is presented as follows.

4.1.2.1. **Agricultural Sector Policies and Institutions**

Sector-specific agricultural policies were largely designed to facilitate agricultural marketing, reduce agricultural production cost and enhance agricultural product prices as incentives for increased agricultural production. Major policy instruments for this purpose included those targeted to agricultural commodity marketing and pricing, input supply and distribution, input price subsidy, land resource use, agricultural research, agricultural extension and

technology transfer, agricultural mechanization, agricultural cooperatives and agricultural water resources and irrigation development.

(a) *Agricultural Commodity Marketing and Pricing Policy*

The major instrument of agricultural commodity marketing and pricing policy was the establishment of six national commodity boards in 1977 to replace the regional, multi-commodity boards that had been operating since 1954. The six new national commodity boards were for cocoa, groundnut, palm produce, cotton, rubber and food grains.

The case of grains marketing board was particularly unique as it represented the first effort ever made to extend the marketing board system to cover food crops. The National Grains Board handled maize, millet, sorghum, wheat, rice and cowpeas. It administered a guaranteed minimum price policy whereby floor prices were nationally set for each of the six-grain crops as guaranteed minimum prices at which the board would intervene as a buyer of last resort if and when their regular market prices fell below the guaranteed minimum. The board also operated a strategic grain reserve scheme.

(b) *Input Supply and Distribution Policy*

Government policy on input supply and distribution focused on instruments for ensuring the adequate and orderly supply of modern inputs like fertilizers, agro-chemicals, seed and seedlings, machinery and equipment, and so on. The key policy instruments adopted were as follows:

(i) Centralization of fertilizer procurement and distribution in 1975 as a result of which all fertilizer procurement and distribution activities in Nigeria were effectively taken over by the federal government. Also, the federal government established a superphosphate fertilizer plant in the country to reduce the country's dependence on foreign sources of fertilizer supply.

(ii) The creation of a national network of agro-service centers to facilitate the distribution of modern inputs, including the provision of tractor and farm machinery services to farmers.

(iii) The creation of a National Seed Service (NSS) in 1972 to produce and multiply the improved seeds of rice, maize, cowpea, millet, sorghum, wheat and cassava.

(c) *Agricultural Input Subsidy Policy*

As far back as the 1950s, various regional governments in Nigeria were already subsidizing the prices of key inputs, especially the prices of agro-chemicals used in the production of groundnut, cotton, cocoa, palm produce and other export crops. But in the early 1970s, input subsidy policy became centralized and its application extended to food crops. The policy instruments adopted comprised the following:

(i) *Fertilizer subsidy*: Between 1976 and 1979, fertilizer attracted a 75 per cent subsidy, wholly borne by the federal government. But in 1980, the federal government's share was reduced to 50 per cent while the states were required to absorb the remaining 25 per cent. However, the total percentage subsidy was subsequently reduced to 50 per cent.

(ii) *Seed subsidy*: There was a subsidy of 50 per cent or more on various improved seeds produced by the National Seed Service.

(iii) *Subsidy on agro-chemicals*: Rates of subsidy on agro-chemicals varied, but were generally over 50 per cent.

(iv) *Subsidy on tractor hire services*: Subsidies on tractor hire services that were mostly operated at the state level ranged from about 25 per cent to about 50 per cent of the actual cost of tractor services.

(d) *Agricultural Mechanization Policy*

The need for a coherent agricultural mechanization policy became very pressing in the early 1970s in view of an increasing shortage of agricultural labor that necessitated the substitution of some appropriate forms of mechanical power for human labor. In an attempt to achieve the objectives of an agricultural mechanization policy, the following policy instruments were adopted:

(i) The operation of Tractor Hire Units (THUs) by states.

(ii) Liberalized import policy in respect of tractors and agricultural equipment.

(iii) Massive assistance program to farmers on land clearing through cost subsidies.

(iv) The launching of a machinery ownership scheme in 1980 under which the federal government provided half of the purchase cost of farm machinery to be owned and used by farming cooperatives or group farms.

(e) *Agricultural Cooperatives Policy*

A number of policy instruments were adopted to mobilize rural people for social and economic development through agricultural cooperatives. The following were the major instruments:

(i) The use of agricultural cooperatives for the distribution of some farm inputs as well as imported food commodities.

(ii) The provision of necessary encouragement for the establishment of cooperative farms and other cooperative enterprises.

(f) *Water Resources and Irrigation Policy*

The major instrument of water resources and irrigation policy was the establishment of eleven River Basin Development Authorities in 1977 with the overriding responsibility for the development of the country's land and water resources. They had mandate for land preparation, development of irrigation facilities and construction of dams, boreholes and roads. They were also involved in the distribution of farm and fishing inputs. Under the civilian regime, between 1979 and 1983, they became the major instrument of government's direct agricultural production through large-scale mechanized farming.

4.1.2.2. **Institutional Framework**

To support the macroeconomic and microeconomic policies of government in this period, a number of institutions were created. The major ones were the institutions created for(i) credit supply to farmers (ii) technology transfer, (iii) improved seed supply, (iv) agricultural research, (v) agricultural mechanization and (vi) agricultural commodity marketing and pricing.

(a) *Agricultural Credit Institution*

In 1973, the Nigerian Agricultural and Cooperative Bank (NACB) was established as a specialized credit institution for agriculture and rural development. The bank had the mandate to supply credit to small-scale and large-scale farmers as well as farmer cooperatives and groups on favorable terms.

(b) *Seed Supply Institution*

A National Seed Service (NSS) was created in 1972 to produce and multiply the improved seeds of rice, maize cowpea, millet, sorghum, wheat and cassava;

(c) *Agricultural Research and Development*

The major policy effected in the 1970s concerned the provision of institutional mechanisms for the national coordination of agricultural research and for creating stronger linkages between research and extension services: The major instruments of agricultural research policy were as follows:

(i) A decree promulgated in 1971 created Agricultural Research Council of Nigeria with the power to coordinate and control all agricultural research activities in Nigeria.

(ii) A decree promulgated in 1973 empowered the federal government to take over all state research institutions.

(iii) In 1975, the federal government reconstituted the Nigerian agricultural research institute network into 14 institutes.

(iv) In 1977, the National Science and Technology Development Agency was created to coordinate all research activities in Nigeria. In the same year, the responsibility for the administration of all agricultural research institutes in Nigeria was moved from the Federal Ministry of Agriculture to a newly created Ministry of Science and Technology.

(v) Also in 1977, a center for Agricultural Mechanization was created to conduct farm mechanization research and carry out tests on foreign farm machineries in order to determine their suitability or adaptability to Nigerian conditions.

(d) *Agricultural Extension and Technology Transfer Policy*

The most important feature of agricultural extension policy in the 1970s was the demise of the old system of state-based general agricultural extension service. Under this old system, only states employed and utilized the services of agricultural extension personnel and mainly for general advisory services to farmers. But with the demise of this

system came a new one that called for the deployment of extension personnel to specific national programs and projects.

The basic strategy for promoting the adoption of new technologies by farmers under the new system was the use of the National Accelerated Food Production Project (NAFPP) launched in 1972 and the Agricultural Development Projects (ADPs) launched in 1975 to reach farmers.

4.1.2.3. **Legal Framework**

The most important legal enactment that had considerable effects on Nigeria's investment climate in the 1970-85 period was the Nigerian enterprises promotion decrees of 1972 and 1977 and the Land Use Decree of 1978.

(a) *The Nigerian Enterprises Promotion Decrees*

These decrees, otherwise known as indigenization decrees, were promulgated in 1972 and 1977. The 1972 decree categorized all enterprises into two schedules. The first schedule with 28 enterprises was reserved exclusively for Nigerian investors and the second schedule with 25 enterprises kept open to joint participation by Nigerian and non-Nigerian investors, subject to a minimum of 40 percent equity participation by Nigerians.

After a review exercise, the Nigerian enterprises promotion decree of 1977 was promulgated. Under this decree, all enterprises were categorized into three schedules. Enterprises in the first schedule were reserved exclusively for Nigerians; enterprises in the second schedule were those which required a minimum of 60 percent equity participation by Nigerians, while enterprises in the third schedule were those in which Nigerian must have a minimum of 40 percent participation

(b) *The Land Use Decree*

The basic instrument of land use policy was the Land Use Decree promulgated in 1978. Under the decree:

- ownership of land was vested in the hands of state government in "trust for the people"; and,
- user rights were to be granted to people through statutory rights granted by state governors in respect of urban land, and customary rights were granted by local government councils in respect of rural land.

There was also the provision of soil survey and land evaluation facilities for the production of a comprehensive soil map of Nigeria.

4.1.2.4. **Macroeconomic Policies**

Major macroeconomic policies that affected the agricultural sector included fiscal, monetary and trade policies.

(a) *Fiscal Policies*

These consisted mainly of budgetary, tax, wages and incomes and debt management policies. Generally, both capital and recurrent expenditures of federal and state governments were high and increased at high rates. There were also increasing budgetary deficits in the period. Increasing revenues from petroleum export between 1973 and 1981 as well as ambitious direct investments in public-owned business enterprises were responsible for the observed trends in public expenditure and budgetary deficits. In the period, governments at all tiers invested heavily in direct agricultural and non-agricultural enterprises that were of doubtful economic viability.

The tax policies of government affecting agriculture were made up mainly of (i) accelerated depreciation allowances on agricultural capital investment to serve as an incentive to investors in the agricultural sector through a reduction in taxable income and profits and (ii) significant tax relief on incomes from new agricultural enterprises, also as an incentive to investors.

Wages and incomes policy focused on an increase in the minimum national wage as well as increases in the salaries of public-sector workers in the country. However, this policy introduced unintended distortions into the economy by exerting an inflationary pressure, widening rural-urban wage differentials and accelerating the pace of rural-urban migration. Both effects constituted disincentives to investors in the rural sector of which agriculture was the most important component. Investors in the rural sector were faced with labor shortage, higher rural wages and, hence, higher cost of production.

(b) *Monetary Polices*

Monetary policies that were of relevance to agriculture centered mainly on those designed to direct credit to the agricultural sector on concessionary terms. The policy instruments included the following.

i. The designation of the agricultural sector as a "preferred sector" such that the Central Bank of Nigeria stipulated minimum percentages of commercial and merchant bank loans that should go to the agricultural sector.

ii. The launching of a Rural Banking Scheme in 1977 under which designated commercial banks were required to open specified numbers of rural branches in different parts of the country and with at least 40 per cent of the total deposit in these rural banks lent to borrowers within those rural areas.

iii. An Agricultural Credit Guarantee Scheme Fund (ACGSF) launched in 1977 to reduce the risk borne by commercial banks in extending credit to farmers. Under this scheme, the Central Bank of Nigeria guaranteed up to about 75 per cent of the value of the principal and interest on loans granted to farmers by any commercial bank up to some stipulated maximum amounts for individuals and corporate bodies.

iv. As a matter of policy, the naira was allowed to appreciate in this period. In the period, three exchange rate systems were adopted. The fixed rate system was adopted from 1960 to 1972, the managed floating system was adopted from 1973 to 1978, while the pegged system (i.e pegged to a currency basket) was adopted from 1979 to 1985 (Iwayemi, 1995).

(c) *Trade Policies*

Nigeria's trade policies in the form of tariff, quantitative restrictions and foreign exchange regulations and their management were very important features of Nigeria's economic policies since independence. The key instruments of trade policy were:

(i) the promotion of agricultural exports through the abolition of export duties on scheduled export crops in 1973; and,

(ii) the abolition or reduction of import duties in respect of food, agricultural inputs, agricultural raw materials and agricultural machinery and equipment.

As at 1960, trade and payment controls were relatively moderate. But between 1966 and 1971, probably due to the national crisis created by the civil war of that period, foreign exchange controls and import licensing were introduced to an unprecedented dimension. These controls were relaxed gradually after the civil war. The oil boom of 1973-75 created corresponding increases in imports. The government undertook the importation and sale of cheap foreign grains (particularly rice and wheat flour), vegetable oils, meat products, and so on, thereby flooding the local markets with high quality imported foods at prices which were substantially lower than the unit costs of producing their local substitutes. As a result, these domestically produced substitutes were rendered uncompetitive with the cheaper imports, and their production declined drastically. An important feature of Nigeria's external trade policy in this period was the protection of the domestic manufacturing sector at the expense of the agricultural sector.

But when the rising import bill could not be sustained, a tight trade policy had to be introduced in the 1977-78 sub-period. Under that policy, many items of import were restricted. There was another period of boom that followed immediately. During the boom, all manner of imports were dumped in Nigeria. Towards the end of 1981, however, the oil market began to show signs of weakness. By April 1982, government had to resort to import controls once again. The problem of oil glut led to greater dependence on import licensing as economic policy tool to control imports and diversify the industrial base during the period 1982 – 1986. But rather than diversify, import licensing coupled with an over-valued naira combined to undermine the quest for the increased export of manufactures by unduly cheapening imports and increasing the production cost of export commodities (Mamman, 1987).

4.1.3 Structural Adjustment Period

The failure of the state led approach to development, Nigeria's dwindling fortune in the petroleum export market, a burgeoning debt burden and an unhealthy investment climate led to the realization that the country's economy required some drastic restructuring. This was what gave impetus to the structural adjustment program (SAP) launched in July 1986.

A structural adjustment program comprises a mix of demand-side policies, supply-side policies and other policies designed to improve a country's international competitiveness. Generally, structural adjustment policies in Nigeria were aimed not only at correcting existing price distortions in the economy but also structural imbalances and for promoting non-price factors which would enhance the effectiveness of price factors.

Broadly, structural adjustment policies in Nigeria could be categorized into four groups. In the first group were expenditure reducing or demand-management policies, which were designed to influence the economy's aggregate domestic absorption mainly through fiscal and monetary policy instruments. The second group included expenditure switching policies that were designed to alter domestic relative prices in favour of tradable commodities and improve the price competitiveness of export commodities and import-competing goods. The most important policy instrument for this was the devaluation of the national currency. Thirdly, there were market liberalization policies that were designed to give the free interplay of market forces more roles in the economy, reduce administrative controls as well as government intervention in the operation of the economy and, generally, render the economy more flexible and more resilient. Policy instruments required for these included those aimed at reducing import and export taxes, eliminating export and import prohibitions, relaxing input and output marketing controls, withdrawal of subsidies and price controls, and so on. Fourthly, there were institutional or structural policies that were designed to eliminate those structural constraints that tended to inhibit the effectiveness of other adjustment policies. Some major structural policy instruments were those designed to promote the flow of technological innovation, provide better input delivery systems, provide more infrastructure and utilities, improve national information systems, provide institutional framework for the smooth operation of free market system and, generally, create a more favourable environment for increased investment in the economy, efficient allocation of resources and enhanced profitability of public enterprises through commercialization and privatization.

Specifically, the structural adjustment program in Nigeria had been assigned the objectives of:

- Restructuring the Nigerian economy by restructuring and diversifying the economy's production base, rationalizing consumption patterns and reducing the economy's dependence on petroleum export and commodity import;
- Expanding non-oil exports;
- Reducing the import content of locally produced goods;
- Attaining self-sufficiency in food and raw material production within the shortest time possible;
- Rationalizing the country's monetary and fiscal policies, and,
- Liberalizing the country's external trade and payments systems and adopting appropriate measures to give the private sector a larger role in the domestic economy, increase the reliance of the economy on market forces and reduce administrative control of the economy by government. Clearly, the first four objectives above depended critically on agriculture for their achievement. Hence, it might be assumed that agriculture was the cornerstone of the structural adjustment program.

As far as Nigeria was concerned, and with particular reference to the country's agricultural sector adjustment process, the economic philosophy underlying the structural adjustment program had as its key elements the principles that:

- Agriculture was essentially a private-sector business and the role of government must be largely facilitating and supportive of private-sector initiative;
- The agricultural economy should be as free of government administrative control as possible and market forces must be allowed to play a leading role in directing the economy;
- The agricultural economy should be more inward looking and self-reliant by depending more on local resources while also ensuring self-sufficiency in food production and the supply of raw materials to industries; and
- The agricultural economy should serve as a primary avenue for the diversification of exports.

4.1.3.1. **Agricultural Sector Policies**

Major sectoral policies for agricultural development which were in operation in the SAP period included those on agricultural research, agricultural extension and technology transfer, input pricing and subsidy, water resources and irrigation, and land development. Their key elements are outlined as follows (See Okunmadewa and Olayemi, 1999).

(a) *Agricultural Research Policies*

Agricultural research policies in Nigeria have undergone many changes over several decades. But the broad objective of policies has always been the promotion of scientific investigations into agriculture with a view to developing viable new technologies that are well adapted to Nigerian conditions.

Although there have been many changes in the number of agricultural research institutes in the National Agricultural Research System (NARS) and in their mandates, the major reforms that have progressively occurred since the 1970s concern the setting up of institutional mechanisms for the national co-ordination of agricultural research and for a stronger linkage between agricultural research, extension and farmers. In the process, there were relocations of some research institutes and changes in the supervisory ministries or agencies to which agricultural research institutes were assigned.

One relatively recent institutional change in respect of agricultural research and development in the country involves the creation of the National Agricultural Research Project (NARP) in 1991 to fund priority agricultural research, strengthen agricultural research institutions and strengthen agricultural research - extension - farmer linkage.

(b) *Agricultural Extension Policies*

Agricultural extension and technology transfer policy objective was to promote the adoption of new agricultural technologies by farmers through a nationally coordinated extension service system. The basic strategy involved the use of a unified agricultural extension system under the aegis of statewide agricultural development programs (ADPs).

An important relatively recent development in agricultural research and extension in the country involved the creation of institutional arrangements for a strong linkage between agricultural research, extension and farmers. In 1987, the National Agricultural Extension and Research Liaison Services (NAERLS) evolved through a long process of mutation to become the organ for the planning and co-ordination of agricultural extension liaison nation-wide and for conducting research on technology transfer and adoption.

(c) *Agricultural Input Supply and Pricing*

A major thrust of agricultural input supply and pricing policy in recent, years was the withdrawal of government from agricultural input procurement, distribution and pricing activities. In this regard, government disengaged itself from the procurement and distribution of fertilizer, petroleum products, seed and agro-chemicals through a regime of deregulation and commercialization while market forces largely determined their market prices. Most input price subsidies were also withdrawn. But government still retained its ownership of petroleum refineries and fertilizer plants.

(d) *Water Resources Development and Irrigation Policy*

The network of eleven River Basin Development Authorities (RBDAs) established in 1977 still remains the major institution for water resources development and irrigation in the country. However, the RBDAs were partially commercialized in 1992 as a result of which some of the subsidy on irrigation water supplied to fanners was removed. The move towards full commercialization was expected.

(e) *Land Development Policy*

The implementation of land development policy in the country was largely the responsibility of a National Agricultural Land Development Authority (NALDA) established in 1991. NALDA's mandate covered provision of strategic support for land development and the promotion of the optimum utilization of the nation's rural land resources. However, NALDA proved to be ineffective and was subsequently scrapped.

(f) *Community Exchange Market*

The establishment of a private-sector commodity and futures exchange market (COMEX) was first proposed in the 1995 budget to fill the vacuum created by the abolition of commodity boards. However, nothing came out of this proposal.

(g) *Other Policies*

Privatization: The policy of privatizing important public-sector enterprises has been in existence for many years, although the implementation has not been smooth. A Bureau of Public Enterprises (BPE) was established but its impact was not much felt. However, a law was proposed under the 1999 budget to give a stronger legal backing to privatization. There were also proposals to strengthen the Bureau of Public Enterprises for a more efficient implementation of privatization programs.

Employment Policy: In pursuance of its employment policy, government established a new agricultural program for youth employment to complement the existing employment-promotion activities of the National Directorate of Employment (NDE).

4.1.3.2. **Macroeconomic Policies**

The major macroeconomic policies consisted of fiscal, monetary and credit, and trade policies. They are briefly described as follows:

(a) *Fiscal Policies*

The objectives of fiscal policies, which consist mainly of budgetary and tax policies, were to enhance fiscal efficiency and reduce inflation through fiscal discipline and reduction of budgetary deficit. The key instruments of policy in the period under review were as follows.

1. Tight fiscal policy characterized by reductions in extra-budgetary expenditures and budgetary deficit.
2. The introduction of a value of added tax (VAT) in 1993 at the rate of 5 percent in respect of 10 categories of goods (excluding basic food items) and 23 services.
3. A reduction in personal income tax rates in 1993, with the tax band declining from 10-45 percent to 10-35 percent. There was a further reduction in 1995, with the tax band declining to 5-10 percent.

In 1987, government decreed a five-year tax-free period for profits earned by companies engaged in agricultural production and agro-processing, provided at least one percent of the equity capital of the companies was imported into Nigeria not earlier than the beginning of 1987 and also provided the companies were incorporated in Nigeria.

There was to be a tight fiscal policy which had the objectives of reducing budgetary deficits, rationalizing government expenditures and, in particular, redirecting capital expenditure and credit to high priority sectors, that is, agriculture, rural development and manufacturing.

(b) *Monetary Policy*

A largely restrictive monetary policy was to be adopted in order to reduce liquidity in the economy and, to that extent, control aggregate demand and moderate inflationary pressure. The major policy instruments were as follows:

(i) The naira was devalued through the creation of a second-tier foreign exchange market (SFEM) and, later, the Inter-Bank Foreign Exchange Market (IFEM) where the value of the naira in terms of other currencies would be freely determined by the forces of supply and demand. The consequence of this was the drastic and sustained decline in the value of the naira. This devaluation had remarkable effects on both agricultural input and output prices, most of which increased several-fold.

(ii) A major monetary policy instrument that was of consequence to agriculture was the deregulation of interest rates as a result of which a minimum interest rate of 8.5 percent was stipulated for time deposits while the minimum bank-lending rate was increased from 13 to 15 percent. But agricultural loans attracted interest rates of between 10 and 11 percent. All interest rates later went up considerably.

(iii) Agricultural loan terms were liberalized such that small-scale farmers could obtain loans of up to ₦5000 without tangible collaterals. This was later increased to ₦20000.

(iv) In 1988, the grace period for the repayment of commercial bank loans and advances to investors in long-gestation cash crop plantations was increased from 4 to 7 years while that of investors in mechanized large-scale farms was increased from 5 to 7 years.

(v) Also in 1988, the minimum share of total deposit generated by rural banks which must be given as loans and advances in the rural localities was raised from 40 percent to 45 percent.

(vi) The People's Bank of Nigeria was established in October 1989 to (a) provide basic credit requirements to under-privileged Nigerians in both urban and rural areas who could not normally benefit from the services of the orthodox banking system due to their inability to provide collateral security and (b) accept savings from the same group of customers and make repayment of such savings together with interest. The bank has now been merged with the new Nigerian Agriculture, Cooperative and Rural Development Bank (NACRDB).

This is confirmed by the very high coefficients of variation in the foreign net private investment, which were above 50 percent in the entire period.

The annual flow of foreign net private investment into the agricultural sector was even more unstable than for the economy as a whole. In fact, it would appear from all indications that the flow of foreign investment into the

agricultural sector was much more sensitive to the vagaries of policy and political climate than the flow into non-agricultural sectors.

There were persistently higher growth rates in cumulative foreign investment in the economy between 1981 and 1995, followed by a much lower growth rate in the 1996-2000 sub-period. A similar growth pattern was displayed by cumulative foreign investment in the agricultural sector. The degree of variability in cumulative foreign investment in both the economy as a whole and the agricultural sector was high and increasing from 1981 to 1995. But there was a degree of relative stability in both between 1996 and 2000. (vii) The program for the establishment of community banks took off in December 1990. The banks were mandated to carry out most regular banking businesses at purely local level and their role in the financial system was to provide effective banking services for the economies of the rural area as well as small enterprises in the urban centres. Community banks were to be privately owned, although the Federal Government had undertaken to provide loan funds and technical support services.

(c) *Trade Policy*

Policy instruments in this category were those that involved trade liberalization, import substitution, the local sourcing of raw material, and tariff structure adjustments designed to encourage local production and protect local industries from undue international competition and dumping. Highlights of trade policy instruments were as follows:

(i) Trade liberalization measures, the key elements of which were the abolition of commodity marketing boards, abolition of many import levies, reduction of some excise and export duties, reduction of the number of prohibited import items and a reduction from 100 percent to 25 percent in the advance payment of import duties required at the time of opening letters of credit.

(ii) Export promotion of non-oil goods, including agricultural commodities, by allowing exporters to keep all their foreign exchange earnings in a domiciliary account from which they could freely draw for their foreign exchange transactions. Furthermore, export financing by commercial banks was facilitated through Central Bank discounting facilities.

(iii) Import substitution measures, which involved the selective use of import regulations to restrict or ban the importation of many types of food and industrial raw materials in order to encourage their local production and, hence, promote self-sufficiency in domestic food production and the local sourcing of agro-industrial raw materials. Specifically banned were rice, maize, wheat, barley and vegetable oils. In addition, landing charges of equivalent values to the excise duties payable on a number of locally produced goods were imposed on their imported substitutes in order to enhance the price competitiveness of the local goods.

4.1.3.3. **Institutional Policies**

(i) In pursuance of the objective of giving market forces more influence and the private sector a greater role in the economy, most enterprises owned by government and parastatals were to be either privatized or commercialized.

(ii) There was a reorganization of the River Basin Development Authorities in 1986 as a result of which their functions were strictly restricted to land development and water resources management and development, including the provision of irrigation facilities.

(iii) The National Directorate of Employment (NDE) was established in 1986 to promote employment programs all over the country as a strategy for ameliorating Nigeria's increasingly severe unemployment problem. The Directorate oversees various special school leavers and agricultural graduate programs now in operation in all states of the federation.

(iv) A National Agricultural Insurance Company was established in 1987 to operate and administer the Nigerian Agricultural Insurance Scheme. The idea of the scheme was first mooted in 1984 as a strategy for tackling the problem of small farmers' inability to satisfy the collateral requirements of banks when asking for loans. It was then argued that an insurance scheme would serve a number of complementary purposes - It would enhance the confidence of commercial banks in giving loans to small farmers; the insurance certificate would serve as a collateral, and funds mobilized from the insurance scheme would be utilized for agricultural investment.

4.2 Constraints to Effectiveness of Past Agricultural Policy

4.2.1 Policy Instability

One of the major constraints to agricultural policy effectiveness was that of policy instability. Over the years, the rate of turnover in agricultural policies had been high, with many policies formulated and scrapped in rapid succession. Again, this problem could be partly ascribed to political instability, as every successive military government tended to jettison most of its predecessor's policies and programs in the erroneous belief that a new government could only justify its existence or make its mark by adopting entirely new policies and programs.

4.2.2 Inconsistency in Policies

It had been observed that some agricultural policies and programs of government tended to be mutually antagonistic rather than being mutually complementary and reinforcing. A popular example was the conflict, which existed between government's domestic food production policy and its cheap food import policy. The latter was so antagonistic of the former that it (the former) was rendered ineffective. One fundamental factor that made policy inconsistency so common was the failure of policy makers to adopt a *systems approach* to policy formulation. In a system approach, the entire spectrum of agricultural and rural development problems would be viewed globally and consistent, mutually reinforcing policies would be addressed to them. But as each problem was viewed in isolation of others and policy was addressed to each problem in isolation, the probability of inconsistency among policies could not but be high.

4.2.3 Narrow Base of Policy Formulation

The base of the agricultural policy formulation process in Nigeria had, in the past, been rather narrow as the level of involvement of the people and their institutions in the formulation of policies that affected their lives was minimal. In the circumstance, these policies tended to lack grassroots support and the popular mobilization required for their success.

4.2.4 Poor Implementation of Policies

There was a tendency to regard the formulation of policies as ends in themselves, rather than being means to desired ends. As such, little attention was paid to the efficient implementation of policies. Bureaucrats and policy implementers tended to lose sight of the fundamental objectives of policies. Instead, they tended to focus on superficial issues. Poor managerial capacity, bureaucratic bottleneck, corruption and high rates of policy turnover tended to complicate the problem of policy implementation.

4.2.5 Weak Institutional Framework for Policy Coordination

Inadequate institutional arrangements for policy and program coordination had often led to a duplication of effort and general inefficiency in resource use among agencies and ministries of the same government, between federal and state agencies and between states. Inadequate monitoring and evaluation arrangements for policy implementation had also led to situations in which policies and programs tended to lose sight of their focus and original goals without corrective measures being taken.

4.3 The New Nigerian Agricultural Policy

The previous agricultural policy document was finalized in 1988 and was supposed to remain operative until the year 2000. Hence, in year 2001, a new policy document was launched. The new policy document bears most of the features of the old one, but with more focused direction and better articulation.

4.3.1 Objectives of New Agricultural Policy

In a broad sense, the objectives of the new agricultural policy (as stated in the document) are very similar to those of the old one. They include:

(i) The achievement of self-sufficiency in basic food supply and the attainment of food security;
(ii) Increased production of agricultural raw materials for industries;
(iii) Increased production and processing of export crops, using improved production and processing technologies;
(iv) Generating gainful employment;
(v) Rational utilization of agricultural resources, improved protection of agricultural land resources from drought, desert encroachment, soil erosion and flood, and the general preservation of the environment for the sustainability of agricultural production;
(vi) Promotion of the increased application of modern technology to agricultural production; and,

(vii) Improvement in the quality of life of rural dwellers.

A synopsis of the new agricultural policy is presented in Appendix 4.1.

4.3.2 Key Features of the New Policy

The key features of the new policy are as follows:

- Evolution of strategies that will ensure self-sufficiency and improvement in the level of technical and economic efficiency in food production. This is to be achieved through (i) the introduction and adoption of improved seeds and seed stock, (ii) adoption of improved husbandry and appropriate machinery and equipment, (iii) efficient utilization of resources, (iv) encouragement of ecological specialization, and (v) recognition of the roles and potentials of small-scale farmers as the major producers of food in the country.
- Reduction of risks and uncertainties in agriculture, to be achieved through the introduction of a more comprehensive agricultural insurance scheme to reduce the natural hazard factor militating against agricultural production and security of investment.
- A nationwide, unified and all-inclusive extension delivery system under the Agricultural Development Programs (ADPs).
- Active promotion of agro-allied industry to strengthen the linkage effect of agriculture on the economy.
- Provision of such facilities and incentives as rural infrastructure, rural banking, primary health care, cottage industries etc, to encourage agricultural and rural development and attract youths (including school leavers) to go back to the land.

4.3.3 Major Content of the Policy Framework

The policies cover issues on (i) agricultural resources (land, labor, capital, seeds, fertilizer, etc) whose supply and prices affect the profitability of agricultural business, (ii) crops, livestock, fisheries and agro-forestry production, (iii) pest control, (iv) mechanization, (v) water resources and irrigation, (vi) rural infrastructure, (vii) agricultural extension and technology transfer, (viii) research and development (R&D), (ix) agricultural commodity storage, processing and marketing, (x) credit supply, (xi) insurance, (xii) agricultural cooperatives, (xiii) training and manpower development, and (xiv) agricultural statistics and information management (see Appendix 4.1).

The successful implementation of the agricultural policy is, however, contingent upon the existence of appropriate macroeconomic policies that provide the enabling environment for agriculture to grow in equilibrium with other sectors. They affect profitability of agricultural enterprises and the welfare of farmers through their effects on the flow of credit and investment funds, taxes, tariffs, subsidies, budgetary allocation, etc.

4.3.4 The New Policy Direction

According to the document, the new agricultural policy will herald in a new policy direction via new policy strategies that will lay the foundation for sustained improvement in agricultural productivity and output. The new strategies involve:

(i) Creating a more conducive macro-environment to stimulate greater private sector investment in agriculture;

(ii) Rationalizing the roles of the tiers of government and the private sector in their promotional and supportive efforts to stimulate agricultural growth;

(iii) Reorganizing the institutional framework for government intervention in the agricultural sector to facilitate the smooth and integrated development of the sector;

(iv) Articulating and implementing integrated rural development programs to raise the quality of life of the rural people;

(v) Increasing budgetary allocation and other fiscal incentives to agriculture and promoting the necessary developmental, supportive and service-oriented activities to enhance agricultural productivity, production and market opportunities; and

(vi) Rectifying import tariff anomalies in respect of agricultural products and promoting the increased use of agricultural machinery and inputs through favourable tariff policy.

4.3.5 Roles and Responsibilities of Stakeholders

The new agricultural policy has spelt out definitive roles and responsibilities for the federal, state and local governments as well as the private sector in order to remove role duplication and overlapping functions among them. The revised roles and responsibilities are outlined as follows

4.3.5.1. **The Federal Government**

Under the new policy regime, the Federal Govemment shall be responsible for: (i)the provision of a general policy framework, including macroeconomic policies for agricultural and rural development and for the guidance of all stakeholders; (ii) maintenance of a reasonable flow of resources into agriculture and the rural economy; (iii) support for rural infrastructure development in collaboration with state and local governments; (iv) research and development of appropriate technology for agriculture, including biotechnology; (v) seed industry development, seed law enforcement and seed quality control; (vi) support for input supply and distribution, including seeds, seedlings, brood stock and fingerlings; (vii) continued support for agricultural extension services; (viii) management of impounded water, supervision of large dams and irrigation canals and maintenance of pumping facilities; (ix) control of pests and diseases of national and international significance and the promotion of integrated disease and pest management; (x) establishment and maintenance of virile national and international animal and plant quarantine services; (xi) maintenance of favourable tariff regime for agricultural commodities; (xii) promotion of the export of agricultural commodities through, among others, the Export Processing Zones (EPZs); (xiii) establishment of an agricultural insurance scheme; (xiv) maintenance of a Strategic National Grain Reserve for national food security; (xv) coordination of agricultural data and information management systems; (xvi) inventorization of land resources and control of land use and land degradation; (xvii) training and manpower development; (xviii) participation in the mapping and development of interstate cattle and grazing routes and watering points; (xix) promotion of micro- and rural credit institutions; (xx) promotion of agricultural commodity development and marketing institutions; (xxi) maintenance of fishing terminals and other fisheries infrastructure, including cold rooms; (xxii) promotion of trawling, artisanal and aquaculture fisheries; (xxiii) promotion of fish feed production; (xxiv) protection of Nigeria's Exclusive Economic Zone for fisheries resources; and (xxv) periodic review of agreements on international agricultural trade.

4.3.5.2. **The State Governments**

The state governments will be primarily responsible for:

(i) the promotion of the primary production of all agricultural commodities through the provision of a virile and effective extension service; (ii) promotion of the production of inputs for crops, livestock, fish and forestry; (iii) ensuring access to land for all those wishing to engage in farming; (iv) development and management of irrigation facilities and dams; (v) grazing reserve development and creation of water access for livestock; (vi) training and manpower development; (vii) control of plant and animal pests and diseases; (viii) promotion of appropriate institutions for administering credit to smallholder farmers; (ix) maintenance of buffer stocks of agricultural commodities; (x) investment in rural infrastructure, including rural roads and water supply in collaboration with federal and local governments; and, (xi) ownership, management and control of forest estates held in trust for local communities.

4.3.5.3. **Local Governments**

The local governments will be expected to take over progressively the responsibilities of state governments with respect to: (i) the provision of effective extension service; (ii) provision of rural infrastructure to complement federal and state governments' efforts; (iii) management of irrigation areas of dams; (iv) mobilization of farmers for accelerated agricultural and rural development through cooperative organizations, local institutions and communities; (v) provision of land for new entrants into farming in accordance with the provision of the Land Use Act; and, (vi) coordination of data collection at primary levels.

4.3.5.4. **The Private Sector**

According to the policy document, since agricultural production, processing, storage and marketing are essentially private sector activities; the role of the private sector will be to take advantage of the improved enabling environment provided by the public sector for profitable agricultural investment. In particular, the public sector is expected to play a leading role with respect to: (i) investment in all aspects of upstream and downstream agricultural enterprises and agribusinesses, including agricultural commodity storage, processing and marketing; (ii) agricultural input supply and distribution; (iii) the production of commercial seeds, seedlings, brood stock and fingerlings under government certification and quality control; (iv) agricultural mechanization; (v) provision of enterprise-specific rural infrastructure; and, (vi) support for research in all aspects of agriculture.

4.4 Key Agricultural Development, Supportive and Service Delivery Programs of the Federal Government

Following the redefined roles and responsibilities of tiers of government and the private sector, the main thrust of federal government programs and activities will be directed at obviating the technical and structural problems of agriculture in the following respects.

4.4.1. Development Programs and Activities

These will include research and development, (including biotechnology development), animal vaccine production, veterinary drug manufacture, agro-chemicals manufacture, water management, adaptive technology promotion, and the creation and operation of an Agricultural Development Fund.

(a) *Research and development, including biotechnology*: The effort in this direction is to finance agricultural research, including biotechnology and the breeding of predators for the biological control of crop pests which the private sector may not be willing to invest in due to the high capital outlay and a relatively low return from agricultural investments. The output of the research system will be disseminated by the extension services of the states and local governments to farmers, ranging from small-scale to large-scale farmers.

(b) *Animal vaccine production:* The capacity of the National Veterinary Research Institute (NVRI), which is the premier institution for animal vaccine production in the West Africa sub-region, will be strengthened, enlarged and modernized in order to raise the level of vaccine production in Nigeria to a self-sufficiency level and also to cater for the entire West Africa sub-region.

(c) *Veterinary drug manufacture:* A veterinary drug manufacturing outfit with the capacity to meet the needs of the West Africa sub-region will be established. Relevant agencies of government will collaborate with the private sector for the accelerated take off of the factory. Government interests in this venture will, however, be sold to the private sector in line with the privatization policy.

(d) *Agro-chemicals manufacture*: Government will manufacture and promote the production of agro-chemicals by the private sector and will ensure the protection of the users, the eco-system and the environment through appropriate pesticide legislation. Effective monitoring mechanism to ensure compliance with the law will be put in place.

(e) *Water management:* Currently, large dams constructed in the country have impounded a lot of water with high fisheries and duck farming potentials and having the capacity for irrigation. The completion of the outstanding downstream irrigation infrastructure of the already completed large dams in the country will be accorded top priority in order to make them useful to the farmers and to maximize the benefits of the huge investments already incurred in constructing them.

Emphasis will now shift to developing small dams as a more cost effective way of utilizing water resources for irrigation in the country. The maintenance of the existing large dams will, however, continue to be the responsibility of the Federal Government. In addition, rain harvesting for irrigation agriculture is to be promoted where surface and underground water is not readily available.

(f) *Adaptive technology:* Economic deregulation has increased agricultural production costs astronomically. At the same time, globalization of trade, which thrives on comparative advantage in production, makes efficiency of production and the application of economies of scale mandatory if Nigeria is to get a sizeable market share in the highly competitive global trade arena. In order to improve efficiency of production, therefore, simple labor - and cost-saving devices that are appropriate for the current level of agricultural production and processing in the country will be developed and mass-produced. The National Centre for Agricultural Mechanisation (NCAM), the institution established for this purpose, will be strengthened. Other initiatives in this direction, such as animal traction and hand tools technology development, will be encouraged.

(g) *Agricultural Development Fund:* The National Agricultural Development Fund is to provide the necessary impetus for the sustainable development of the agricultural sector. It will support both public and private sectors in carrying out activities that will boost agricultural and rural development, with emphasis on all facets of agricultural research, market development, extension delivery, long-term credit, rural institutions development, and enterprise promotion. The Fund will derive its revenues from: (i) savings from subsidy withdrawals on fertilizer, (ii) 5 percent of the proceeds from the privatization of government enterprises, (iii) funds from international commodity organisations, (iv) 2 percent levy on the profits of agro-based industries, (v) 50 percent of Sugar Development Levy, (vi) 1.0 percent levy on the profits of oil companies,

(vii) appropriation from government annual budget of not less than 2 percent of the total budget, and (viii) take-off grant from the federal government.

4.4.2. Supportive Activities

These will comprise input incentive support and commodity marketing and export activities.

a) *Input incentive support*: Government incentive support for inputs will be administered in a cost-effective and focused manner to ensure that the intended beneficiaries derive full benefit from the distribution of: (i) seeds, seedlings, fingerlings, brood stock etc, (ii) fertilizers, (iii) agro-chemicals, (iv) tractors and implements, (v) vaccines (vi) veterinary drugs, and (vii) agricultural credit. State and local governments are also to be encouraged to subsidize these inputs, as an additional incentive for agriculture.

b) *Commodity marketing and export:* The development of an efficient agricultural marketing system is being promoted through the provision of adequate market information. The buyer of last resort mechanism built into the marketing system will provide price stabilization effect on the system. The three multi-commodity marketing companies already approved by government will be the fulcrum of this system. The companies which will be private sector-led and managed, but with initial substantial public sector participation, will also ensure quality management and export promotion, in conformity with international quality standards for Nigeria's agricultural commodities.

4.4.3. Service Delivery Activities

These activities will cover input supply and distribution, agricultural extension, micro-credit delivery, cooperatives and farmer/commodity associations, commodity processing and storage, agro-allied industry and rural enterprise development, and export promotion of agricultural and agro-industrial products.

(a) *Input supply and distribution:* Government is creating the more conducive environment for profitable investments in the production and distribution of inputs such as improved starter materials, animal health drugs, fertilizers, etc. Fertilizer supply will be hinged on complete privatization and liberalization in the production, distribution and marketing of the commodity. The main role of the government will be to strictly monitor the quality standard of all fertilizers (both local and foreign) to ensure that only certified products reach the farmer. Government will also encourage the use of organic fertilizers to complement the inorganic fertilizers currently in use. The seed industry development program will be reinvigorated and community seed development programs will be promoted to ensure the provision of adequate and good quality seeds to local farmers. The organised private sector will be mobilized, encouraged and given incentives to actively participate in the production of seeds, seedlings, broodstock, fingerlings, etc, and also to be involved in out-growers mobilization.

(b) *Agricultural extension*: Agricultural extension is essentially an activity that should be carried out by the lower tiers of government. But given the overriding importance of technology dissemination, all the three tiers of government in Nigeria will be involved in jointly financing agricultural extension delivery and monitoring its impact. Also, extension service delivery will be streamlined through the integration of ADP and state extension services for greater effectiveness.

(c) *Credit and micro*-credit *delivery:* The strategies to be adopted will include: (i) provision and improvement of rural infrastructure to attract investment and financial services; (ii) integration and linkage of rural financial institutions to the formal banking sector; (iii) regulating and supervising the growth of non-bank financial institutions with emphasis on savings mobilization at the grassroots; (iv) expanding the mandate of the restructured Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) to include savings mobilization; (v) supporting self-help groups in their savings mobilisation and credit delivery activities; (vi) modification of the credit delivery system to include the cooperative and community-based organisations as delivery channels to reduce transaction costs; and, (vii) modification of terms of credit such as interest rate, eligibility criteria, legal requirement, etc, to enhance access.

(d) *Cooperatives and farmer/commodity associations*: Resource mobilization and the promotion of group action are the thrust of cooperative activities. This is to take advantage of group dynamics, with its concomitant mutual guarantee, as a strategy for agricultural development. Services which cooperatives can render include the administration of government incentives to agriculture, such as inputs supply, credit

delivery and retrieval, commodity marketing, and the pursuit of democratic ideals, in view of the democratic principles embedded in their operations.

(e) *Processing, storage, agro-allied industry and rural enterprise development:* The use of simple but effective on-farm and off-farm storage facilities and agro-processing technology will be promoted to add value to products and increase their shelf life. The Strategic Grain Reserve Scheme will be modernized, strengthened and upgraded to a National Food Reserve Program, which will enable it to handle all staples and essential food products. This will be the launch pad for the accelerated attainment of Nigeria's national food security goal. The Buffer Sock Food Storage Scheme of the states will incorporate the use of private storage facilities to maintain a national strategic stock of food that will be needed in times of national food emergencies. It is also crucial to promote and develop agro-processing in the country for the evolution of virile agro-allied industries and rural micro-enterprises.

(f) *Export promotion of agricultural and agro-industrial products:* Nigeria has comparative advantage in the production of a number of exportable agricultural commodities, such as cocoa, palm produce, rubber, ginger, spices, fruits and vegetables, flowers, shrimps and ornamental fish, cassava products, hides and skin, cashew, gum arabic, groundnuts and cotton (products). In order to diversity the base of the Nigerian economy and widen the market for agricultural commodities to absorb the expected increase in production, there is need to promote the export of these agricultural and agro-industrial products. To facilitate the acceptance of Nigerian agricultural commodities in the international market, including taking full advantage of the US African Growth and Opportunity Act (AGOA), there will be need to develop appropriate capacities and institutional framework within the agricultural sector as well as in other relevant sectors to meet the Sanitary and Phytosanitary Standards (SPS) and comply with the Technical Barriers to Trade (TBT) agreements of the World Trade Organisation (WTO).

4.5 Other Policies, Institutions and Legal Framework

The range of macroeconomic and institutional policies as well as legal framework that affect agricultural investment in particular and agricultural performance in general is wide. The policies broadly cover fiscal, monetary and trade measures. There is also a large body of institutional policies that support not only the implementation of macroeconomic policies but also that of agricultural sector policies. Then, there is a set of national and international legal framework, including bilateral and multilateral agreements and treaties that provide the enabling environment for foreign and domestic private investment, promote international trade and, therefore, promote economic growth. A summary of the major macroeconomic policies, institutions and legal enactments which are expected to impact significantly on foreign and domestic investment decisions is presented in Appendix 3.1 for reference.

Environmental concern has increasingly come into focus in the design of policies for sustainable growth and development in Nigeria, as elsewhere in the world. Hence, Nigeria has now put together a set of environmental policies and strategies that are of important relevance to agriculture. These are also summarised in Appendix 3.2.

4.5.1. Macroeconomic Policies

As summarized in the appendix, the key components of macroeconomic policies are fiscal, monetary and trade policies.

Fiscal Policies: These focus on budgetary, tax and debt management policy instruments. Budgetary policy influences economic stability and rate of inflation in the economy. These, in turn, influence the climate for the flow of investment, especially foreign private investment. Tax policies that focus on personal and corporate tax rates, tax reliefs, and other tax concessions are key incentives (or disincentives) factors affecting consumption and investment decisions. A favourable corporate tax policy regime enhances after-tax profits and, to that extent, may promote increased investment. A country's external debt burden affects its international credit rating and its capacity to finance public investment. International credit rating affects the flow of foreign private investment while the level and quality of public investment directly affect the flow of both foreign and domestic private investment.

Monetary Policies: In general, monetary policies refer to the combination of measures designed to regulate the value, supply and cost of money in the economy, in consonance with the expected level of economic activity. Liquidity, interest rates and foreign exchange rates are the channels through which monetary policy influences

economic activities. Liquidity is affected by money supply. Money supply influences credit supply and interest rate (cost of capital). Interest rate, in turn, influences consumption, savings and investment decisions in the economy. Basically, the existence of interest and exchange rate differentials, resulting frommonetary policy measures, induces substitution between domestic and foreign assets (foreign currencies, bonds, securities real estate, etc) as well as domestic and foreign goods and services (CBN, 1997). Since 1986, the main instruments of market-based monetary policies have included the open market operations (OMO), changes in reserve requirements and discount policy. Open market operations involve the discretionary power of the CBN to purchase or sell securities in the financial markets in order to influence the volume of liquidity and levels of interest rates that ultimately affect money supply. The sale of financial instruments by the CBN restricts the capacity of banks to extend credit, thereby affecting inflation and interest rates. The reverse is the case when financial instruments are purchased.

Trade Policies: These are a very important component of structural adjustment policies. The main focus of trade policies is on measures to regulate export and import trade through such measures as tariffs, export and import quotas and prohibitions. They influence the investment climate in many ways. For example, a liberal trade policy constitutes an incentive for foreign investors who may need to import raw materials and / or export products. But a protectionist trade policy may also serve as an incentive for investors in non-tradable products that are largely locally consumed, or investors in import-substitute products.

4.5.2. Institutions

According to the World Development Report (2002), institutions are rules, enforcement mechanisms and organizations put in place in an economy. Distinct from policies that are the goals and the desired results, institutions are rules, including behavioural norms, by which agents interact, and the organizations that implement these rules and codes of conduct to achieve desired outcomes. Policies influence the types of institutions that evolve while institutions too affect the types of policies that are adopted. Appendix 4.1 presents some of the major institutions that affect or are affected by investment - related policies in Nigeria.

4.5.3. Investment Legal Framework

Investment legal framework provides incentives for, regulates or protects investments, especially foreign investment. According to Aremu (1997), a foreign investor is first concerned with some basic questions like: What areas of business are open to foreign participation? How easy is it to bring capital into the country and repatriate profits and capital from the country? What legal mechanisms exist to protect the investor's personal business interest? These questions underscore the importance of investment legal framework. Some of the important domestic investment legislations and international legal arrangements governing foreign private investment are summarized in Appendix 4.1.

4.5.4. Environmental Policies

Environmental policies are very important for sustainable growth and development. Hence, the Federal Environmental Protection Agency (FEPA) produced a revised version of the national policy on the environment in 1999. A summary of this is presented in Appendix 4.2 of the report.

The goals of National Policy on the Environmental is to achieve sustainable development in Nigeria, and, in particular, to (i) secure a quality of environment adequate for good health and well being; (ii) conserve and use the environment and natural resources for the benefit of present and future generations; (iii) restore, maintain and enhance the ecosystems and ecological processes essential for the functioning of the biosphere to preserve biological diversity and the principle of optimum sustainable yield in the use of living natural resources and ecosystems; (iv) raise public awareness and promote understanding of the essential linkages between the environment, resources and development, and encourage individual and community participation in environmental improvement efforts; and (v) co-operate in good faith with other countries, international organisations and agencies to achieve optimal use of transboundary natural resources and for an effective prevention or abatement of transboundary environmental degradation.

The strategies to be adopted include: (i) addressing the issues of population growth and resources consumption in an integrated way; (iii) setting goals for the stabilization of national population at a sustainable level; (iii) integrating resource consumption and demographic goals with the other sectors and economic objectives; (iv) monitoring trends in population and resource consumption and assessing their implications for sustainability; (v) encouraging and involving the private sectors, NGOs and the public in the implementation of strategies and actions aimed at

achieving stated goals; (vi) the prevention and management of natural disasters such as flood, drought and desertification that more directly impact on the lives of the populace; (vii) integration of population and environmental factors in national development planning; (vii) solving public health problems associated with rapid urbanisation and squalid urban environments; (ix) prevention of the depletion of forests through judicious search for and adoption of alternative energy sources; and (x) control of the demands and patterns of land resources usage.

An extract of the environmental policy presented in the appendix covers policies, objectives of policies and policy strategies on human population, biological diversity, natural resources conservation, land use and soil conservation, water resources, forestry, wildlife and protected natural areas, energy, environmental health, transportation, communication, and science and technology. These are the policy instruments that are considered most relevant to agricultural investment in Nigeria.

4.6 Stakeholders' Perspective on the Effectiveness of Policies, Regulations and Institutions on Nigerian's Agriculture

Opinions on the effectiveness of policies and regulations in the different areas of agriculture were sought from both policy makers and policy implementers. The result is as presented in Table 4.1. In general, policies aimed at stimulating on-farm production rank highest. These include those policies aimed at stimulating agricultural production for domestic market, agricultural input demand by farmers, domestic agricultural commodity trade, agricultural input supply to farmers and domestic investment in agriculture. It is evident from the ranking that the more effective policies and regulations are those targeted to upstream agricultural production activities and geared towards the domestic market. Policies geared towards enhanced post-production activities such as commodity storage, commodity processing, transportation and distribution services as well as commercialization of agriculture are generally ranked low. Except for policies and regulations on food security and poverty reduction (which are indeed offshoot of domestic agricultural production), other policies and regulations associated with improved human welfare ranked very low. But overall, policies on foreign investment ranked lowest.

From the foregoing, it can be seen that current policies are more effective in the primary production subsector of agriculture than in the downstream subsector. Impact of policies on the welfare status of the people and on the environment remains weak. In general, the thrust of the effective policies is on food self-sufficiency as most of these policies have bearing on boosting agricultural production for food self-sufficiency.

The main factors influencing the effectiveness of policies and regulations on agriculture include high demand for agricultural produce, availability of improved technology, efficient dissemination of information by the ADPs, and value added leading to improved income. On the other hand, the common factors responsible for ineffectiveness of policies and regulations, especially on the downstream segment of agriculture, include instability of the political climate, insecurity of investment, nonstandardised product quality, non-competitive nature of agricultural products from the country in the export market due to high cost of production and lack of adequate processing facilities.

Table 4.1: Effectiveness of Policies, Regulations and Institutions on Nigeria Agriculture

Policies/Regulations on	Rank	Position
Agricultural input supply to farmers	2.83	4
Agricultural input demand by farmers	2.17	2
Foreign investment in agriculture	8.83	20
Domestic investment in agriculture	4.00	5
Commercialization of agriculture	6.17	14
Agricultural production for domestic market	1.83	1
Agricultural production for export market	5.33	8
Agricultural commodity storage	7.17	18
Agricultural commodity processing	6.17	15
Agricultural commodity transport, distribution and information	6.50	16
Domestic agricultural commodity trade	2.67	3

Agricultural commodity export	5.83	11
Agricultural commodity utilization	5.50	9
Agricultural research and technology development	4.33	7
Agricultural technology adoption	4.00	5
Food security	5.50	9
Poverty reduction	5.83	11
Closing gender gap	6.00	13
Protection/welfare of vulnerable groups	6.67	17
Sustainable environmental management	7.50	19

Note: The lower the value, the better
Source: Field Survey, February/March 2003

CHAPTER FIVE
ASSESSMENT OF INVESTMENT IN NIGERIA'S AGRICULTURE

5.1 Past Investment Trends in Nigeria's Economy

At the end of 1960, gross fixed capital formation (GFCF) in Nigeria stood at ₦258.2 million of which the private sector accounted for about 52 percent. By 1963, the GFCF had risen to ₦354 million with the private sector accounting for about 64 percent. The GFCF rose further to ₦485.2 million in 1966 with the share of the private sector being about 63 percent. The civil war disrupted the economy between 1966 and 1970. Nevertheless, the private sector still accounted for about 60 percent of the GFCF in 1970 (Iwayemi, 1995; Jerome, 2000).

The rising oil prices and revenues of the 1970s created a public-sector-led investment boom and altered the share of the total investment in favour of the public sector. Nominal gross domestic investment increased at an average rate of about 56 percent per annum between 1970 and 1975, but increased at a drastically reduced rate of only about 7 percent per annum between 1976 and 1980, and actually declined in absolute terms by about 13 percent per annum between 1981 and 1985. By 1974, the public sector was already accounting for more than 50 percent of total gross fixed investment in the economy, up from about 40 percent in 1970. Public-sector share continued to increase until it reached 75 percent by 1985. But most of public-sector investments were in large-scale commercial enterprises like fertilizer, iron and steel, aluminium and liquefied natural gas plants, virtually all of which eventually failed. There were also considerable investments in buildings and construction works in the period that were not properly maintained (see Iwayemi, 1995; Jerome, 2000).

Normally, public investment is supposed to complement private investment by providing the enabling environment for a growing private investment. However, this complementarity is based on the assumption that public investment is in such supporting facilities as infrastructure, utilities, research and development, social and human capital, and so on. But in the period under review, public investment was in commercial ventures and public-sector enterprises were competitive rather than complementary to private-sector commercial initiatives, according to Iwayemi (1995); Jerome (2000). Hence, public sector investment became a disincentive rather than an incentive to private sector investment. Worse still, most of the public-sector enterprises were very badly managed, with rampant corruption, mismanagement and inefficiency. On top of these were other factors that made Nigeria a hostile environment for foreign investments, factors like political and economic instability, policy discontinuity and inconsistency, negative international image, and so on.

Given, therefore, the generally unfavourable private investment climate in the country in the period, both domestic and foreign investment flow suffered a declining trend. Gross domestic investment in Nigeria that increased at a very annual rate between 1970 and 1975, increased at a much lower annual rate between 1975 and 1980, and then declined in absolute terms between 1980 and 1985. Foreign capital inflow into Nigeria followed a similar deteriorating trend, accompanied by high annual fluctuations. For example, net long-term capital inflow increased modestly between 1970 and 1975, with some fluctuations, then suddenly became negative in 1976 (representing a net capital outflow), only to increase again from 1977 to 1979. There was a net capital outflow in 1980, followed by increasing inflows from 1981 to 1983, and then followed by net outflows again in 1984 and 1985. Generally, the rate of capital flight was high.

Net direct foreign investment flow into the country followed a high fluctuating trend, rising between 1970 and 1975, generally on the decline from 1976 to 1980, becoming negative in 1980 and then becoming erratic from 1981 to 1985. Overall, gross investment in the Nigerian economy expressed as a percentage of gross domestic product summarizes the investment trends and patterns outlined above. In this regard, a declining percentage was evident over the 1970-85 period. From 16.88 percent in 1970, gross investment rose to 26.00 percent of gross domestic product in 1975 but declined to 23.97 percent in 1980 and then to 11.72 percent in 1985.

It is noteworthy that the fluctuating movements in both domestic and foreign investment were highly correlated with the changing states of political and policy instability in the country. For example, there

was relative political and economic stability between 1970 and 1974 after which there was another military coup in 1975. There was a state of uncertainty from 1976 to 1979, especially in view of the tightened indigenization decree of 1977 and other restrictive economic policies. The civilian rule era of 1979 - 83 should normally have been expected to generate more confidence in the country's economy and enhance the investment climate; but, unfortunately, there was an economic crisis in the country from about 1980, brought about by the crash in international oil prices and the decline in the country's revenues from oil. It should also be mentioned here that, poor as the aggregate investment record in Nigeria was in this period, investment in the non-oil sectors recorded a still much poorer performance and the agricultural sector recorded about the worst performance, as will be evident in the next section of this chapter.

5.2 Levels and Trends of Investment in Nigeria's Agriculture

5.2.1 Evidence from Literature (Secondary Data)

Two broad categories of investment in agriculture can be identified. They are the local and foreign sources. The local sources include public and private investment while the foreign sources include multilateral, bilateral and private investment. Generally, available data on investment in Nigeria's agriculture are very scanty and data on domestic investment are still much more scanty than those on foreign investment. The little data that have been collected in this study are analyzed and the results summarized as follows:

5.2.1.1. **Levels of Investment**

(a) *Domestic Public Investment*

In the absence of better quality data, the total capital expenditure of federal, state and local governments in Nigeria is used as a proxy for domestic public investment. The summary data available from 1996 to 2000 are presented in Table 5.1.

Table 5.1: Real Domestic Public Investment (₦'million)

Year	Federal Government	State Governments	Local Governments	Total
1996	8,071.2	1,105.4	229.2	9,405.8
1997	935.8	1,142.6	295.3	10,673.7
1998	9,812.6	2,021.1	631.6	12,465.3
1999	15,053.0	1,826.5	566.6	17,446.1
2000	6,998.6	4,644.2	1,608.7	13,251.5

Sources: CBN (2000). Statistical Bulletin, Vol. 11, No. 2
CBN (2001), Annual Report and Statement of Account.

The figures are in real terms because the nominal values have been deflated by the consumer price index. The table indicates that the federal government accounted for a very high share of domestic public investment. The share stood at about 86 percent in 1996, 1997 and 1999; it was 79 percent in 1998 and a relatively low 53 percent in 2000. On the other hand, the local governments accounted for the lowest share, ranging from about 2.4 percent in 1996 to 12.1 percent in 2000.

Furthermore, the table shows that total real domestic public investment increased progressively by 13.5 percent, 16.8 percent, and 40.0 percent respectively between 1996 and 1997, between 1997 and 1998, and between 1998 and 1999. But between 1999 and 2000, there was a decline of about 24 percent, due to a sharp drop of about 53 percent in federal government's investment. Overall, real domestic public investment increased at a healthy rate of 11.6 percent per annum between 1996 and 2000.

(b) *Real Gross Domestic Investment*

This is measured as real gross fixed capital formation (GFCF) that is the total capital expenditure on fixed assets, either for replacing or adding to the stock of existing fixed assets. It is in real value in that it is measured at a constant 1984 purchasers value. It is a proxy for gross domestic investment. The information is summarized in Appendix 5.2. As shown in Appendix 5.2, average total gross fixed

capital formation declined from a peak in the 1981-85 sub-period to a low point in the 1986-90 period, and then increased modestly in both 1991-95 and 1996-2000 sub-periods. This cannot be regarded as a good performance, moreso as further analysis showed that gross fixed capital formation's share of gross domestic product declined consistently over the entire 1981-2000 period, from about 15 percent of real GDP in the 1981-85 sub-period to 9.7 percent in 1986-90, to 8.4 percent in 1991-95 and to 6.3 percent in 1996-2000. This consistent decline implies that consistently lower shares of real GDP were going into domestic investment.

Agricultural sector GFCF followed the same pattern as the aggregate GFCF of the economy, as shown in Appendix 5.2. It is observed, however, from the table that agricultural sector's share of the aggregate GFCF increased consistently over the 1981-2000 period, from about 5 percent in the 1981-85 sub-period to about 14 percent in the 1996-2000. This implies that the agricultural sector performed better than the economy as a whole in terms of the rate of capital formation. However, the agricultural sector's share of the aggregate GFCF was very low, averaging only about 9 percent in the entire 1981-2000 period. Public expenditure on infrastructure in the agricultural sector is not known. But available information for the economy as a whole indicates that investment on infrastructure constituted a small and declining share of the total, as shown in the table. The share fell from about 20 percent in 1981-85 to 7 percent in 1986-2000.

(c) *Flow of Foreign Net Private Investment*

Net flow of foreign capital into Nigeria in the 1981-2000 period under review was characterized by increases in mean nominal values in all sub-periods for both the economy as a whole and the agricultural sector. However, in real terms (i.e. at 1985 constant prices), aggregate foreign net private investment flow into the economy declined consistently between the 1981-85 and 1991-95 sub-periods, and then increased marginally in the 1996-2000 sub-period. The reverse is the case for real foreign net private investment flow into agriculture, which increased between 1981-85 and 1991-95 and then declined in the 1996-2000 sub-period. However, agriculture's share of total foreign net private investment was generally very low, being only about 0.2 percent in the 1981-85 sub-period, but rising to 4.6 percent and 9.1 percent in the 1986-90 and 1991-95 sub-periods respectively. It then declined again in the 1996-2000 sub-period. In all, there were negative flows (i.e. capital flight from agriculture) of foreign investment into from agriculture in 1980, 1985, 1987 and 1994.

(d) *Cumulative Foreign Investment*

This represents the total stock of foreign investment, as against the annual flow discussed above. For the economy in the aggregate, the stock of foreign investment in nominal terms increased more than twenty-fold between 1981 and 2000. But in real value, it declined between 1982-85 and 1986-90, then increased in the 1991-95 sub-period, and decreased again in the 1996-2000 sub-period. It is thus evident that there were wide fluctuations in the real values of cumulative total foreign investment in the country in the period under review. The real value of cumulative foreign investment in agriculture, however, declined persistently over the entire 1981-2000 period. As a result, agricultural sector's share of the total stock of foreign investment declined persistently from about 2 percent in the 1981-85 sub-period to less than 1 percent in the 1996-2000 sub-period.

The general picture that emerges from the foregoing is that the agricultural sector did not perform well in terms of attracting foreign investment in the whole period under review. Similarly, and as observed earlier, the sector's share of total public domestic investment in the economy was also very low. It flows, therefore, that most of the investment in agriculture was made by small-scale farmers and other local private entrepreneurs who invested their own individual small savings as well as small loans obtained from relatives, friends, commercial and specialized banks, cooperative societies and money lenders in micro-enterprises in and outside the agricultural sector.

5.2.1.2. **Growth and Variability in Investment**

As may be observed from the above analysis, the pattern of both domestic and foreign investment in Nigeria in the period under review tended to be volatile, displaying highly variable growth rates and high degrees of fluctuation or instability. To capture these characteristics, Appendix 5.2 presents the average annual growth rates as well as the average coefficients of variation (as measures of instability) in both domestic and foreign investment in the 1981-2000 period. As shown in the table real gross fixed capital formation in the economy as a whole displayed highly variable average annual growth rates, first declining in the 1981-85 sub-period, then increasing in the 1986-90 sub-period, then

decreasing again in the 1991-95 sub-period, and then increasing in the 1996-2000 sub-period. The agricultural-sector gross fixed capital formation displayed more positive but equally unstable growth rates.

On the whole, the coefficients of variation in the real gross fixed capital formation for the economy as a whole declined from a very high level in the 1981-85 period to much more modest levels thereafter, indicating some relative stability in the post-1985 period. The agricultural-sector coefficients of variation in real gross fixed capital formation were very high in the 1981-85 and 1986-90 sub-periods, but also declined to more modest levels in the post-1990 period. It appears, therefore, that the pattern of domestic investment emerged from a highly volatile state in the 1980s and early 1990s, to a more steady state thereafter. This pattern conforms very much to progression from an unstable policy and political regime of the pre-1995 era to the more stable regime thereafter.

As shown in Appendix 5.2, the average annual growth rate for infrastructure investment was negative in the 1981-85 sub-period, but improved rapidly in both 1986-90 and 1991-95 sub-periods before coming down to a more modest rate in the 1996-2000 sub-period. The rate of growth for non-infrastructure expenditure followed a similar trend. On the whole, the degree of variability in both infrastructure and non-infrastructure expenditures was equally high in the 1981-2000 period.

The patterns of growth and variability in the total annual flow of foreign net private investment into the economy shown in the table indicate a very high growth rate in the 1981-85 sub-period, followed by a negative growth in the 1986-90 sub-period, followed by a very high growth rate in the 1991-95 sub-period, and followed by a positive but small growth rate in the 1996-2000 sub-period. On the whole, the growth pattern was highly unstable.

The conclusion that may be drawn from the foregoing is that the pattern of domestic investment in Nigeria was very unstable between 1981 and 1995, but more so for investment in agriculture than for the whole economy. There was, however, a measure of relative stability after 1995 in both aggregate and agricultural sector investment. As regards the annual flow of foreign net private investment, the degree of volatility was even higher than for domestic investment. And, again, the agricultural sector recorded a higher degree of volatility than the economy as a whole.

The pattern of investment growth and variability described above was a direct reflection of the unstable and sometimes inconsistent policy regime that prevailed in much of the 1981-95 period. It was a reflection of the generally very unstable investment climate in the country in the period. The degree of political and social instability in the country was particularly high for most of the period, creating an unduly high degree of uncertainty for investors, particularly foreign investors.

Table 5.2: Summary of Direction of Foreign and Domestic Investment Flows to Agriculture by Zone*

Type of Investment	NC	NE	NW	SE	SS	SW	ALL
Foreign private	0	0.2	0.6	0.3	0.8	0.1	0.3
Foreign public	0	-0.1	0.3	0.3	0.5	-0.1	0.2
Domestic private	0	0.4	0.3	0.6	0.4	0.4	0.4
Domestic public	-0.1	-0.2	0.3	0.5	-0.4	-0.1	0

Note: Negative (-) values imply decreasing investment; positive (+) values imply increasing investment while zero means no change in investment. Upper limit is +1 and lower limit is –1.
Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

5.2.2 Evidence from Field Survey

The results of primary data analysis corroborate those of secondary data analysis. Table 5.2 shows the perception of respondents in the different zones of the country on the flow of investment into Nigeria's agriculture. It is evident that the flow of private investment (both foreign and domestic) improved more than that of public investment (both foreign and domestic). In general, domestic public investment as claimed by respondents in four zones, was declining while two zones indicated that foreign public investment was on the decline in the country. On the other hand, foreign private investment flow was perceived to be increasing in five zones, with the strongest indication given by

respondents in the south-south zone of the country. Domestic private investments were also perceived to be increasing in five of the six zones. But respondents in the north-central zone claimed that investment from different sources had either remained stagnant or had declined.

The main factors responsible for the improved flow of private investment into agriculture were improved economic climate, high returns to investment and availability of markets. On the other hand, inconsistent policies and poor infrastructure combined to constrain the inflow of private investment. Public investment was constrained by political instability, poor grassroots participation and insecurity. However, domestic public investment was positively influenced by the policies of government on food self-sufficiency and poverty eradication.

5.3 Determinants of Investment in Nigeria

5.3.1 Evidence from Literature

Extensive literature search has revealed that investment flow into the economy and a wide range of factors determines the agricultural sector within the economy. These are summarized in Appendix 5.4. The nature and direction of their effects on investment flow are also indicated.

5.3.2 Empirical Estimate of Determinants of Investment in Nigeria

As earlier proposed in chapter two of this report, this section quantitatively examines the determinants of investment in Nigeria. Two sets of equations, one for domestic private investment and the other for foreign direct investment, were experimented with. However, paucity of data did not allow for a disaggregated analysis, which could have led to the identification of key determinants of investment in agriculture as opposed to the determinants of investment in the economy in the aggregate. The discussion that follows starts with that of the stationarity of the variables used for estimation. This is followed by a discussion of cointegration tests. Finally, the results of the econometric analysis are discussed.

5.3.2.1 Stationarity Tests of the Variables Used

The stationarity test was carried out to examine the time series characteristics of the data. The order of integration, using ADF classes of unit root tests, is presented in Table 5.3. The table reveals that all the variables are not stationary at their level but they become stationary at their level of first difference. This indicates that the variables are integrated of order one I(1) and any attempt to specify the equation in the level of the series will be inappropriate and may lead to the problem of spurious regression. In particular, the results of econometric analysis at the level of the series may not be suitable for policy making (Adams, 1992). Having established that the variables are of I(1) series, we proceeded to test for the cointegration of the dependent variables with their arguments.

5.3.2.2 Cointegration Tests of the Dependent Variables

Cointegration or Error Correction Model (ECM) is accepted when the residuals from the linear combination of the non-stationary series I(1) are themselves stationary. The acceptance of cointegration or ECM indicates that the model is best specified in the first difference of the variables. The ECM framework guarantees non-loss of information from long-term relationships in the first differences. Though, there are many test statistics that can be used, including the ADF, Sargan-Bhargaran Durbin-Watson (SBDW) and Johansen test, this study used the Johansen test since it is able to appropriately determine the actual number of cointegrating vectors.

Table 5.3: Augmented Dickey Fuller (ADF) Unit Root Test for the Variables Used in Regression Analysis

Variable	ADF test statistic	No of lags	Stationary at level
DEY	-1.5178	1	NO
FDI	-0.7796	1	NO
TC	3.0776	1	NO
DSR	-1.8805	1	NO
GNI	-0.5467	1	NO
TOT	-3.0397	1	NO
IGI	1.4903	1	NO
GI	-0.9103	1	NO
RER	-2.5286	1	NO
GRT	-1.8077	1	NO
DPI	-2.2385	1	NO
95 percent ADF critical value = -3.6119			

Source: Computer printout

Table 5.4 indicates that the dependent variables actually cointegrate with their fundamentals. The number of cointegrating equations ranges from 4 to 6 for the different component of the tables. The existence of cointegration provides justification for the inclusion of ECM in the specification of the models. The test also tries to establish the existence (or lack of it) of a long run relationship between the dependent variables and their arguments. The coefficient of the ECM defines the feedback mechanism among the cointegrating variables.

Table 5.4: Cointegration Test of the Dependent Variable

Series	Eigen Value	Likelihood Ratio	5% critical value	1% critical value	Hypothesized No. of Ces
			(1)		
DPI	0.9994	416.0174	156.00	168.36	None**
DEY	0.9164	192.0394	124.24	133.57	Almost 1**
DSR	0.7597	117.5833	94.15	103.18	Almost 2**
GI	0.6217	74.8134	68.52	76.07	Almost 3*
GRT	0.5548	45.6471	47.21	54.46	Almost 4
INFR	0.3728	21.3679	29.68	35.65	Almost 5
RER	0.1958	7.3720	15.41	20.04	Almost 6
TOT	0.0275	0.8353	3.76	6.65	Almost 7

*(**) Denotes rejection of the hypothesis at 5% (1%) significance level
LR test indicates 4 cointegrating equations at 5% significance level

			(2)		
DPI	0.9998	537.8984	192.89	205.95	None**
DEY	0.9856	273.6893	156.00	168.36	Almost 1**
DSR	0.7638	162.2810	124.24	133.57	Almost 2**
GI	0.7341	118.9944	94.15	103.18	Almost 3**
GRT	0.6466	79.2582	68.52	76.07	Almost 4**
INFR	0.5514	48.0558	47.21	54.46	Almost 5*
RER	0.3347	24.0096	29.68	35.65	Almost 6
TC	0.2932	11.7845	15.41	20.04	Almost 7
TOT	0.447	1.3723	3.76	6.65	Almost 8

*(**) Denotes rejection of the hypothesis at 5% (1%) significance level
LR test indicates 6 cointegrating equations at 5% significance level

(3)

DPI	0.9999	691.0921	233.13	247.18	None**
DEY	0.9876	373.3896	192.89	205.95	Almost 1**
DSR	0.9332	241.7028	156.00	168.35	Almost 2**
GI	0.8074	160.5218	124.34	133.57	Almost 3**
GRT	0.7344	111.1058	94.15	103.18	Almost 4**
IGI	0.6140	71.3262	68.52	76.07	Almost 5*
INFR	0.4815	42.7655	47.21	54.46	Almost 6*
RER	0.3409	23.0620	29.68	35.65	Almost 7
TC	0.2902	10.5531	15.41	20.04	Almost 8
TOT	0.0090	0.2716	3.76	6.65	Almost 9

*(**) Denotes rejection of the hypothesis at 5% (1%) significance level
LR test indicates 6 cointegrating equations at 5% significance level

(4)

FDI	0.9996	479.9426	156.00	168.36	None**
DEY	0.9796	244.9457	124.24	133.57	Almost 1**
DSR	0.8319	128.1560	94.15	103.18	Almost 2**
GI	0.6665	74.6507	68.52	76.07	Almost 3**
GRT	0.5845	41.7119	47.21	54.46	Almost 4**
INFR	0.3297	15.3615	29.68	35.65	Almost 5*
RER	0.0951	3.3620	15.41	20.04	Almost 6
TOT	0.0121	0.3646	3.76	6.65	Almost 7

*(**) Denotes rejection of the hypothesis at 5% (1%) significance level
LR test indicates 4 cointegrating equations at 5% significance level

(5)

FDI	0.9999	628.9708	192.89	205.95	None**
DEY	0.9889	318.6205	156.00	168.36	Almost 1**
DSR	0.8779	183.6810	124.24	133.57	Almost 2**
GNI	0.8316	120.6025	94.15	103.18	Almost 3**
GRT	0.6018	67.1565	68.52	76.07	Almost 4**
IGI	0.5192	39.5329	47.21	54.46	Almost 5*
INFR	0.2752	17.563	29.68	35.65	Almost 6*
RER	0.1803	7.9083	15.41	20.04	Almost 7
TOT	0.0627	1.9420	3.76	6.65	Almost 8

*(**) Denotes rejection of the hypothesis at 5% (1%) significance level
LR test indicates 4 cointegrating equations at 5% significance level

5.3.2.3 Results and Discussions

In order to fully understand the nature of the determinants of investment in Nigeria, five equations were estimated. Of these, three were related to the domestic private investment while the remaining two were related to foreign direct investment. The three variants of domestic private investment were such that the first equation used aggregate public expenditure as one of its determinants, along with six other variables. In the second variant, another variable (total credit to the economy plus foreign reserve) was added to the variables in the first equation. The third equation split public expenditure into its components, viz. infrastructure and non-infrastructure expenditure.

In the case of foreign direct investment, the first equation used aggregate public spending as an argument, while this was split into its components (infrastructure and non-infrastructure expenditures) in the second equation. The results are presented in Tables 5.7 and 5.8. In general, the adjusted coefficient of determination ranges from 0.396 in the third equation on domestic private investment to 0.733 in the second equation for foreign direct investment. The Durbin Watson statistic does not indicate positive auto-correlation while the F statistic shows that the models generally perform well.

Table 5.5: Determinants of Domestic Private Investment

Independent variables	Domestic Private Investment (DDPI)		
	(1)	(2)	(3)
C	0.042 (0.106)	-0.099 (-0.266)	0.171 (0.400)
D(DEY)	1.421 (0.298)	0.429 (0.099)	0.367 (0.114)
D(DSR)	-2.297 (-0.408)	0.007 (0.001)	–8.369 (-1.169)
$D(GI_{-1})$	-1.868 (-1.202)	-5.433** (-3.285)	-
D(GRT)	0.247 (0.3210	-0.076 (-0.110)	-2.829 (1.297)
D(INFR)	-0.82** (-3.530	-0.105** (4.65))	-0.061* (-2.337)
D(RER)	0.046 (0.100)	0.229 (0.569)	0.363 (0.595)
D(TOT)	0.027* (2.398)	0.029* (2.774)	0.015 (1.246)
D(TC)	-	3.792* (2.498)	1.327 (0.626)
$D(IGI_{-1})$	-	-	40.310 (0.983)
$D(GNI_{-1})$	-	-	-6.455* (-2.721)
$ECM1_{-1}$	-0.786** (-3.626)	-	-
$ECM2_{-1}$	-	-0.859** (-4.364)	-
$ECM3_{-1}$	-	-	-0.733
R^2	0.583	0.678	0.612
Adjusted R^2	0.416	0.525	0.396
Durbin Watson	1.666	1.691	1.875
Log Likelihood	-53.610	-52.913	-52.564
Akaike info. Criterion	1.480	1.291	1.546
Schwarz Criterion	1.904	1.762	2.064
F-statistic	3.489	4.435	2.835
Prob (F-statistic)	0.011	0.003	0.026

Figures in parentheses are t-values
* Significant at 5%
** Significant at 1%

Table 5.6: Determinants of Foreign Direct Investment

Independent variables	Foreign Direct Investment (DFDI)	
	(1)	(2)
C	0.012 (0.799)	0.008 (0.527)
D(DEY)	-0.023 (-0.126)	-0.054 (-0.318)
D(DSR)	0.359 (1.662)	-0.106 (-0.434)
$D(GI_{-1})$	0.068 (1.183)	-
D(GRT)	0.025 (0.773)	3.301** (3.709)
D(INFR)	0.001 (0.673)	0.002 (1.810)
$D(GNI_{-1})$	-	-3.509** (-3.639)
$D(IGI_{-1})$	-	3.361** (3.743)
D(RER)	0.047* (2.468)	0.018 (0.808)
D(TOT)	-0.001 (-1.285)	-0.0003 (-0.830)
$ECM7_{-1}$	-1.098** (-4.797)	-
$ECM5_{-1}$	-	-1.82** (-4.849)
R^2	0.787	0.819
Adjusted R^2	0.702	0.733
Durbin Watson	1.520	1.893
Log Likelihood	41.090	43.404
Akaike info. Criterion	-5.051	-5.142
Schwarz Criterion	-4.627	-4.670

F-statistic	9.271	9.548
Prob (F-statistic)	0.000	0.000

Figures in parentheses are t-values
* Significant at 5%
** Significant at 1%
Source: Regression results

In the first equation on domestic private investment, the coefficients of all the variables, with the exception of debt service ratio (DSR) and terms of trade (TOT), conform with *a priori* expectation. However, only inflation rate (INFR) and the terms of trade (TOT) have significant influence on domestic private investment. While inflation rate tends to dampen domestic private investment, the term of trade enhances it. The effect of inflation rate is that it increases the riskiness of longer-term investment projects and reduces the average maturity of commercial lending (Dornbusch and Reynoso, 1989). However, external shocks as mirrored by the TOT actually have positive effect on domestic private investments. Hence, the higher the TOT is, the higher the domestic private investment and vice versa. The coefficient of the ECM shows high rate of adjustment of short equilibrium to long run equilibrium value.

The inclusion of total credit and foreign reserve variable (TC) in equation two for domestic private investment actually improves the model. The debt service ratio (DSR), the RER and the TOT do not conform to expectations. Four variables, namely public investment (GI_{-1}), inflation rate (INFR), terms of trade (TOT) and total credit plus foreign reserves (TC) significantly influence domestic private investment. However, both public investment and inflation rate dampen domestic private investment. On the other hand, the terms of trade and the total credit positively influence domestic private investment. The negative relationship between public investment and domestic private investment can be attributed to higher fiscal deficits which may crowd out private investment through high interest rates and credit rationing, among others. The higher the flow of domestic credit into the private sector and the higher are foreign reserves, the more likely is an increase in investment in the domestic private sector as investors would have access to investible funds for their operations. The ECM parameter also indicates a high feed back mechanism.

The third equation for the domestic private investment replaces public investment with its components – investment in infrastructure and non-infrastructure goods. While investment in infrastructure positively influences domestic private investment, investment on non-infrastructure has negative influence on it. Both inflation rate and investment on non-infrastructure by the public sector have negative but significant effects on domestic private investment. The negative sign of the coefficient of non-infrastructure public investment confirms the earlier result on the crowding out of domestic private investment by public sector investment.

The first equation of the foreign direct investment shows that only real exchange rate significantly influences the inflow of foreign direct investment. This has a positive relationship, thus indicating the positive effect of a rise in foreign prices measured in domestic currency. In this instance, there will be a boost to investment in tradables relative to non-tradables. The ECM coefficient agrees with those of earlier equations.

In the second equation, which incorporates a public investment variable (in terms of infrastructure and non-infrastructure capital expenditures), four variables have significant effects on foreign direct investment. The variables are the two components of public capital expenditure, the growth rate of the economy and the inflation rate. However, inflation rate coefficient has positive sign, contrary to expectation. While public investment in infrastructure promotes foreign direct investment, investment in non-infrastructure inhibits it. The growth rate of an economy is an indicator of the performance of that economy which tends to affect the confidence of would-be investors in terms of guaranteed returns from investment. Its positive sign is a signal of potential earnings to foreign investors. The ECM value also indicates a high rate of adjustment of short-run equilibrium to long-run equilibrium values. Finally, economic instability index (DeY) and debt service ratio (DSR) do not significantly influence both domestic private and foreign direct investment in Nigeria.

CHAPTER SIX
CONSTRAINTS TO PRIVATE SECTOR INVESTMENT IN NIGERIA'S AGRICULTURE

This chapter starts with a compilation of the various constraints affecting foreign and domestic investment in Nigeria's agriculture. Then, there is an assessment by stakeholders of the economic climate for private investment in the country's agricultural sector, as revealed by the field survey conducted for the study. This is followed by the analysis of stakeholders' perspective on the constraints to private investment in Nigeria's agriculture and by the stakeholders' perception of the persistence of these constraints and the effects of the constraints on agricultural commercialization and investment.

6.1 Evidence from Literature

Literature search reveals that there is a very large number of constraints affecting investment in the Nigerian economy in general and the agricultural sector in particular. It is, however, not possible to list all of them here, not only because it is impossible to identify all of them, but also because many of them tend to overlap. Instead, what is presented here may be regarded as a representative listing of identified constraints from selected sources. Appendix 6.1 presents this list. The table lists the identified constraints from different sources under eleven constraint categories, namely technical, infrastructural, economic, financial, political, social, policy, institutional, environmental, external environmental and labor market constraints. Although the categorization of the specific nature of constraints listed under these eleven constraint categories may sometimes be arbitrary, the range that they represent is indicative of the wide overall breadth of the constraints to investment in Nigeria.

Not surprisingly, policy and institutional constraints are the most frequently mentioned in the literature consulted. Policy instability is the most mentioned nature of policy constraint while institutional instability, complexity, inefficiency, and weakness are the most mentioned nature of institutional constraint. Economic constraint is the next most frequently mentioned, followed by social and political constraints. The specific nature of economic constraint includes poor economic and investment climate, economic mismanagement, high cost of production, poor access to market information, high investment risk, etc. Social constraint is mainly in the form of corruption, indiscipline, insecurity of life and property, social instability/crises, etc. Political constraint is mainly in the form of political instability, high country risk and poor governance.

Technical constraints take the forms of poor technological base, inadequate availability of viable technology, low productivity, high production hazards, etc. The nature of constraints associated with unfavourable external economic/political environment includes poor country credit rating, poor image of the country abroad, unfavourable perception of the country's investment climate by foreigners and lack of confidence in the country's economy. The nature of constraints associated with infrastructure centers around poor or poorly developed infrastructure, poor state or condition of available infrastructure, etc. It should, however, be mentioned that the infrastructural constraint is also indirectly associated with some other constraints, such as economic, institutional and technical constraints.

Financial constraint is mainly in the forms of inadequate supply of credit, inadequate financial services and high external debt burden. It is noteworthy that environmental forms of constraint on investment hardly feature in the literature consulted. This is a reflection of the poor perception of the relevance of environmental factors to investment decision-making and/or lack of priority attention to the study of environmental constraint as it relates to investment decisions in the country.

6.2. Stakeholders' Assessment of Nigeria's Economic Climate for Private Investment in Agriculture

The extent to which the Nigerian agricultural sector's investment climate is favorable or unfavorable to foreign and domestic investors was assessed through the informed opinions expressed by respondent groups in the zones. The result of this is shown in Tables 6.2 and 6.3 for the foreign and domestic investors respectively.

6.2.1 Foreign investors

Table 6.1 shows the rating of the economic climate for foreign private investment in Nigeria's agriculture and agro-allied industries, and the reasons for the rating. From the table, it is observed that, although the average rank scores by respondents vary by zone, the average is 3.0, meaning that the economic climate for foreign private investment in Nigeria's agriculture is very fair.

The rank scores were determined by balance of the assessment of both positive and negative factors. The positive factors (as identified by the respondents) were improved democratic governance, natural resources endowment, large local market, adequate policy support, high returns on investment, ban on the importation of some agricultural commodities, political/economic stability, high investment opportunities, and security to investors. On the other hand, the negative factors responsible for this ranking include policy instability/inconsistency, political discrimination, dishonesty, poor technology, low policy effectiveness, fraud/corruption, insecurity, bureaucratic bottlenecks, poor infrastructure, political instability, religious/ethnic/political strife, poor state of infrastructure, and over-dependence of the economy on oil revenue.

Table 6.1: Assessment of Nigeria's Economic Climate for Foreign Private Investment in Agriculture and Agro- Allied Industries

Zone	Rank	Positive Reasons	Negative Reasons
North Central	2.5	Democratic governance Availability of raw materials Adequate policy support Natural resource endowment	Policy instability, Political discrimination, Dishonesty, Poor technology, Low policy effectiveness
North East	4.0	Large local market, Abundant resources, Abundant opportunities, High returns on investment, Democratic governance	Corruption Insecurity Bureaucratic bottlenecks
North West	3.4	Favorable political climate, Raw materials availability, High demand, Resource endowment Comparative advantage	Insecurity, Political instability, Poor infrastructure, Naira devaluation, Low investment opportunities
South East	2.5	Resource availability, ban on agricultural commodity import	Political/religious/ethnic strife, Political instability, Unfavorable political climate
South East	2.4	Democracy Economic/political stability Raw material availability	Bad roads, insecurity/ violence, Political instability, corruption, Greed/ fraud, high dependency on oil revenue, poor electricity and water supply, policy inconsistency
South West	3.3	Low labor cost, High potential profit, Large market, High investment opportunities, Conducive atmosphere, Security of investors	Insecurity Poor attitude to work Policy inconsistency Political instability

Note: Maximum score is 5.0 and minimum score is 1.0

6.2.2 Domestic Investors

The average rank per zone of the economic climate for domestic private investment in agriculture and agro-allied industries in Nigeria and the reasons for the assigned rank are shown in Table 6.2. The average rank of the economic climate for domestic private investment in Nigeria's agriculture is 3.7. This means that the climate is fairly good for domestic investment. This particular rank assignment was conditioned by the interplay of some positive and negative factors. The positive factors include the availability of raw materials and other inputs, market availability, good climate/environment, high returns on investment, democratic governance, good investment promoting policies, cheap labor, political stability and adequate funding. Others are the establishment of the Agricultural Development

Projects (ADPs), the use of modern crop varieties and other technologies, wage/salary increases for public workers, and familiarity with the domestic market.

On the other hand, the negative factors limiting the economic climate for domestic private investment in Nigeria's agriculture include poor infrastructure, poor policy effectiveness due to poor implementation, corruption, and inadequate funding. Others include high rate of interest on loan, insecurity, and high risk of investment.

Table 6.2: Assessment of Nigeria's Economic Climate for Domestic Private Investment in Agriculture and Agro Allied Industries

Zone	Rank	Positive Reasons	Negative Reasons
North Central	4.1	Good policies, Raw material availability, Land availability, Availability of markets, Good economic environment, Good indigenous technologies	Poor infrastructure Low technology Poor policy effectiveness
North East	5.0	Large domestic market, Abundant raw materials, High returns on investment, Resource endowment, Democratic governance, Abundant opportunities	Corruption Insecurity Bureaucratic bottlenecks
North West	3.6	Good policies, Good economic climate, Resource availability, Cheap labor, Political stability, Adequate funding, High local demand, Salary/wage increase	Smuggling, Political instability, Poor infrastructure, Poor policy implementation, Low returns on investment, Paucity of funds
South East	3.1	Good investment promoting policies, Establishment of ADPs, Availability of improved crop varieties	Unfavorable political climate High interest rate on loans
South East	3.3	Increase in workers wages Availability of raw materials Improved local production technology Economic/political stability Patriotism	Bad roads Insecurity/robbery Poor infrastructure Corruption Poor policy enforcement/policy reversals Advanced fee fraud (419) Poor security system Lack of protective policy
South West	3.3	High potential profit Familiarity with market Large local market High investment opportunity	Inadequate infrastructure Lack of adequate capital Underperformance of utilities Political instability High risk/uncertainty

6.3 Stakeholders' Perspectives on Constraints to Private Sector Investment in Nigeria's Agriculture

Thirteen constraints were identified in this study as affecting private sector investment in Nigeria's agriculture. Of all the constraints, infrastructure constraint seems to be most critical to investment in Nigeria's agriculture (Figure 6.1). This is followed by technical and financial constraints. Institutional, health and land tenure constraints were identified in that descending order of importance as the least limiting factors to private sector investment in agriculture in Nigeria.

However the intensity of the constraints differs across the six developmental domains as indicated by the respondents (See Figure 6.2). Each of the constraints is elucidated on in subsequent paragraphs.

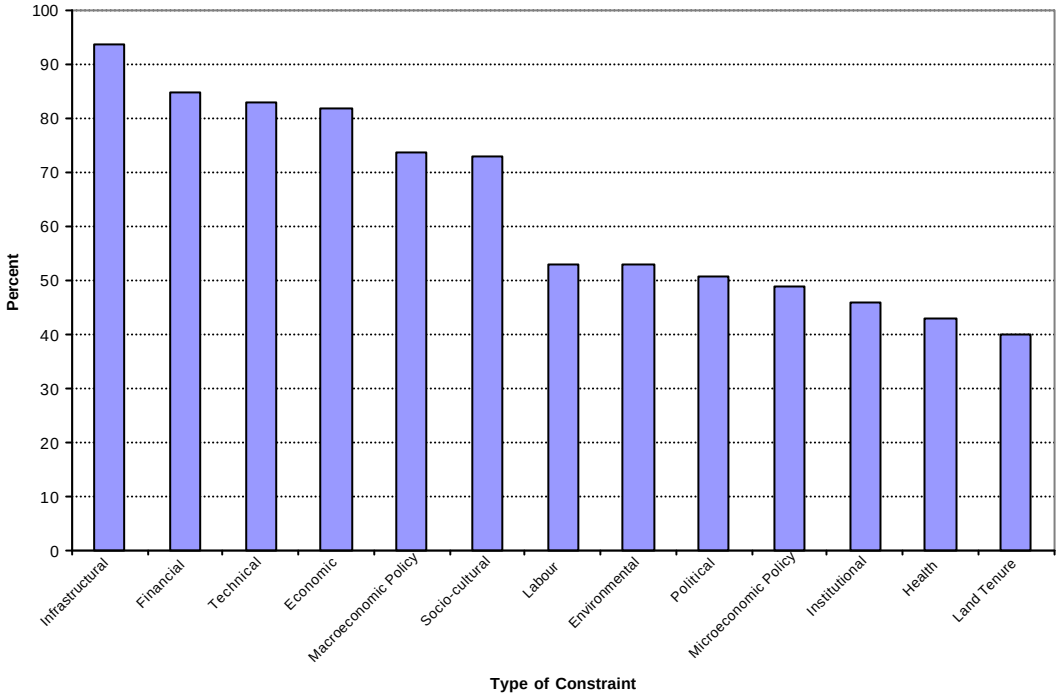


Figure 6.1. Relative Frequency Distribution of Constraints to Foreign and Domestic Investment in Nigeria's Agriculture (Percentage of responses by institutions surveyed)

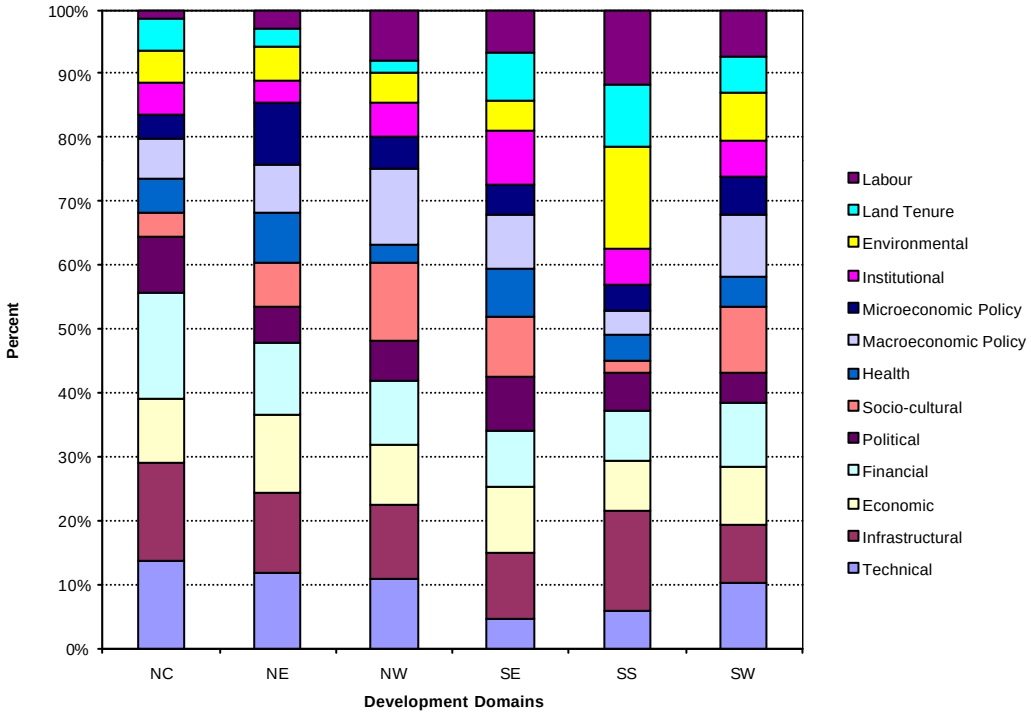


Figure 6.2. Intensity of Constraint to Foreign and Domestic Investments across Development Domains of Nigeria (% of Responses by Domain)

i) **Technical Constraint**

This is the third most important constraint to private sector investment in agriculture in Nigeria. This constraint is most pronounced in the northeastern part of the country were about 84 percent of the respondents subscribed to the pervasiveness of the constraint. The northwest, the southwest and the north central, in a descending order of the intensity of the constraint to investment in agriculture, follow this. However respondents in both southeast and the south-south zones of the country viewed this constraint as being not too limiting to agricultural investment as only one-third of the respondents identified with it. In general, poor technology, poor access to markets and lack of improved inputs are constraints in the country. In addition to these, the northcentral, northeast, and southwest zones identify poor managerial skill as another technical constraint in their respective domains. Also, the north central identified poor harvesting and processing technology as the specific nature of technical constraint in that domain (Figure 6.3).

ii) **Infrastructural Constraint**

The most critical constraint to private sector investment in Nigeria's agriculture is the infrastructural constraint. At least 80 percent of the respondents in all zones of the country identified infrastructure as an important constraint to private investment in Nigeria's agriculture. Infrastructural constraint manifests most in the physical context across the zones in the form of bad roads/poor states of roads, poor marketing facilities and outlets, and epileptic power supply. Specifically, the key nature of infrastructural constraint in both the north central and northwest is the poor state of telecommunication services. On the other hand, lack of processing facilities is common to both the northeast and the Southsouth. Both the southeast and the southwest identified poor state of health facilities as an important infrastructural constraint in their domains (Figure 6.4).

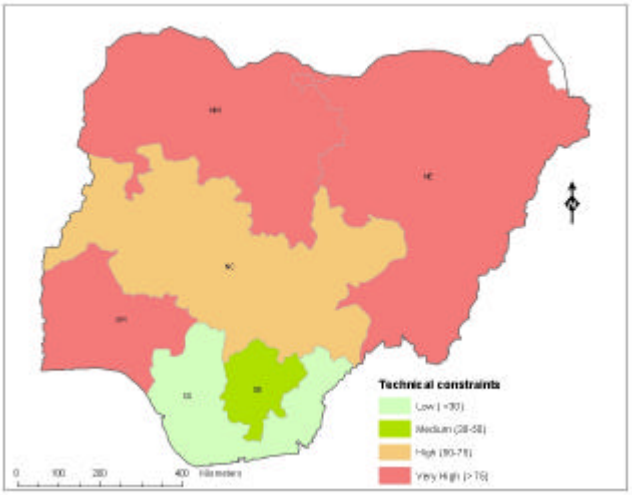


Figure 6.3. Intensity of Technical Constraint Affecting Agriculture by Development Domains of Nigeria

iii) **Economic Constraint**

Though very important, economic constraint is the fourth in the hierarchy of constraints to private sector investment in Nigeria's agriculture. This constraint is critical to private sector investment in agriculture in the northeast, southeast, and southwest zones of the country as over 80 percent of the respondents identified with it. Also, the constraint is fairly pronounced in the northwest, north central, and Southsouth. Across the zones, economic constraint manifests in the form of high cost of production and low returns to investment. Similarly high cost of marketing is a common nature of economic constraint in the northeast, northwest and the south-south zones. Both the southeast and the southwest identified low income and poverty as additional nature of economic constraint in their zones. Furthermore, the Southsouth viewed corruption as an element of economic constraint (Figure 6.5).

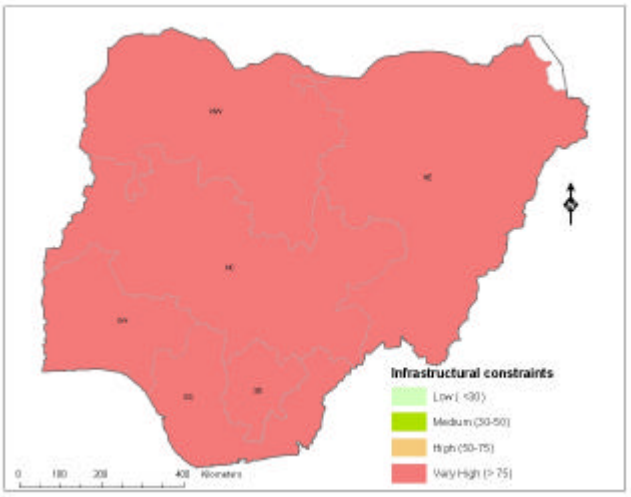


Figure 6.4. Intensity of Infrastructural Constraint Affecting Agriculture by Development Domains of Nigeria

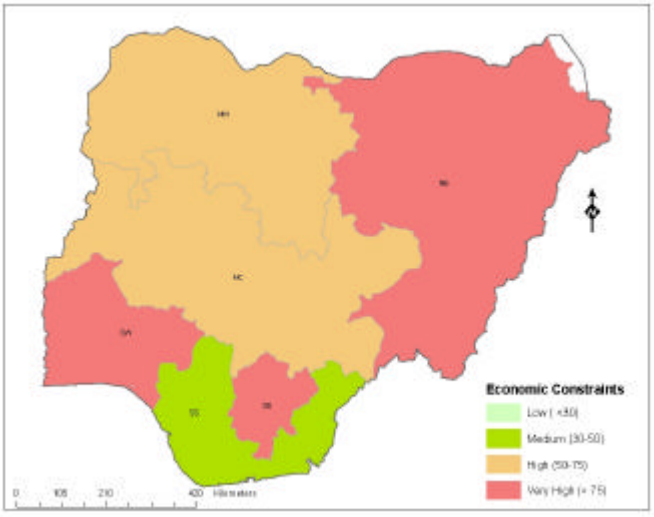


Figure 6.5. Intensity of Economic Constraint Affecting Agriculture by Development Domains of Nigeria

iv). **Financial Constraint**

Financial constraint is the second most important constraint to private investment in Nigeria's agriculture. It has been a perennial problem confronting investors in both the up-stream and down-stream segments of agriculture. The constraint, as attested to by the respondents, is most visible in the southwestern part of the country, while it is not so visible in the South-south. Except in the south-south where only 40 percent of the respondents identified financial constraint as limiting, more than 68 percent of the respondents in the other zones viewed it as impeding investment in agriculture. Overall, the constraint manifests in terms of poor access to credit, and high lending rates. The two combined, along with bureaucratic bottleneck, lead to an inefficient financial market. Because of the small-scale nature of agriculture in Nigeria and its dependent on weather, the respondents identified high risk of lending to the sector as a feature of financial constraint in Nigeria (Figure 6.6).

v). **Political Constraint**

This is one of the constraints that militate against private investment in agriculture. It is ranked as the eighth most critical constraint or problem affecting investment in agriculture in Nigeria. This southeastern part of the country attached a relatively high importance to this factor as 76 percent of the respondents identified it as a critical factor for private investment in agriculture. In descending order of importance, Northwest, northcentral, northeast, southwest and the southsouth, prioritised the constraint as having a critical effect on investment in agriculture. Two macro issues bordering on governance were identified as the main nature of political constraint across the zones. These are political instability and poor governance. Along with the features identified above, the northeast also identified distribution of agricultural facilities on political basis, or on whom you know in government, as another nature of the constraint thereby leading to the diversion of agricultural facilities to unintended beneficiaries. Civil disturbance was an additional element identified by the northwest, while selfish interest was also identified by southwest (Figure 6.7).

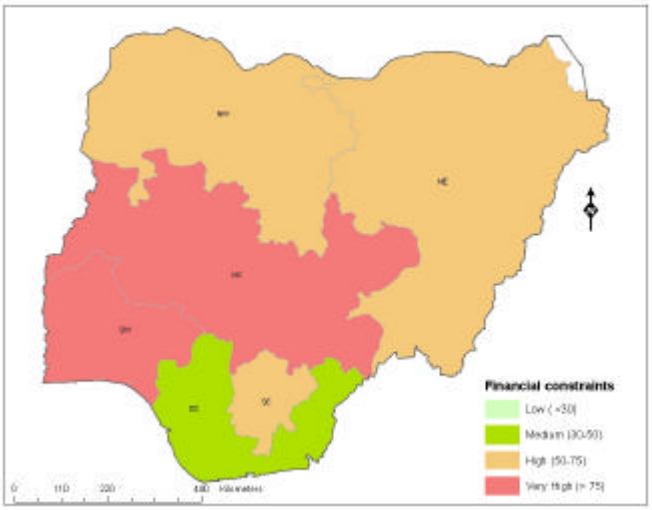


Figure 6.6. Intensity of Financial Constraint Affecting Agriculture by Development Domains of Nigeria

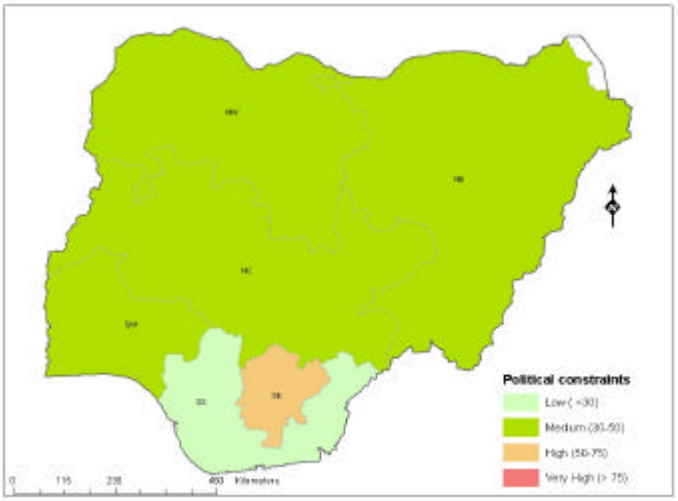


Figure 6.7. Intensity of Political Constraint Affecting Agriculture by Development Domains of Nigeria

vi). **Socio-cultural Constraint**

Socio-cultural constraint is the sixth most important constraint to private sector investment in Nigeria identified by the respondents. However, not many of the respondents identified the problem in the north central and the southsouth where cases of conflicts are more prominent. This may be due to the fact that the two zones have come to terms with living with the problem and have adjusted to the situation. Overall, corruption, insecurity, and ethnic strife/crisis cut across the different zones. The northeast and the northwest zones identified religious strife disguising as ethnic crisis as an additional element of the constraint. The southsouth and the southeast also identified ethnic strife as an element of socio-cultural constraint. This is understandable from the point of view of the southsouth where fights over land and water resources are predominant. The availability of mineral resources, especially crude oil, further compounds this situation. A secondary element of socio-cultural constraint is high crime rate, which is a function of insecurity within the system, and which cuts across the six zones (Figure 6.8).

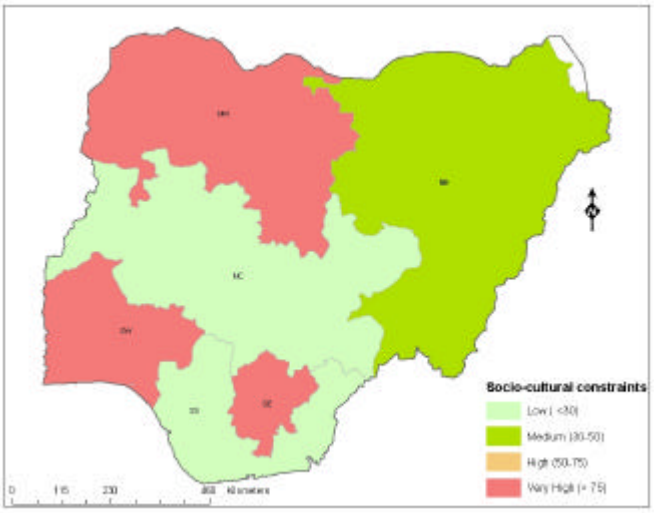


Figure 6.8. Intensity of Socio-cultural Constraint Affecting Agriculture by Development Domains of Nigeria

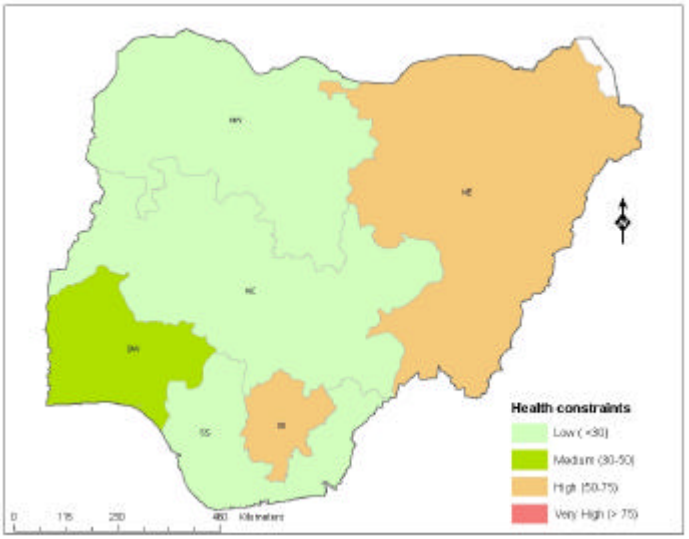


Figure 6.9. Intensity of Health Constraint Affecting Agriculture by Development Domains of Nigeria

vii). **Health Constraint**

Health is another constraining factor to private sector investment in Nigeria. However, judging by the responses across the zones, the northeast and the southeast zones are more affected by this constraint than the other zones of the country. The main elements of the constraint are inadequate health care facilities and the threat of HIV/AIDS and malaria, which cut across the zones. Interestingly, fake or expired drugs were identified as an additional element of health constraint in the southeast zone. This is expected as the bulk of the fake or expired drugs comes from the southeast where the National Agency for Food and Drug Administration and Control (NAFDAC) is currently engaged in a running battle with fake drug dealers (Figure 6.9).

viii) **Macroeconomic Policy Constraint**

The macroeconomic policy climate dictates the environment in which sectoral activities are carried out. This constraint ranks fifth among the constraints to private sector investment in Nigeria's agriculture. The constraint has as its elements high exchange rate, high interest rate, multiple taxation, poor trade policy, and policy inconsistencies. Multiple taxations were reported by the northeastern and northwestern zones as one of the main elements of macroeconomic constraint. This is expected, given the inter-state flow of agricultural commodities, especially staples and livestock products from the northern part of the country to the southern part. Policy inconsistencies have been the bane of Nigeria's macroeconomic policies with a number of policy summersaults. A vivid example is the banning and unbanning of the importation of some agricultural commodities (e.g. rice, livestock products etc.) (Figure 6.10)

ix) **Microeconomic Policy Constraint**

Microeconomic constraint is another factor impeding private sector investment in agriculture. Ranked ninth among the constraints, it is characterized by poor agricultural credit and input policies, poor technological policy and poor storage and processing policies which cut across the zones. A greater proportion of the respondents in the southwest (55%) and the northeast (68%) identified this constraint as limiting to private investment in agriculture. In the other zones of the country less than 40 percent of the respondents claimed that the constraint affects private investment in agriculture (Figure 6.11).

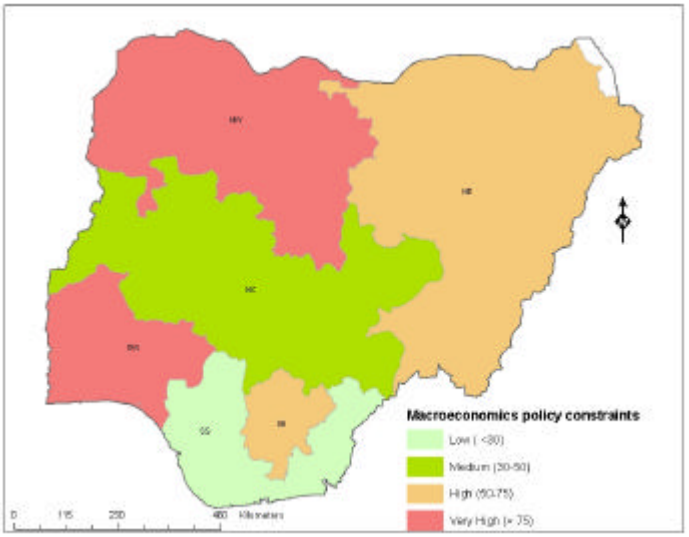


Figure 6.10. Intensity of Macroeconomic Policy Constraint Affecting Agriculture by Development Domains of Nigeria

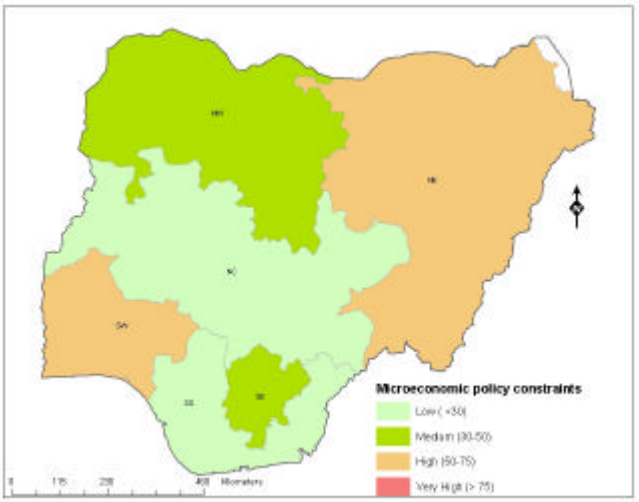


Figure 6.11. Intensity of Microeconomic Policy Constraint Affecting Agriculture by Development Domains of Nigeria

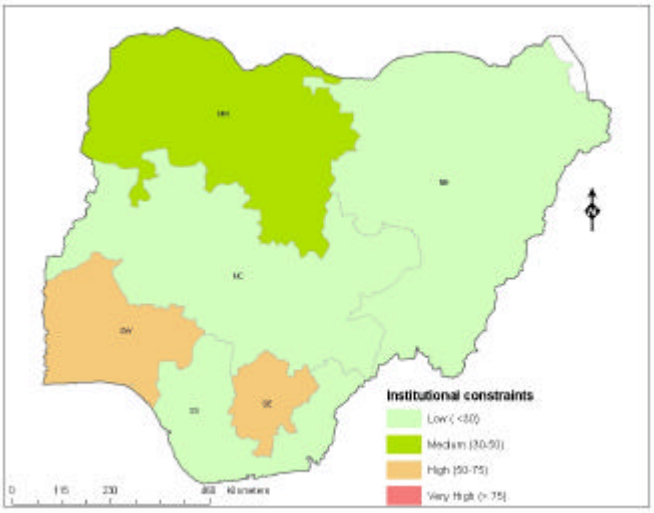


Figure 6.12. Intensity of Institutional Constraint Affecting Agriculture by Development Domains of Nigeria

x). **Institutional Constraint**

Institutional constraint is one of the factors affecting private investment in Nigeria's agriculture. It is ranked eleventh among the critical factors affecting investment in agriculture. The constraint is less severe to agricultural investment in northern Nigeria as shown by the proportion of the respondents (30%) compared to what obtains in the southern (50%) part of Nigeria. However the constraint is most severe in the southeast zone of the country followed by the southwest. The key elements of institutional constraints are ineffective banking services, inefficiency of the public institutions and poor attitude to work by government officials leading to bureaucratic bottleneck. The south-south zone identified discrimination against agriculture by financial institutions in its domain, while the southeast specifically identified inefficient labor and poor saving systems as part of the elements of institutional constraint in the domain (Figure 6.12).

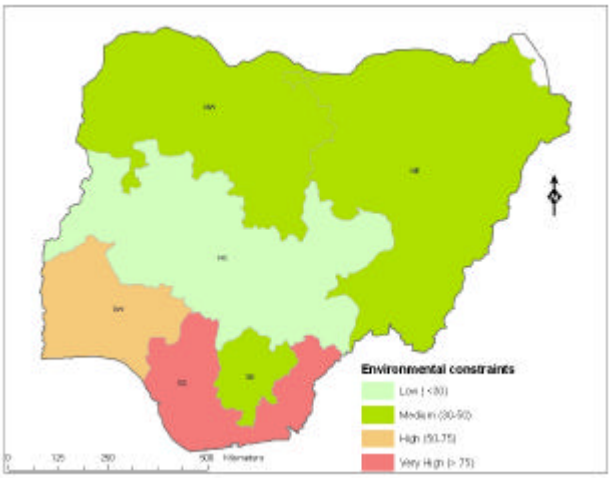


Figure 6.13. Intensity of Environmental Constraint Affecting Agriculture by Development Domains of Nigeria

xi) **Environmental Constraint**

This is ranked seventh among the identified constraints to private sector investment in agriculture in Nigeria. The problem was observed to be more severe in the southern part of the country as up to 80 percent of the respondents identified it, compared with 32 percent in the northern part of the country. The nature of the constraint can be classified broadly into two, namely: environmental regulations and physical environmental degradation. Whereas four of the zones recognized environmental regulations as an element of environmental constraint, each of the zones identified specific nature of the constraint in their area. For instance, in the north central, chemical pollution and deforestation are the main elements, while erosion, drought and pest and disease attack were identified in the northeast. The South-south identified oil spillage and erosion, southeast identified erosion and soil infertility and the southwest identified environmental pollution. Of the four zones, the environmental constraint was the highest in the south-south zone (Figure 6.13).

xii) **Land Tenure Constraint**

Ranked low among the constraints to private sector investment in agriculture, land tenure constraint was the most pronounced in the southeastern part of the country as about 62 percent of the respondents identified it. The problem is least pronounced in the northwest zone of the country where only about 13 percent of the respondents viewed it as constraining private investment in agriculture. In general, the southern parts of the country experience more severe land tenure constraint than the northern parts of the country. This is understandable, given the high population density and the attendant land fragmentation in the southern parts of the country. The various zones identified land fragmentation as a general phenomenon. Specifically the northwest, south-south and the southwest zone identified cumbersome land acquisition process as an element of land tenure constraint, similarly, the northeast, southeast and southwest zones identified insecurity of title to land as an element of the constraint. Additionally, the southeast identified high rate of land rent, while the north central and the southsouth identified fraudulent practices (Figure 6.14). This constraint is also an element of the socio-cultural constraint.

xiii) **Labor Constraint**

This is ranked joint seventh with environmental constraint among the constraints to private sector investment in Nigeria's agriculture. The constraint is least pronounced in the northcentral as it was identified by only about 7 percent of the respondents while it is most pronounced in the Southwest part of the country as it was identified by about 68 percent of the respondents. Overall, labor constraint is more limiting to private investment in agriculture in the southern parts compared with the northern parts of the country. The key elements of labor constraint across the zones are lack of skilled manpower

and high wage rate. Specifically, the southsouth, southeast and the southwest identified inadequate supply of all categories of agricultural labor as an element of labor constraint (Figure 6.15).

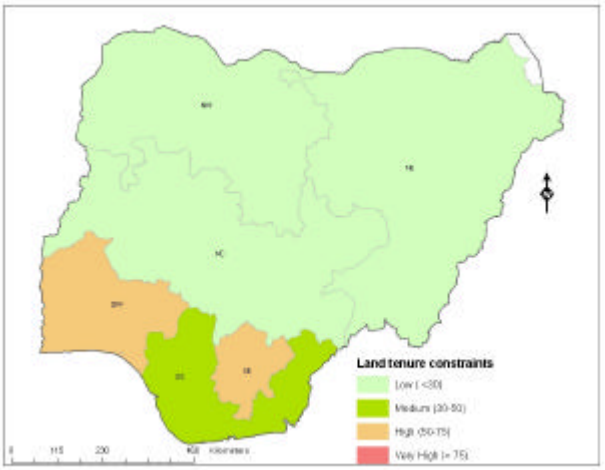


Figure 6.14. Intensity of Land Tenure Constraint Affecting Agriculture by Development Domains of Nigeria

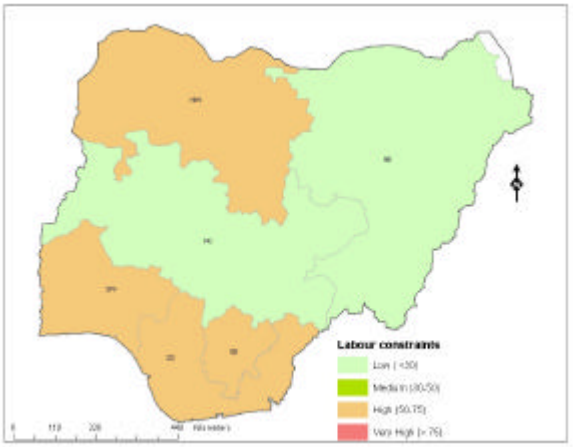


Figure 6.15. Intensity of Labour Constraint Affecting Agriculture by Development Domains of Nigeria

6.4 The Persistence of Constraints to Investment in Nigeria's Agriculture

In the previous section, the taxonomy and the elements of the different constraints were discussed. In this section, attempt will be made to explain the persistence of different constraints to investment in Nigeria within the political economy framework. In this context, we shall discuss the causes/ sources of the persistence of each constraint, and the gainers and losers from these constraints. In broad terms, four main causes or sources of persistence of constraints can be distinguished. First, there are those causes attributable to government. Second, there exist those constraints attributable to the citizenry. The third classification identifies those causes that are economy-wide while the last considers sector specific causes of the persistence of constraints. In general, bad governance, poor leadership, poor

government and corruption can be linked to the government while population increases, poor resource management, ethnic/ religious strife, and insecurity can be attributed to the citizenry. However, there is only a fine distinction in the strands of the classification above, as there exist interlinkages/interrelationships between one group of causes and the others. For instance, bad governance can lead to a second-degree problem of insecurity which then constrains the economy in general and the agricultural sector in particular. In subsequent sub-sections, an attempt is made to evaluate the causes of persistence of constraints as well as the gainers and losers from these constraints. Appendix 6.2 gives an overview of the causes/sources of the persistence of constraints as indicated by the respondents in each of the zones.

6.4.1 Causes and sources of persistence of constraints

The causes/sources of persistence of constraints in Nigeria differ for the different constraints and across the development domains of the country. However, these sources combined provide a framework for explaining the inability of the country to adequately tackle the constraints. They are further elaborated upon s follows.

(i) **Technical Constraint:** The technical constraint in Nigeria affects both the upstream and the down stream segments of agriculture. The constraint manifests in poor technology, poor quality of raw materials and inadequate supply of fertilizer. The main causes of the constraint include low support from government, poor government policy, poverty, low level of awareness, lack of adequate research and increases in the prices of inputs. Poor government support and poor government policy prevent the emergence of innovations from research institutes, thereby curtailing the level of available technically feasible and efficient agricultural practices. Even when they are available, there seem to be communication gaps between farmers (end-users) of research efforts and the researchers. The existence of unified agricultural extension system notwithstanding, there is still poor coordination between researchers, extension agents and farmers. This situation is worsened by the low extension-farmer ratio, which hovers around 1 to 1000. The poverty incidence among farmers, which is the highest in the economy, also contributes to the persistence of technical constraint in Nigeria. Thus, farmers are unable to take up new innovations aimed at boosting their productivity and, by extension, their output. The low level of productivity translates to a vicious cycle of poverty, thereby leading to low level of production. The technical constraint is further sustained by high input prices, which is a consequence of inflation in the economy as well as the dependence of the agricultural economy on foreign inputs. The situation is aggravated by the collapse of the local fertilizer producers namely NAFCON at Onne and National Super Phosphate Plant in Kaduna. Despite the wide recognition of the effect of fertilizer on crop production, farmers do not get this all-important input as at and when required. This is worsened by the existence of unintended beneficiaries who capture the benefits from fertilizer allocation to the farmers, due to their closeness to corridors of power at the expense of poor farmers.

(ii) **Infrastructural Constraint:** The infrastructure constraint has persisted due to government neglect, poor governance, poor political leadership, poor maintenance culture and poor funding. Infrastructure in this instance is construed to include physical infrastructure, such as roads and railway system, educational and health facilities, social services such as potable water and electricity and communication system. In terms of road facilities, the efforts of the Agricultural Development Programs, the Directorate of Foods, Roads and Rural Infrastructure, the National Agricultural Land Development Authority and the Petroleum Trust Fund have not been sustained to ensure good road networks in the rural areas where the bulk of agricultural activities takes place. In addition, the railway system that is expected to provide relief has been comatose for years thereby restricting the movement of agricultural inputs and outputs to the road transport system. The constructed roads do not often last for more than three to five years before they start to crumble due partly to poor maintenance culture. As regards educational and health facilities, these are largely urban-biased. Supply of potable water has not been adequate for a majority of rural dwellers. Electricity supply is often epileptic and communication system is still poor. Although recent expansion of the Global System of Mobile Communication (GSM) infrastructure and Internet services has improved the communication situation somewhat, the services are urban-biased and too expensive for the average people.

(iii) **Economic Constraints:** The persistence of economic constraint is a function of some socio-economic factors. These factors, as identified by respondents, include political instability, poor governance, ineffective government policies, high inflation rate, low investment, and inadequate credit

for agriculture, poor resource management, and corruption. Political instability affects policy continuity and economic climate. It creates undue risks and uncertainties for investors. Furthermore, because agriculture is widely perceived to be a high-risk business, financial intermediaries are highly averse to lending to the sector. Thus, the vicious cycle of low credit flow, low investment, low income to farmers and low savings/investment is responsible for the widespread incidence of poverty among farmers and hence, the persistence of the economic constraint in the agricultural sector.

(iv) **Financial Constraints:** This is a constraint the persistence of which has many economic and social dimensions. Among the factors identified by respondents as being responsible for the persistence of the financial constraint in Nigeria's agricultural sector are ineffective financial policies, inefficient financial market, inadequate financial facilities, low credit supply, high risk of lending, corruption, bureaucracy, unstable exchange rates, poor agricultural funding by governments and low returns from farming.

Poor financial/ credit policies, coupled with ineffective policy implementation, are largely responsible for high interest rates and unstable exchange rates which, in turn, tend to engender the persistence of the financial constraint. The financial constraint also persists due to poor credit supply to agriculture which manifests in the form of banks' reluctance to lend to agriculture. For example, between 1994 and 1998, commercial bank loans and advances to agriculture represented only 12.1 percent of the banks' total loans and advances to the economy. This was in sharp contrast to the 41 percent contribution of agriculture to the GDP.

Also, corruption is an important causal factor for the persistence of the financial constraint. This often takes the form of kickbacks to bank officials. Added to this are the bureaucratic bottlenecks involved in loan procurement and the stringent collateral requirements for loans. Besides, the informal sector that provides the bulk of the credit requirement in agriculture operates at high interest rates.

(v) **Political Constraints:** The persistence of this constraint is a function of poor political leadership, political instability, poor governance and non-participatory governance. In her 43 years of independence, Nigeria has witnessed only 14 years of civilian rule with the remaining years spent under different military regimes. The problem of military incursion into politics started in January 1966 with the coup led by Major General Aguiyi Ironsi. Since then, Nigeria had operated under dictatorial regime that adopted unitary system of government, except from 1979 to 1983 and from 1999 to date. The incursion of the military into power truncated the decentralized development strategy practiced prior to 1966. Hence, the different components of the country could no longer develop at their own pace. Another problem with the military regime was the instability of governance with frequent changes in military regimes. Between 1993 and 1999 alone, there were four regimes. This was clear evidence of political instability which also created an unfavorable investment climate. The long years of military rule also adversely affected broad participation in governance. The non-participation of people in governance has affected the decision-making process, thus constraining agricultural development.

(vi) **Socio-cultural Constraint:** This has been a persistent constraint for a number of reasons that include the heterogeneous nature of the country in terms of religion and ethnic nationalities. There are more than 300 ethnic nationalities in the country. This accounts for variations in attitudes and beliefs. The constraint is aggravated by unemployment, nepotism, corruption, gender discrimination and poverty. In general, the rising level of unemployment amongst the youth makes them willing tools in the hands of troublemakers. This is particularly so in some parts of the country where people hide under the guise of religion to forment trouble. In the Niger-Delta where the bulk of Nigeria's petroleum resources are situated, there are complaints of marginalization and agitations for self-determination. In the middle belt, there is often inter-ethnic strife fueled basically by land disputes. In the southwestern and southeastern parts of the country inter-community strife is also a common occurrence. Such strife is often the consequence of land disputes. The socio-cultural constraint is aggravated by the socio-economic relegation of women .In many, where women are disadvantaged in terms rights of inheritance and land ownership. Poverty is another causative factor for the persistence of the socio-cultural constraint, as poor community members are often willing to engage in civil strife for economic gains.

(vii) **Health Constraint:** This constraint has persisted due to government inaction /neglect, poor leadership, inconsistent policies, lack of good drugs, poor environmental management and poverty. According to respondents, governments have not been alive to their responsibility of providing adequate health care facilities for a majority of Nigerians. Generally, the health care facilities are urban biased leaving the rural populace to depend heavily on natural/traditional medicine. The inaction of government is a consequence of poor leadership and poor health policy. In areas with health care facilities, there is inadequate supply of manpower. Added to this are incessant strike actions by health workers due to poor funding of the health institutions as well as poor salary structure. Generally, adequate attention is not paid to both preventive and curative medicine. Under such an atmosphere, fake medical centers and pharmaceutical companies thrive. There is the widespread production of substandard drugs for human consumption. The situation is precarious in many parts of the country where fake drug dealers freely operate. But for the effort of National Food and Drug Administration and Control (NAFDAC), the problem would have been out of control. Also the strapping of the old sanitary inspector system and non-observance of the usual monthly sanitation exercise have combined to compound the health problems of the country. Highly related to agriculture is the poor health services to farmers in terms of deaths, useful labor days lost due to ill-health and low productivity by farmers.

(viii) **Macro-economic Policy Constraints**: The persistent of the macroeconomic constraint in the country derives from many factors, as identified by respondents. These factors include political instability, policy instability, ineffective policies, poor implementation of policies, and poor coordination of policies. Political instability creates policy instability, as rates of turnover in policies are strongly associated with rate of turnover in governments. Each new regime tends to discard the policies of old regimes only to start instituting its own new set of policies. Related to this are the problems of policy ineffectiveness, poor implementation of policies and poor coordination of policies that derive from political and policy instability. A clear example of policy instability is the frequent banning and unbanning of the importation and exportation of agricultural commodities, especially the frequent banning and unbanning of the importation of some food commodities like rice and wheat. Also notable are the frequent changes in import tariffs that sometimes make imported goods cheaper than their local substitutes, thereby discouraging their local production.

(ix) **Micro Economic Policy Constraints**: The persistence of micro-economic policy constraint derives partly from the macro-economic policy constraint. In addition, there is inadequate attention to micro-economic/sectoral policy issues. When sector-specific policies are instituted, there seems not to be proper synergy between the different sectors of the economy thereby leading to disjointed sectoral policies that are sometimes contradictory or constitute duplications across the sectors. As such, there is lack of coordination of policies aimed at addressing the different segments of the economy. Credit also surfaces as one factor that is responsible for the sustenance of microeconomic policy constraint in agriculture. Generally, in this regard, microeconomic policies that are aimed at addressing credit availability and utilization in the agricultural sector are not very effective.

(x) **Institutional Constraint**: The elements of institutional constraint that make it persistent are related generally to the banking sector. These include inefficient banking services, including cumbersome loan processing procedures. The resultant effect is the long time lag between the loan application and loan approval. In essence loans are not given as at when required thereby causing misapplication of funds. Along with this is the unwholesome activity of those involved in agriculture both at the upstream and the downstream segments. For instance, the activities of the middlemen in the marketing chain though required, are such that lead to marked differences in the farm gate prices and the retail prices. Furthermore, the institutions saddled with the responsibilities of providing input as at when necessary are not very effective in the discharge of their duties. The end result is the untimely delivery of input to farmers, which may not be totally useful for agricultural activities.

(xi) **Environmental Constraint**: The environmental constraint has the consequence of a combination of human activities and natural occurrences. These result in the pollution of the air, land and water. The seriousness of the constraint did not dawn on the country until recently when the Federal Environmental Protection Agency (FEPA) now Federal Ministry of Environment was established. The key causative agent of the persistence of environmental constraint include government inaction, poor

enforcement of environmental laws, lack of awareness on the part of farmers and excessive bureaucracy. Others are sabotage, bad farming practices, poor weather, erosion, obnoxious fishing methods and oil spillage. In particular, the riverine areas of the country are affected by obnoxious fishing methods. Similarly, areas of oil exploration especially in the Niger Delta are affected by oil spillage thereby preventing serious agricultural activities. The agricultural activities affected include fishing and crop farming. In fact, large expanse of land are lost to oil exploration in the Niger Delta. In the southeast, the most constraining factor is soil and land erosion.

(xii) **Land Tenure Constraints**: Land tenure constraint has persisted in the country principally because of rapid growth in population, traditional land tenure system, weak enforcement of land policy and gender discrimination. These factors combined lead to high monetary demand by landowners and the unwillingness of communities to do away with their land. Series of programs introduced, such as the farm settlement scheme, the National Agricultural Land Development Authority and the River Basin Development Authority have not been able to unlock this constraint. In fact, population growth has led to high level of land fragmentation due to it's the fixed nature of land.. The land use decree of 1978 has not also fully addressed the issue, hence, the persistence of land tenure problem. Added to this is the gender discrimination in respect of land holdings, in most communities where women do not have ownership rights over land, although they may have use rights.

(xiii) **Labor Constraints:** Labor constraint in agriculture continues unabated due to rural-urban drift, lack of skilled laborers, poor technology and high wages in other sectors of the economy. Agriculture takes place in the rural areas, which are lacking in infrastructural facilities. The consequence is the movement of able-bodied men out of the rural areas. Similarly, higher wage rates in other sectors of the economy draw away labor from agriculture. The high enrolment rates in schools have also depleted agricultural labor. All these factors aggravate the persistence of the labor constraint.

6.4.2 Gainers and Nature of Gains from the Persistence of Constraints

The persistence of the identified constraints affects various entities in the economy differently. There are gainers and losers from the continued existence of the different constraints. This section identifies the gainers from the constraints as well as the nature of gains. Appendix 6.3 identifies the gainers and the nature of their gains due to the persistence of the different constraints. There are two categories of gainers viz foreigners and Nigerians. At the local level, Nigerian beneficiaries can also be divided into two public officials and private individuals. One common feature of the gainers is that they are well-organized sets of people. At the local level, the gainers are often those saddled with the leadership responsibility both in government and out of government.

The respondents identified public officials as the highest gainers from the persistence of the constraints as they benefit from most of the constraints. These officials include political appointees, policy makers, policy implementers and lower cadre civil servants. They derive benefits ranging from hard currency, receipt of financial kickbacks from suppliers and contractors and nepotism in the award of contracts to their cohorts. Other major gainers from the persistence of the constraints are the politicians and their associates. These derive benefits in terms of contract awards, which in many instances are not executed, and in terms of outright diversion of public funds to personal uses. Local private investors, contractors, marketers, importers, spare part dealers, bankers, financial institutions, middlemen and private lenders also derive benefits from the persistence of some of the constraints. Their gain is mainly financial through the exploitation of the masses by charging exorbitant prices, through smuggling and through the receipt of bribes.

At the foreign level, the main gainers from the persistence of the constraints in Nigeria are foreign investors, foreign suppliers, technical partners and foreigners who take advantage of the unstable economic situation in the country. These groups of gainers import all kinds of goods, evading import tax through bribery. Then, collude with their local counterparts to ensure that efforts to produce or provide these goods and services locally are unsuccessful in order to perpetuate their nefarious activities. Some of the constraints benefit specific groups. For instance, political constraints benefit political thugs and the military. This perhaps explains the frequent change of guard through coups and counter coups. The main benefit to the military derives from the frequent seizure of power and consequent exploitation of the masses. They also use their position to amass wealth. On the other hand, socio-cultural constraint benefits armed robbers, other criminals, touts, and thugs. The land constraint benefits landowners and their intermediaries through excessive charges and multiple sales of lands.

6.4.3. Losers and Nature of Losses from the Persistence of Constraints

Appendix 6.4 provides the list of identified losers from the persistence of the different constraints. In general, the downtrodden masses, including farmers and women are the worst losers. The persistence of each of the constraints affects both women and farmers. In other words, the most vulnerable groups losing from these constraints are the farmers and women. Farmers' losses take the forms of reduced output, low income, loss of assets and reduction in land area available for farming. The consequence is chronic poverty, which is evident from the high incidence of poverty among the people in agriculture. Commodity processors, marketers and entrepreneurs suffer from the persistence of technical, infrastructural, economic, political, health, environmental and land tenure constraints. The nature of the losses due to the technical constraint for example, includes the persistence of local unproductive technology, high processing cost and reduced output. Similarly, the infrastructure constraint imparts losses to entrepreneurs and processors in the form of low capacity utilization, high cost of power generation and reduced output. Political instability tends to send wrong signals to investors thereby constraining the growth of the economy. Here, the economy is the loser. Businessmen, ordinary workers, government, the economy are potential constraints. Their losses are in the forms of high transaction costs, loss of time, loss of business opportunities, loss of revenues to government, loss of potential investment and loss of employment.

6.5 Effects of Constraints on Commercialization and Investment in Nigeria's Agriculture

The identified constraints to commercialization and investment in Nigeria's agriculture contained in section four of this chapter produce some effects. These effects impact on agricultural commercialization, agricultural production, commercialization, processing, storage and transportation. Others include input and output distribution, product utilization, food security, exports and environment. These various activities in the agricultural production process are related. Hence, some of the effects produced on these activities as a result of the constraints to commercialization and investment in Nigeria's agriculture are similar. For example, whatever affects agricultural production automatically affects food security, exports, agricultural processing, storage, transportation and even commercialization among others.

What is contained below is the report of the findings of the effects of constraints on commercialization and investment in Nigeria's agriculture. The information was obtained from the various stakeholders (agribusiness associations, individual investors and other private sector operators in the agricultural sector) interviewed in the survey in each of the defined development domains of Nigeria. The summary of the effects, the constraints causing effects in each zone is presented in Appendix 6.5.

6.5.1 Low Output/Productivity

The low level of production/productivity from agricultural enterprises is a product of all the identified constraints in the previous chapters. In addition, this effect is produced in all the zones of the country.

The technical and financial constraints to commercialization and investment in Nigeria's agriculture have been identified to produce low production in all the six development domains of the country. On the other hand, the health constraint was identified to produce its effect in all the zones of the country except in the southwest. All the southern zones plus the north central on one hand identified land tenure constraints as being responsible for low agricultural production. This is expectedly so as the man-land ratio is higher in the southern part than the Northern part. On the other hand, the southern zone plus the northeast zone identified labor constraint as being responsible. This is because shortage of labor is more pronounced in the south where many have better opportunities to non-farm employment that are easily found in the urban areas.

Three out of the six zones (northeast, northwest and southwest) mentioned microeconomic policy constraint, while the northeast, southsouth, and southwest mentioned infrastructural constraint, and the northwest, southsouth, and southwest mentioned institutional constraints as being the cause of low production in the agriculture sector. But only two zones identified economic constraint (northwest and south-south) and socio-cultural constraint (north central and northwest) as limiting agricultural production in Nigeria. Those zone- specific constraints accounting for the low level of output in Nigeria's agriculture include political and macro-economic policy constraints. These were mentioned in the northcentral and northwest respectively.

From the above analysis, it is evident that low output is a product of all the identified constraints and it is about one of the commonly observed effects of the constraints to investment and commercialization in Nigeria's agriculture.

6.5.2 High Cost of Production

This effect manifests in two forms. One is the high cost of investment and the other is the high cost of acquiring all necessary inputs required in the agricultural sector of the economy. The high cost of production automatically reduces the level of output and may limit commercialization and food security among others. It can also reduce the level of investment in the various sub-sectors of the agricultural industry. All the identified constraints have been perceived to produce this effect, though at varying levels across the zones. Of all the constraints, labor and macroeconomic policy constraints are common to all the zones of the country as causing high cost of production. These are followed by economic constraint, mentioned in all the zones except northeast. The technical, infrastructural, micro-economic policy, environmental and land tenure constraints were mentioned in four of the six zones while only the institutional constraint was identified in three zones of the country. All other constraints (financial, political and socio-cultural) were mentioned in only two zones of the country as causing high cost of production One can conclude that the high cost of production, just as low production, is a common effect produced as a result of the constraints on commercialization and investment in Nigeria's agriculture. This is because, where these constraints have to be unlocked/removed, it is done at extra cost of production. This extra cost, when added to the normal production cost leads to high cost, of production.

6.5.3 Low Returns to Investment

The rate of the return on an investment is a major measure of its attractiveness to investors. Low returns to investment are primarily caused by either very high cost of inputs of production or very low prices for output produced in the production process. Low return to investment was identified as one of the effects of some of the constraints to investment and commercialization in Nigeria's agricultural sector. Some of these constraints are technical, infrastructural, economic, political, and health constraints. Others are macro-economic policy, institutional and land tenure constraints. Four geopolitical zones (north central, northeast, northwest and southeast) mentioned technical and economic constraints as causing low returns to investment. On the other hand, the north central, northwest and southeast zones identified infrastructural constraint while macro-economic policy constraints was identified in the northeast, northwest and the southeast zones as being responsible for low returns to investment. The southwest and north central zones specifically mentioned political constraint as causing low returns to investment. The south-south and northeast zones identified health and environmental constraints respectively as being responsible for low returns to investment while only the southeast zone identified the institutional and land tenure constraints as to the causes of low returns to investment in the agricultural sector of the economy.

6.5.4 Low/Poor Level of Investment

Low level of both domestic and foreign investment in the agricultural sector was identified as one of the effects of the constraints. Low level of investment, apart from being the effect of the constraining factors constraining factors, is also a direct result of low level of savings, which emanates because of low income and low output. According to the respondent groups, nine of the thirteen constraints are responsible for this effect. The northeast, northwest, southeast and southsouth identified micro-economic policy constraints as being responsible for the low level of investment in the agricultural sector. The socio-cultural and political constraints were identified in the northwest and southeast zones as being the cause of the low level of investment in Nigeria's agricultural sector. The financial constraint was mentioned in the southsouth and southwest zones while the macro-economic policy constraints were identified in the north central and northeast as causing poor level of investment. Economic, health, institutional, and land tenure constraints were identified only by the northwest zone as being the cause of the low level of investment in the Nigeria's agricultural sector.

6.5.5 High Price of Agricultural Products

One of the effects of the constraints to investment and commercialization of Nigeria's agriculture is the generally high prices of agricultural products. This problem of high prices of outputs is, however, largely seasonal. Prices are usually high during the off harvest seasons while these are depressingly low during the peak of harvest, due largely to inadequate storage and processing facilities. In the field survey, three constraints (economic, infrastructural and labor) were most frequently mentioned as

producing high prices of agricultural commodities. While the southeast and southwest zones identified economic constraints as being responsible, the north central and the southeast respectively identified infrastructural and labor constraints as being responsible for the high prices of agricultural produce.

The above is understandable because where the cost of production and marketing is high, due to poor Infrastructural and labor constraint, , the prices of the produce should be expected to be high also.

6.5.6 Collapse/Disruption of Businesses

The collapse of a business or its abandonment or disruption is one of the consequences of the constraints militating against commercialization and investment in the agricultural sector of Nigeria's economy. The respondent groups/associations across the length and breadth of Nigeria identified six constraints as being responsible for the collapse or disruption of business ventures in the agricultural sector. The south-south and southeast zones jointly mentioned the socio-cultural constraint as being responsible for this effect. The north central zone mentioned the technical and financial constraints as causing the collapse/disruption of business while the northeast zone identified both the institutional and political constraints as the cause of business failure. The economic constraint was however identified by only the south-south zone as causing the collapse or disruption of businesses.

In an economy where there are high crime rates, fraud, poor technology, non-availability of improved technology, shortage of raw materials, poor access to market, inefficient financial markets and policy instability, among others make widespread collapse of businesses inevitable.

6.5.7 Insufficient Working Capital

The capital required for the day-to-day running of any business, including agricultural ones, can either be from the owners or from non-owners of the business or both. Inadequacy of working capital is often a result of inadequate or poor access to credit and the inability to earn sufficient income and save adequately for investment. In addition, poor macroeconomic policy environment could also cause an inadequacy of capital for investment.

The institutional constraint was highly ranked as producing insufficient working capital by the respondent groups in the northeast, northwest, southeast and southsouth. Closely ranked to the institutional constraint is the financial constraint. This was identified in the north central, northeast and southeast as being responsible for insufficient working capital. But, only the southwest zone recognized the macro-economic policy constraint is being responsible for inadequate working capital among farmers in Nigeria.

6.5.8 Low Capacity Utilization

Whenever the installed capacity of an asset is not being optimally used there is an under utilization of capacity. Low capacity utilization is an effect produced as a result of some constraints militating against investment and commercialization in the agricultural sector of Nigeria's economy. Financial and economic constraints were, respectively identified in the Southwest and Southeast zones of the country as the cause of under utilization of capacity in Nigeria's agriculture. Other zones did not see low capacity utilization in agriculture as a major effect of the various constraints

6.5.9 Poor Investment Climate

Apart from the fact that low level of investment is one of the major effects of the identified constraints, another effect is unfavorable investment climate which acts to discourage investors. Three constraints were identified as producing poor investment climate in Nigeria. Respondent groups in the southwest and north central zones of the country mentioned socio-cultural constraint, while political constraint was identified in the North central zone and macro-economic policy constraint was mentioned in the south-south zone as being responsible for the poor investment climate in Nigeria.

Political constraints manifests in the form of political instability that has such grave consequences as policy instability, frequent political crises and violence. In addition, the socio-cultural constraint manifests in the form of fraud and corruption, high crime rate, insecurity, etc. Macro-economic policy constraint manifests in form of unfavorable tax, interest rate and low income. All these in one way or the other lead to a poor climate for investment thereby discouraging investors from putting their money in investments in the agricultural sector of the economy.

6.5.10 Loss of products

One very important consequence of the constraints militating against investment and commercialization of the Nigeria's agriculture is the high losses of products due to poor storage, poor processing facilities, and/or poor transportation system in the country. Quite a substantial percentage of Nigeria's agricultural produce is lost annually due to these marketing problems brought about by the inter-play of some constraints to investment and commercialization in Nigeria's agriculture.

Respondent groups have identified technical constraints as being responsible for the loss of produce in the north central, northeast and northwest and the southwest. The north central and southwest zones identified infrastructural constrain, while only the North central zone recognized institutional constraint as being responsible for the high loss of agricultural produce.

The technical constraint manifests in lack of spare parts, poor managerial skill, non-availability of improved technology Bad roads, epileptic power supply, and inadequate storage, processing and marketing facilities are some manifestations of the infrastructural constraint**.**

6.5.11 Poor Quality of Products

The chief factor responsible for poor quality of products is the infrastructural constraint as identified in the northeast, northwest and southeast zones of Nigeria. The southwest zone identified both the economic and micro-economic policy constraints as being responsible for poor quality of products while the southeast zone alone identified the financial constraint as the cause of poor product quality. The poor quality of a product can be the result of inadequate processing and storage infrastructure inefficient marketing system or poor technology.

6.5.12 Poor Economic Growth

Economic growth is one of the measures of the performance of an economy. Poor economic growth is one of the combined effects produced by the various constraints to investment and commercialization agriculture. In the survey of respondent groups, the southeast zone identified macro-economic policy constraint, while the north central zone identified financial, micro-economic policy and institutional constraints as being responsible for the poor rate of economic growth. But the political constraints, manifesting in form of political and policy instability, was mentioned identified in the north central, northeast and southeast, as being responsible for the stagnation of the economy.

Agriculture is a dominant sector of the Nigerian economy. Any constraints that impede investment and commercialization in the sector will adversely affect the growth of the national economy. Not minding the fact that oil has continued to dominate the economy's source of revenue, the contribution of agriculture to the gross domestic product is still the largest.

6.5.13 Loss of Invested Fund

The loss of invested funding the agricultural sector has been recognized as one of the consequences of the various constraints to investment and commercialization of agriculture in Nigeria. The respondent groups in the south-south cited macro-economic policy constraint while those in the north central zone mentioned financial constraint as leading to loss of funds invested. On the other hand, the micro-economic policy and institutional constraints were cited by the Southwest zone as being responsible for the loss of invested fund in the sector. The element of financial constraint that is largely responsible for this effect is inefficient financial market while adverse macroeconomic policies (high interest and unstable exchange rate) are also contributory factors.

6.5.14 Loss of Life

Apart from financial losses, lives are also lost due to the persistence of some of these constraints. Two constraints were particularly cited. These are the political constraints in the southwest and the health constraints in the north central and northwest zones. Political constraint in form of political violence and crises and health constraint in form of inadequate health care facilities and prevalence of malaria and HIV/AIDS have led to loss of lives in the country in general and the rural sector in particular

6.5.15 Loss of Asset or Property

Loss of property can be through destruction by man or other agents, through theft or through inability to replace obsolete assets. The persistence of some constraints to commercialization and investment in Nigeria's agriculture has led to the loss of valuable assets, tangible and intangible. One of the

constraints mentioned as causing the loss of property is the political constraint in the southwest zone. On the other hand, socio-cultural constraint was cited by the northeast as leading to loss of assets. Political violence and crises, insecurity, high crime rate, ethnic and religious strife etc. are the elements of both political and socio-cultural constraints causing property loss in the country.

6.5.16 Loss of Confidence in the Economy

The extent of confidence that investors have in the economy tends to decrease as the constraints to investment and commercialization in the agricultural sector persists. Three constraints were identified as causing the loss of confidence by investors in the economy. The south-south zone of the country recognized both infrastructural and socio-cultural constraints as causing the loss of confidence in the economy while financial constraint was mentioned as the cause of loss of confidence in the economy in the southeast. An economy that is able to provide good road networks, adequate power supply and other utilities, efficient financial market that is devoid of high lending risk, low crime rate and no religious and ethnic strife will promote the confidence of investors in the economy.

6.5.17 High Marketing Cost

One of the effects of the persistence of the constraints to investment and commercialization in Nigeria's agriculture is the high marketing cost of agricultural products. According to the respondents sampled, two main constraints were largely responsible. These are infrastructural and macro-economic policy constraints. The elements of infrastructural constraint causing high marketing cost include bad roads and inadequate utilities, inadequate processing and storage facilities, and epileptic power supply, while unfavorable wage and income policies, import/export tariff, high and unstable interest rates regimes etc. are the elements of the macro-economic policy constraint likely to be responsible for high marketing cost.

6.5.18 High Transportation Cost

Transportation cost is one of the components of marketing cost. It is also one of the effects of the various constraints to investment and commercialization in Nigeria's agriculture. This effect was identified in the southeast and south-south zones of the country where there is a serious land degradation problem. In the south-south zone, infrastructural constraint, manifesting in the form of bad road network and inadequate transportation facilities lead to high transportation cost of agricultural inputs and. In addition, the Southeast zone recognized environmental constraint as a major factor responsible for the high cost of transportation in the zone.

6.5.19 Excessive Importation/Dumping of Fake and Substandard Products

The type and quality of food commodities imported into a country roughly determine the extent of self-reliance of the country. Excessive reliance on imported agricultural products is a major consequence of some of the constraints militating against investment and commercialization in the agricultural sector of the economy. This excessive taste for imported commodities often leads to the dumping of fake/substandard and even dangerous products in the country. According to respondents, two constraints were largely responsible for excessive commodity importation. One is the technical constraint mentioned in the southeast zone and the other is the infrastructural constraint identified in the northwest zone.

The technical constraint manifests in form of non-availability of improved technology, shortage of inputs, poor market access, poor managerial skill, and poor quality products. Infrastructural constraint on the other hand, manifests in lack of physical, social and institutional infrastructure. These combined together, will lead to inadequate local production of food leading to excessive food importation to meet local demand. Another causal constraint is social, whereby those who benefit from the country's import dependency discourage local production in order to make continued importation inevitable.

6.5.20 Uncompetitiveness of Product in the World Market

Uncompetitiveness of Nigeria's agricultural products in the international market leads poor demand for the country's products in the international market. This uncompetitive nature of products in the international market is one of the consequences of the economic constraint, which is reflected in high cost of production, high cost of marketing and poor quality of products.

6.5.21 Drudgery of farming

The non-availability of improved/modern technologies of agricultural production, which are time and energy saving, is one of the main components of the technical constraint. Only the northeast zone recognized this constraint as causing drudgery among farmers. This problem of drudgery is still a common feature of Nigeria's agriculture due to the use of rudimentary tools. And it is one of the consequences of the persistence of the technical constraints to investment and commercialization of Nigeria's agriculture. Unlocking these constraints to investment will lead to an increased use of modern technologies that will reduce the drudgery in farming.

6.5.22 Insecurity/Violence

As a result of the persistence of constraints to investment and commercialization in Nigeria's agriculture, some effects that are external to the sector are normally produced. Insecurity/violence is one of these and it may lead to loss of lives and property. From the survey conducted, both the northeast and northwest zones identified two constraints as being responsible for insecurity and/or violence. These are political and socio-cultural constraints. The elements of the political and socio-cultural constraints that are likely to cause insecurity and violence include frequent political crises high crime rate, ethnic strife, religious strife and fraud (419), among others.

6.5.23 Poverty and Suffering

The lack of basic needs necessary for decent living which leads to general suffering is one of the outcomes of the constraints to investment and commercialization in Nigeria's agriculture. Food, which is basic to human survival, is sourced from agriculture, and anything impeding investment and commercialization in the sector will not allow agriculture to perform its role of providing adequate food for the population

Only the respondent groups in the southsouth identified technical, infrastructural, political and micro-economic constraints as being responsible for poverty and suffering in the country. The elements of the technical constraints that are likely to be responsible for these are poor/non-availability of improved technology, poor quality of inputs, poor access to market, shortage of inputs and poor managerial skill. The lack of good road network, stable power supply, storage and processing facilities are elements of the infrastructural constraints that are likely to be responsible for these effects. In addition, instability of government policies, as a result of political instability, poor governance is an element of the political constraints that is responsible for this effect. Finally, the element of micro-economic policy constraint that is likely to produce these effects is the poor agricultural credit supply system.

6.5.24 Capital Flight

The transfer to other economies of the world of investment funds from the Nigerian agriculture is one of the outcomes of the constraints militating against investment and commercialization in Nigeria's agriculture. This outcome (capital flight) is not limited to the foreign capital alone as domestic capital is also disinvested from agriculture. This is largely the effect of political and economic instability that leads to unfavourable and insecure investment climate

6.5.25 Sickness/Poor Health Condition

The persistence of some constraints to investment and commercialization of the agricultural sector have been noted to cause poor health or serious health hazards in people living in some areas. Respondent groups in the northeast, southeast, south-south and southwest zones of the country attribute some of this sickness or poor health condition to the persistence of health constraints while those in the north central zone of the country attribute this effect to the persistence of the environmental constraint. The basic elements of the health constraint are inadequate health care facilities and high cost of healthcare to the people. On the other hand, poor environmental sanitation and, unsafe disposal of human and animal wastes constitute some of the elements of the environmental constraint producing poor health condition.

6.5.26 Destruction of Natural Production Resources and Loss of Biodiversity

The destruction of the natural resources that support to agricultural production is one of the consequences of serious environmental degradation especially soil erosion, deforestation, desertification, and oil spillage All the zones of the country except, the north central identified the persistence of environmental constraint as being directly responsible for the destruction of these natural resources. Also, the northeast zone identified the overexploitation of the living natural resources (e.g.

fauna and flora) as main cause of the loss of biodiversity and the extinction of some useful plants and animals.

CHAPTER SEVEN
INVESTMENT OPTIONS IN NIGERIA'S AGRICULTURE

7.1. Attractiveness of Agricultural Enterprises to Private Investors

Investors are always willing to put their money in attractive enterprises. In Nigeria's agriculture, thirteen such main areas of investment have been identified in the course of this study. These are: input production and supply enterprises, staple food crops production enterprise, industrial crops production enterprises, livestock production enterprises, fisheries enterprises, forestry enterprises, and commodity processing and storage enterprises. Others are agricultural commodity marketing, agro-industry/manufacturing, agricultural commodity export and agricultural support services. Table 7.1 indicates the relative attractiveness of these enterprises to both foreign and local investors across the zones. A summary of the views of the respondents in the different zones reveals that foreign investors will be attracted to activities/enterprises that are capital-intensive and that add value to primary output. In this connection, downstream activities are relatively more attractive to foreign investors. On the other hand, primary/upstream enterprises and agro-services are relatively more attractive to local investors. In addition, the relative attractiveness of the different enterprises is indicative of the comparative advantage conferred on each of the zones by their agro-ecological conditions.

Activities that are infrastructure-related are not highly favored by private investors as they are seen as belonging to government domain (i.e. public goods). The general inference is that agricultural enterprises in Nigeria are fairly attractive to domestic investors while they are less attractive to foreign investors. Nine out of the thirteen enterprises are hardly attractive to foreign investors while three are fairly attractive. The remaining one is weakly attractive. Following from this, it can be inferred that foreign investors will be much more interested in input production/supply enterprises and commodity processing and agro-industry/manufacturing enterprises, all of which are downstream activities and are highly capital intensive. Domestic investors will be willing to invest in input production and supply, agricultural production enterprises, commodity processing, commodity marketing, and agro-industry/manufacturing. It follows, therefore, that both upstream and downstream agricultural enterprises are fairly attractive to domestic investors. This is probably explained by the advantages of backward and forward integration that exist between the upstream and downstream activities. Hence, domestic investors can take advantage of this interrelationship to enhance returns from their investment portfolio.

In terms of the relative attractiveness of agricultural enterprises across the zones, there exist different areas of emphasis as can be seen in the table. In the north-central zone, there are three fairly attractive and three very attractive enterprises. The fairly attractive enterprises to foreign investors are input production and supply enterprises, commodity processing enterprises and commodity marketing enterprises. Similarly, the enterprises of strongest attraction are industrial crops production, forestry, and agro-industry/manufacturing enterprises. On the other hand, staple crop production is not at all attractive for foreign investment while investments in livestock production and agricultural transport service are only weakly attractive.

The investment climate in the north-central zone is fairly attractive to local investors. The key enterprises that offer some attraction to domestic investors in this zone are staple crops production, industrial crops production, forestry, commodity processing, commodity marketing and agro-industry/manufacturing. In contrast, agricultural transport service and other agricultural support services are weakly attractive areas to domestic investors in the north-central zone.

In the northeast zone, seven agricultural enterprises have the potential to attract investment from foreign investors. These enterprises are agricultural input production/supply, livestock production, agricultural commodity processing, agricultural storage, agro-industry/manufacturing, agricultural commodity export and agricultural support services. However, industrial crops production enterprises are weakly attractive to foreign investors. At the domestic investors level, there are nine enterprises that are attractive for investment. In particular, input production/supply and provision of support services are very attractive for local investment. Further, industrial crops production and agricultural transport are fairly attractive areas of investment to domestic investors.

The investment climate in the northwest zone is attractive to foreign investors and fairly attractive to domestic investors. Three areas of fair attractiveness to foreign investors are input production/supply, commodity processing, and agro-processing/manufacturing. However, five areas are identified as being

weakly attractive for foreign investment. These are staple crops production, forestry, agricultural storage, agricultural transportation and commodity marketing. In the case of domestic investors, ten enterprises are identified to be fairly or very attractive for investment. The most attractive enterprises include input production/supply, staple crops production, commodity processing, commodity marketing and agro-industry/manufacturing. The fairly attractive enterprises are industrial crops production, livestock production, fisheries, agricultural transport and commodity export. Forestry enterprises are adjudged to be weakly attractive for domestic investment.

In the southeast zone, the investment climate is fairly attractive for both foreign and domestic investors. There are four fairly attractive enterprises for foreign investment in this zone. These are input production/supply, industrial crops production, and commodity processing and agro industry/manufacturing. Three enterprises are considered to be weakly attractive for foreign investment, viz: fisheries, agricultural storage and agricultural transport service. The local investors can invest in six enterprises, which are rated to be fairly attractive. These are staple crops production, industrial crops production, livestock production, commodity processing, commodity marketing, and agro-industry/manufacturing. An enterprise with weak attractiveness to domestic investors in the southeast zone is forestry.

The south-south zone of the country identified eight and three enterprises that are fairly attractive to foreign and domestic investors respectively. On the other hand, one enterprise was said to be weakly attractive to foreign investors compared with two identified for domestic investors. The fairly attractive enterprises for foreign investment include input production/supply, staple crops production, livestock production, fisheries, commodity processing, agricultural storage, agro industry/manufacturing and commodity export. The weakly attractive enterprises for foreign investment in the zone are those on agricultural support services. The domestic investors would find investment in staple crops production; livestock production and commodity export attractive. They would, however, not find investment in forestry and support services attractive.

Four enterprises are fairly attractive to foreign investors in the southwestern zone while five are in the same category for domestic investors. The foreign investors will be fairly attracted to investment in industrial crops production, forestry, commodity processing and commodity export. Similarly, local investors will be fairly attracted to staple crops production, industrial crops production, fisheries, forestry and commodity processing enterprises.

The reasons for the attractiveness or otherwise of the different enterprises are given in tables 7.2 and 7.3. While Appendix 7.1 gives reasons for the attractiveness of the enterprises to foreign investors, Appendix 7.2 gives the reasons for the attractiveness of the enterprises to domestic investors. Across the zones and enterprises, three main reasons stand out for the attractiveness of the enterprises to foreign investors. These are high level of demand, availability of raw materials/inputs and high rate of returns. All of these indicate economic viability of the different enterprises. There are, however, specific reasons for the attractiveness of the enterprises across the zones. For instance, lack of competing local investors is identified in the northeast as one of the reasons for the attractiveness of commodity processing to foreign investors. Similarly, poor infrastructure and high perishability of agricultural commodities are considered to be incentives for foreign investment in agricultural commodity storage.

The three main incentives for domestic investment are high demand, high rate of return and availability of raw materials. However, huge capital requirement is a disincentive for domestic investors' involvement in input production/supply enterprises and agricultural commodity processing enterprises. Similarly, land fragmentation is a major disincentive for domestic investors' participation in forestry enterprises in both the southeast and the southsouth. In sum, the potentials for domestic and foreign investment in different agricultural enterprises in the different zones of Nigeria are high, in view of the large population size of the country, the availability of abundant resources/raw materials and the opportunity to earn good returns from investment. Hence, any efforts put into removing the identified constraints to investment in Nigeria will go a long way in stimulating the flow of investment into the agricultural sector.

Table 7.1. Attractiveness of Agricultural Enterprises to Foreign and Domestic Private Investors by Zones

	INDUSTRY/ENTERPRISES	NC		NE		NW		SS		SE		SW		NIGERIA	
		FRN	DMT	FRN	DMT	FRN	DMT	FRN	DMT	FRN	DMT	FRN	DMT	FRN	DMT
i	Input production/ Supply enterprises	4	3	4	5	4	5	4	3	4	3	3	3	4	4
ii	Staple crops production enterprises	1	4	3	3	2	5	4	4	3	4	3	4	3	4
iii	Industrial crops production enterprises	5	4	2	4	3	4	3	3	4	4	4	4	3	4
iv	Livestock production enterprises	2	3	4	4	3	4	4	4	3	4	3	3	3	4
v	Fisheries	3	3	3	4	3	4	4	3	2	3	3	4	3	4
vi	Forestry	5	4	3	3	2	2	3	2	3	2	4	4	3	3
vii	Commodity processing	4	4	4	4	4	5	4	3	4	4	4	4	4	4
viii	Agricultural storage	3	3	4	3	2	3	4	3	2	3	3	3	3	3
ix	Agricultural transport	2	2	3	4	2	4	3	3	2	3	3	3	2	3
x	Commodity marketing	4	4	3	4	2	5	3	3	3	4	3	3	3	4
xi	Agro-industry/ manufacturing	5	4	4	4	4	5	4	3	4	4	3	3	4	4
xii	Commodity export	3	3	4	3	3	4	4	4	3	3	4	3	3	3
xiii	Support average	3	2	4	5	3	3	2	2	3	3	3	3	3	3
	Overall average	3	3	4	4	3	4	4	3	3	3	3	3	3	4

FRN = Foreign; DMT = Domestic
Ranking: 1 = not attractive; 2 = weekly attractive; 3 = attractive; 4 = fairly attractive; 5 = very attractive
Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Source: Field Survey, February/March, 2003.

7.2 Priority Commodities for Investment in Nigeria's Agriculture

7.2.1 Agricultural Commodities of Comparative Advantage in Nigeria

This section presents those agricultural commodities in which Nigeria is perceived to have comparative advantage in the domestic regional or world market. It also identifies factors responsible for the competitive advantage that Nigeria currently enjoys in those commodities and, finally, discusses those policies, programs or institutions to be adopted by the government and the private sector in order to strengthen Nigeria's comparative advantage in these commodities in the world market.

7.2.1.1 Agricultural Commodities of Comparative Advantage

The agricultural commodities in which the different zones have comparative advantage in the domestic regional or world market have been divided into two groups. One such area comprises unprocessed commodities, and the other comprises of processed commodities. For the unprocessed commodities, field survey results summarized in Table 7.2 show that the southern zones have comparative advantage in the production of palm produce, cocoa, yam, cocoyam, and some other tree crop commodities plus timber. The northeast and northwest have their comparative advantage in the production of cotton, gum Arabic, vegetables (tomatoes, pepper, onion, etc.), cereals and legumes. The northcentral is a transitional zone between the northern and southern zones. Hence, it has comparative advantage in the production of some commodities that are produced in the north and the south. These include soybean, yam, cassava, groundnut, maize, palm produce, citrus, cashew, etc. Although most of the commodities can be produced with comparative advantage in more than one zone, there are also some commodities that are specific to only one or two zones. Good examples of these are crayfish and shrimps in the south-south zone and shrimps in the southwest.

Table 7.2. Agricultural Commodities in which Development Domains have Comparative Advantage in the Domestic, Regional or World Market by zones

Zone	Unprocessed	Processed
North Central	Soybean, yam, cassava, benniseed, groundnuts, neem, fruits, honey, mango, cashew, palm kernel, maize, citrus.	Soya oil and meal, canned fruits, orange juice, vegetable oil.
North East	Vegetable production (tomatoes, pepper, onion etc); oil seeds production (groundnuts); Gum Arabic production, cotton.	Vegetable processing (tomatoes, pepper, onion etc); cotton lint; Gum Arabic products.
North West	Ginger, tomatoes, cotton, sorghum, groundnut, garlic, gum Arabic, soybean, sesame, cowpea and wheat.	Textiles, beer, groundnut oil, hides & skin, tomato paste, resin, leather
South East	Oil palm, cassava, yam, rice, poultry, coco yam, plantain, banana, vegetables, ginger, timber, cashew nuts, cocoa, maize, melon, rubber and copra.	Palm oil, cassava chips/garri, yam flour, fruit juice, canned fish, cocoyam chips, plantain chips, vegetable oil, cassava flour, honey, plantain flour, rubber products, cashew products and kola nuts.
South South	Cocoa, palm fruit, rubber, timber, non-timber forest products, cassava, fish, crayfish and shrimps.	Cassava chips, palm oil, latex, cassava toasted granules (garri), cocoa powder and chocolate and palm kernel oil and cake.
South West	Cassava, palm produce, cocoa, timber, oil palm, fish and shrimps.	Fish and shrimps, yam, timber, cassava, cocoa cake.

Source: Field Survey, February/March, 2003.

The processed products in which the zones have comparative advantage are derived from the unprocessed commodities listed above. In the northcentral, there are orange juice, vegetable oil, soy oil and meal, and so on. In the northeast and northwest, processed commodities in which there is comparative advantage include processed vegetables, cotton lint, textile, and hides and skin, among others. In the southern zones, processed commodities that are commonly produced across these zones include cassava products such as 'garri', 'fufu', and 'elubo', and cassava chips. Those commodities that are specific to the southeast include yam flour, rubber products, cassava products, plantain chips,

etc. Those specific to the south-south zone include cocoa powder and chocolate, and rubber latex. The southwest zone has, among others, timber, cocoa products and cassava products.

7.2.1.2 Reasons for the Comparative Advantage

The reasons cited for the comparative advantage of the various zones in the various commodities were categorized into those for processed and unprocessed commodities as shown in Table 7.3. The only reason that cuts across the zones and the commodities is that of the natural resource endowment. Each zone attributed their comparative advantage to the availability of resources required in the production of the unprocessed commodities and the availability of suitable agro-climatic environment for their production. Besides this, the northeast zone mentioned that high demand for the products, availability of infrastructure and high rate of returns on investment were responsible for its competitive advantage. In the north-central zone, relatively low cost of production and large local production base conferred on it the comparative advantage. The northwest zone, as seen in Table 7.3, identified the availability of irrigation facility and cheap labor as factors accounting for its comparative advantage. The Southeast zone recognized good high resource productivity, skilled labor, low cost of production and the relatively large production base for the crops as the reasons responsible for its comparative advantage in the production of those unprocessed commodities. The good quality of soil was one of other reasons mentioned in the south-south zone, while good quality product was one of the reasons identified by the respondent groups in the southwest as being responsible for their comparative advantage.

Table 7.3. Factors Accounting for Development Domains' Comparative Advantage in the Domestic, Regional or World Market

Zone	Unprocessed	Processed
North Central	Low cost of production, availability of resources- land and cheap labor, highest producer in the zone, large production, favorable climate.	High quality of the products in the world market, market availability, high capacity utilization, high quality raw materials.
North East	Availability of raw materials (resources endowments), high demand for the products, availability of infrastructure, availability of skilled man power, high rate of return on investment, suitable soil and climate, availability of labor and large market.	Availability of labor, high demand for products, availability of raw materials.
North West	Good quality and fertile soil, irrigation facility, suitable climate, cheap labor and its availability, natural resource endowment, high economic value.	Raw material availability, large domestic market, high productivity of resources, availability of skilled labor, natural resource endowment.
South East	Good soil/ high fertility, enabling climatic condition, availability of inputs, cheap labor, low cost of production, relative abundance of the crop, ecology of the area, high productivity, experienced labor availability, natural endowment.	Cheap labor, good climate, availability of raw material, low production cost, skilled man power availability, technological advancement, availability of large number of milled rice and high consumption level.
South South	Natural resource endowment, large forest resource, high demand by expatraites and good quality land/ soil.	Good raw material base, high output of raw materials, resources endowment, skilled manpower and good quality production especially their genetic makeup e.g. flower, odour etc.
South West	Favourable agro-climatic environment , soil type, favourable vegetation, and high quality cocoa.	Availability of raw materials, increased productivity, high returns, and materials not fully utilized. High demand.

Source: Field Survey, February/March, 2003.

The common reasons cited for the comparative advantage of the zones in the production of processed agricultural commodities included the availability of raw materials, high output/productivity and good quality products in the zones. But in the southeast zone, the availability of advanced technology for processing and large market were cited while the south-south identified good genetic make-up of crops, manifesting in the pleasant odor and flavor of the processed products, as being responsible for its comparative advantage.

7.2.2 Stakeholders' Perspective on Priority Commodities for Investment in Agriculture in Nigeria

The investment options available in the different ecological zones of the country, as identified by respondents during the field survey, are presented details in Appendices 7.3 and 7.4. The respondents used six main criteria to identify these investment options. These are natural resources availability (endowment), availability of good infrastructure, availability of skilled manpower and capital, and high productivity of resources. Other criteria are large market or high demand for products and high rate of returns on investment.

The figures in the tables show the ranking of the investment options across the zones in descending order of importance under the different commodity groups. From the table, it is observed that four key staple crops rank high for investment across the zones. These are maize, cassava, yam and rice in that descending order of importance across the zones. There are, however, some staple crops that are specific to the northern zones. These commodities include cowpea, millet and sorghum. The southeastern part of the country also specifically identified sweet potato, cocoyam and melon as staple crops with good investment potentials. In the southsouth, plantain was identified as an important area of investment option.

As regards industrial crops, investments in oil palm and vegetables cut across the zones as viable investment options. In the north-central zone, soybeans, groundnut and benniseed are the specific crops identified for investment. Cotton is an investment option identified only in the northeast. The northwest identified ginger and gum Arabic as the specific industrial crops for investment in the zone. Cocoa, cashew and citrus were industrial crops identified for investment in the south. The livestock products with investment potentials across the zones are cattle, sheep, goat, piggery, and poultry. Fish catch and aquaculture are areas of investment in fisheries. However, the southsouth also has crayfish and shrimps as potential areas of investment. In the forestry sub-sector, timber products are viable investment options in four of the six zones. Other primary commodities identified for investment include apiary (bee keeping).

At the secondary production level, the agro-industries with some investment potential in at least three zones of the country are those for cassava processing, vegetable oil processing, fruit processing and flour milling. Tannery is specific to the north while rubber processing is common to both southeast and southsouth. In the case of commodity storage, the areas of investment potentials are grain storage, cold storage and root and tuber storage. Commodity processing has flour milling, cocoa processing, and livestock feed milling as common options to at least three of the zones. Sugar and confectioneries are common to the northwest and northeast zones while cotton ginnery is an investment option for the northeast. Investment in agricultural commodity marketing has its focus on root and tuber products marketing, grain marketing, vegetable marketing and rice marketing across the zones. Agricultural input production investment options in a descending order of importance, are fertilizer plant, improved seeds, farm implements, agro-chemicals, day-old chick/fingerlings production and animal feed production.

By and large, the investment options in the different zones reflect the agro-ecological advantages of each zone, the specific food requirements of the zone, input requirements in agriculture as well as the opportunity for linkages between the upstream and downstream sectors of agriculture in the zone.

7.3. Evaluations of Agricultural Investment Options: Partial Equilibrium Approach

The participatory assessment of commodities with high market opportunities to ignite economic growth in the Nigerian agricultural sector resulted in the short-listing of six groups of commodities namely root and tubers, cereals, grain legumes, livestock and fish, vegetables, and tree crops. As expected there are regional differences across development domains within Nigeria (Table 7.4).

The next step is to conduct an ex-ante evaluation of returns to investments for those priority commodities in order to identify those that give the highest returns to investments on research and development (R&D). The results from this analysis could inform the basis for the choice of candidate commodities for future investments in Nigeria. The partial equilibrium approach (using the IFPRI DREAM model) is well suited to make such type of assessment.
The first task is to develop a scenario that considers production and consumption of a commodity; a set of technology parameters, adoption, and costs associated with R&D investments, and the period for the assessment. In line with the UN Millennium Development Goal (MDG) and IEHA, the assessment is made for a period of 17 years between 1999 and 2015. For this analysis, investments costs are not accounted for. Therefore, the stream of returns corresponds to present value of gross benefits.

An example of technology parameters and adoption is shown for cassava and cocoa in Table 7.5. For cassava, a portfolio of technologies already available include availability of improved varieties, biological control of pests and diseases, crop management, and processing of raw materials into high quality products such as High Quality Flour (HQF). Another policy innovation is the RUSEP concept of linking farmers to agro-inputs and industries. To package these technologies into a basket of option would require a period (R&D lag) of 5 to 7 years. This period is longer in dry areas than in wet areas of Nigeria. This period would be shorter for seasonal crops such as cereals or grain legumes. The expected supply shift would be about 45% with R&D and only 5% without R&D. The expected probability of success is very high because these technologies, already available from research stations, were successfully tested in on-farm conditions. The adoption lag to reach beneficiaries of a development domain would require about five years and the expected maximum adoption level is very high, especially for those development domains located in sub-humid and humid zones of Nigeria. The description of parameters for cocoa can be done using the same patterns as for cassava. It is worth mentioning here that cocoa can not be grown in dry areas of Nigeria. Therefore, there are no technology parameters on this crop for the North West, North Central, and North East regions.

The analysis was conducted on 26 commodities for which data were readily available. For example, all the forestry commodities were not included in this analysis although stakeholders ranked them as having high potentials for markets.

7.3.1 Commodities Of High Returns To Investments In Nigeria

Results indicated that country-wide cassava gives the highest benefits to investments (Figure 7.1). The next nine ranked commodities are yam, maize, millet, groundnut, rice, sorghum, poultry, vegetables, and cowpea. The second group of priority commodities include pepper, beef, oil palm, fish, melon, tomato, soybean, onion, rubber, and cocoa. The third lower ranked commodities include ginger, pork, goat, mutton, benniseed, and cashew nut It is interesting to compare the above results with those conducted by IFPRI (2003) for West Africa (Figure 7.2). To a large extent the priority commodities identified for Nigeria are found in West Africa probably because of the heavy economic weight of Nigeria in the sub-region.

There are regional differences in the ranking of commodities within the country, which are worth highlighting. On the basis of the total benefit from each commodity, one can make the ranking of commodities in each development domain relatively to the crop ranked one. Only the first 15 ranked crops are shown in Table 7.6. The root and tuber crops (cassava and yam) come on top in the southern zones while cereals are first in the far northern zones. The northcentral zone or middle belt is a mixture of root and tubers and cereals.

Table 7.4: Commodities with Comparative Advantage for Investments as Ranked by Stakeholders in Each Development Domain

No	Primary Production	North Central	North East	North West	South East	South South	South west
1	Staple crop production	• Rice • Maize • Sorghum • Millet • Cowpea • Cassava • Yam • Beniseed	• Sorghum • Maize • Millet • Cowpea • Cassava • Rice • Beniseed	• Millet • Sorghum • Maize • Cowpea • Cassava • Rice • Beniseed • Maize • Yam	• Yam • Cassava • Rice • Maize • Vegetables • Cowpea • Soybean • Plantain	• Yam • Cassava • Rice • Maize • Cocoyam • Vegetables • Cowpea • Groudnut • Soybean • Plantain	• Yam • Cassava • Maize • Vegetables • Rice • Cowpea • Groundnut • Soybean
2	Industrial crop production	• Soybean • Groundnut • Cotton • Vegetables • Coffee • Oil palm	• Groundnut • Soybean • Cotton • Sorghum • Vegetables	• Soybean • Vegetables • Groundnut	• Cocoa • Oil palm • Rubber • Groundnut	• Cocoa • Oil palm • Rubber • Cashew • Orange	• Pineapple • Oil palm • Rubber • Cashew • Ginger • Cocoa
3	Livestock production	• Cattle • Sheep • Goat • Poultry • Piggery	• Cattle • Sheep • Goat • Poultry • Piggery	• Cattle • Sheep • Goat • Poultry • Piggery	• Poultry • Sheep • Goat • Cattle • Piggery	• Cattle • Small ruminant • Rabbitry • Poultry • Piggery	• Cattle • Sheep • Goat • Rabbitry • Piggery • Poultry
4	Fishery	• Fish	• Fish	• Fish	• Fresh fish • Smoked fish	• Aqua culture	• Fish • Cray fish • Shrimps
5	Forestry	• Gum Arabic • Ginger • Cashew nut	• Gum Arabic • Fuel wood • Gmelina	• Teak • Mahogany • Gmelina • Ginger	• Timber • Teak	• Timber	• Ginger • Cashew nut

Table 7.5: Technology parameters and adoption for the ex-ante assessment of returns to investments in research and development (R&D) in Nigeria

A - cassava							
Region Group	Region	R&D Lag (years)	Supply Shift			Adoption	
			w/o R&D (%)	with R&D (%)	Probability of success (%)	Adoption lag (years)	Maximum adoption level (%)
	North West	7	5	45	70	5	80
	North Central	5	5	45	80	5	95
	North East	7	5	45	70	5	70
Nigeria	South East	5	5	45	95	5	95
	South South	5	5	45	95	5	95
	South West	5	5	45	95	5	95

Technologies: improved variety, control of pest and disease, crop management, processing and strategies for linking farmers to the market.

B - cocoa							
Region Group	Region	R&D Lag (years)	Supply Shift			Adoption	
			w/o R&D (%)	with R&D (%)	Probability of success (%)	Adoption lag (years)	Maximum adoption level (%)
	North West	0					
	North Central	0					
	North East	0					
Nigeria	South East	5		20	50	7	50
	South South	5		30	60	7	60
	South West	5		30	70	7	80

Technologies: improved variety, control of pest and disease, crop management, improved marketing power of producers.

7.3.2. Analysis By Commodity

The analysis by commodity reveals interesting and contrasting advantages of the development domains under consideration. For root and tubers and in decreasing order of importance regions with a comparative advantage for cassava are Southsouth, Northcentral, Southeast, and Southwest. Results for yams are Northcentral followed by Southsouth and Southwest (Figure 7.3). The middle belt or Northcentral is the Nigerian basket for root and tubers.

Regions of a comparative economic advantage for cereals are Northcentral, Northwest, Southwest, and Southsouth in decreasing order of importance (Figure 7.4). The far northern regions are well suited for millet with Northwest in the first position. Likewise sorghum will be first promoted in Northwest, followed by the other two northern regions. The same trend was observed for benniseed. The Northcentral region dominates rice production while the Southeast region yields lower economic returns.

The general pattern is that grain legumes should be promoted in the three northern zones (Figure 7.5) although cowpea shows some economic benefits in the southern zones of Nigeria. Leafy vegetables can be grown through out the country (Figure 7.6). The other types of vegetables gave the highest returns in the drier regions of the north.

As expected, tree crops of the humid zones also yield higher economic returns in Southsouth or Southeast (Figure 7.7). That is the case for oil palm and rubber. Southwest is specialised in cocoa while cashew nut is grown in Northeast and ginger in Northwest.

The group of livestock products shows various gradients (Figure 8.8). Beef dominates the three northern regions. That same strong trend was observed for mutton but not for goat although the northern regions gave more two-third of returns to R&D for that commodity. Pigs and fish production are dominant in the southern regions. Poultry are the only livestock product that shows an even distribution of benefits across regions.

In summary, the analysis per commodity shows tremendous opportunities of investments on the basis of the comparative of each development domain for commodities.

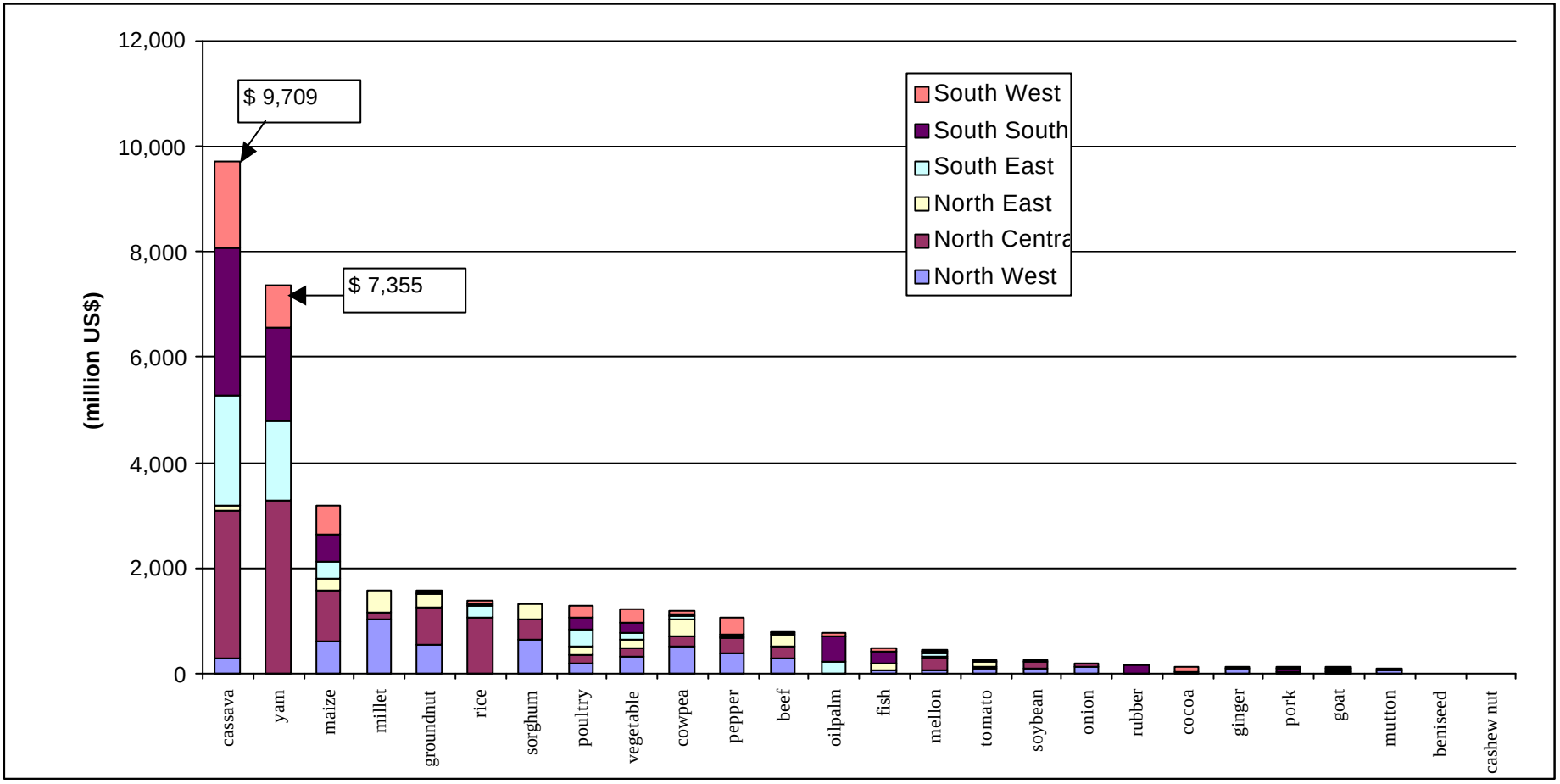


Figure 7.1: From DREAM analysis: identifying for investments in research and development in Nigeria – based on streams of benefits to producers and consumers by 2015 as a result of existing portfolio of technologies.

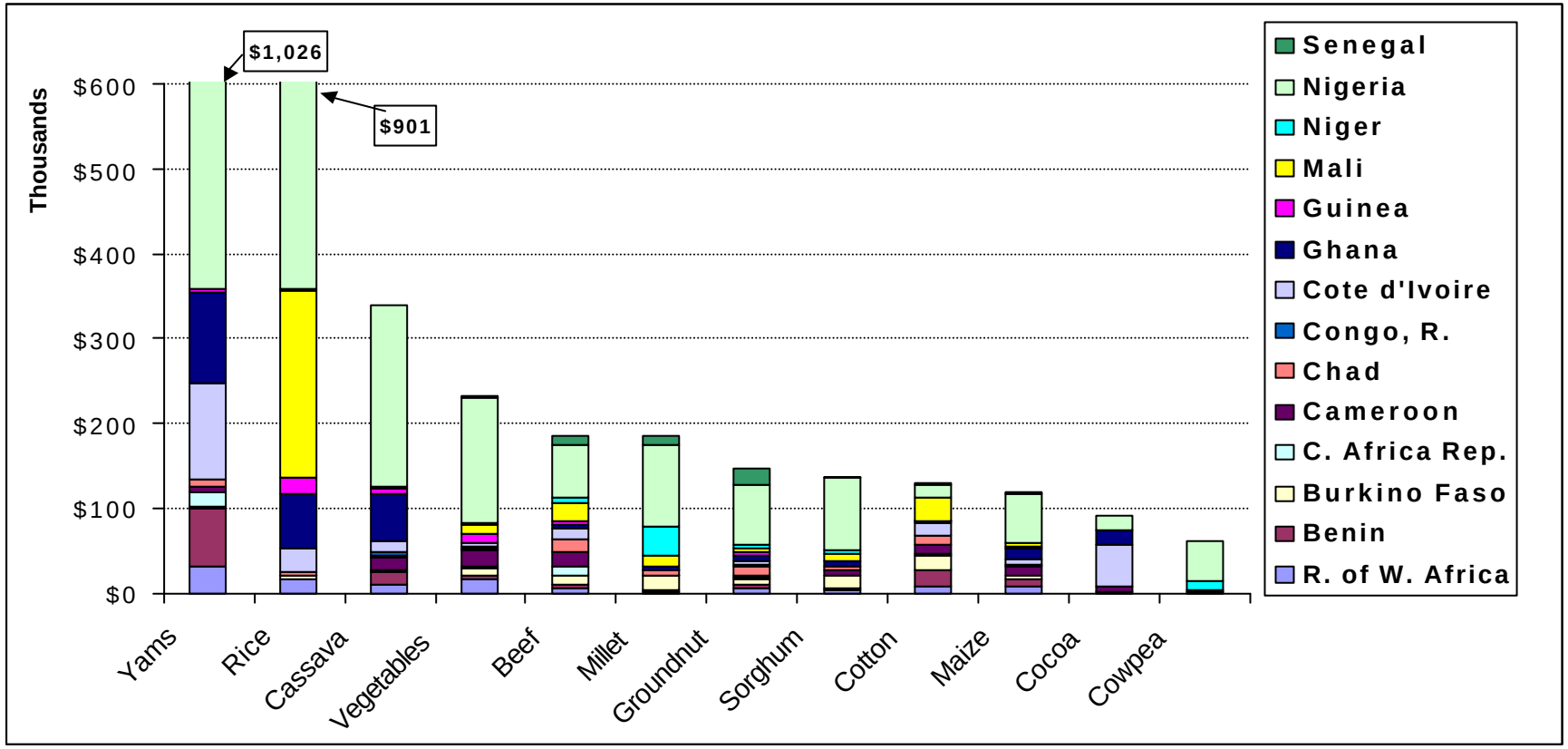


Figure 7.2: From DREAM analysis: identifying for investments in research and development in Nigeria – based on streams of benefits to producers and consumers by 2015 as a result of a one time 1% increase in productivity (IFPRI 2003)

Table 7.6. Commodity Ranking by Total Benefit in each Development Domain of Nigeria

	Northwest		Northcentral		Northeast		Southeast		Southsouth		Southwest		Nigeira	
Rank	Crop	Relativity	Crop	Relativity	Crop	Relativity	Crop	Relativity	Crop	Relativity	Crop	Relativity	Crop	Relativity
1	millet	1	yam	1	millet	1	cassava	1	cassava	1	cassava	1	cassava	1
2	sorghum	0.64	cassava	0.85	cowpea	0.75	yam	0.72	yam	0.63	yam	0.48	yam	0.70
3	maize	0.62	rice	0.32	sorghum	0.66	poultry	0.16	maize	0.18	maize	0.34	maize	0.30
4	groundnut	0.54	maize	0.29	groundnut	0.58	maize	0.16	oilpalm	0.18	pepper	0.19	millet	0.26
5	cowpea	0.52	groundnut	0.22	maize	0.57	oilpalm	0.12	fish	0.09	vegetable	0.14	groundnut	0.20
6	pepper	0.40	sorghum	0.12	beef	0.56	rice	0.11	poultry	0.07	poultry	0.14	rice	0.15
7	vegetable	0.32	pepper	0.09	vegetable	0.38	vegetable	0.07	vegetable	0.06	cocoa	0.06	sorghum	0.11
8	beef	0.29	melon	0.08	poultry	0.36	melon	0.03	rubber	0.06	rice	0.06	poultry	0.09
9	cassava	0.29	beef	0.07	fish	0.31	cowpea	0.02	pork	0.03	cowpea	0.04	vegetable	0.07
10	poultry	0.20	cowpea	0.06	cassava	0.22	beef	0.01	cowpea	0.01	oilpalm	0.04	cowpea	0.05
11	onion	0.15	poultry	0.05	tomato	0.20	fish	0.01	pepper	0.01	fish	0.03	pepper	0.05
12	tomato	0.11	vegetable	0.05	melon	0.06	groundnut	0.01	melon	0.01	tomato	0.02	beef	0.03
13	soybean	0.10	millet	0.04	goat	0.06	goat	0.00	goat	0.01	groundnut	0.02	oilpalm	0.03
14	ginger	0.09	soybean	0.04	pepper	0.05	pork	0.00	rice	0.01	melon	0.02	fish	0.03
15	mutton	0.06	onion	0.01	mutton	0.05	pepper	0.00	cocoa	0.01	beef	0.01	melon	0.02

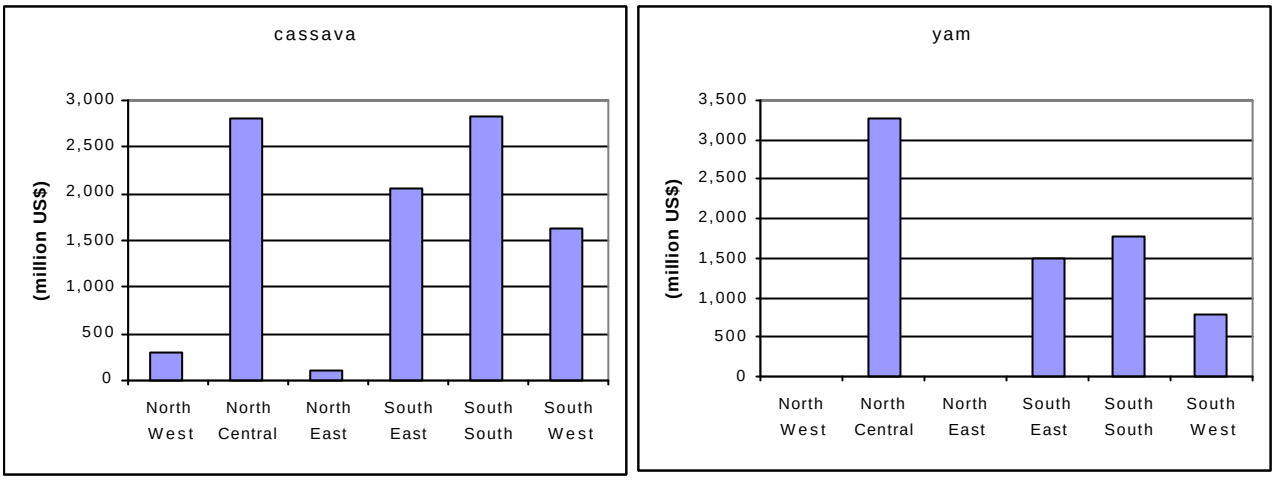


Figure 7.3: Ranking of Development Domains for Root and Tuber Crops

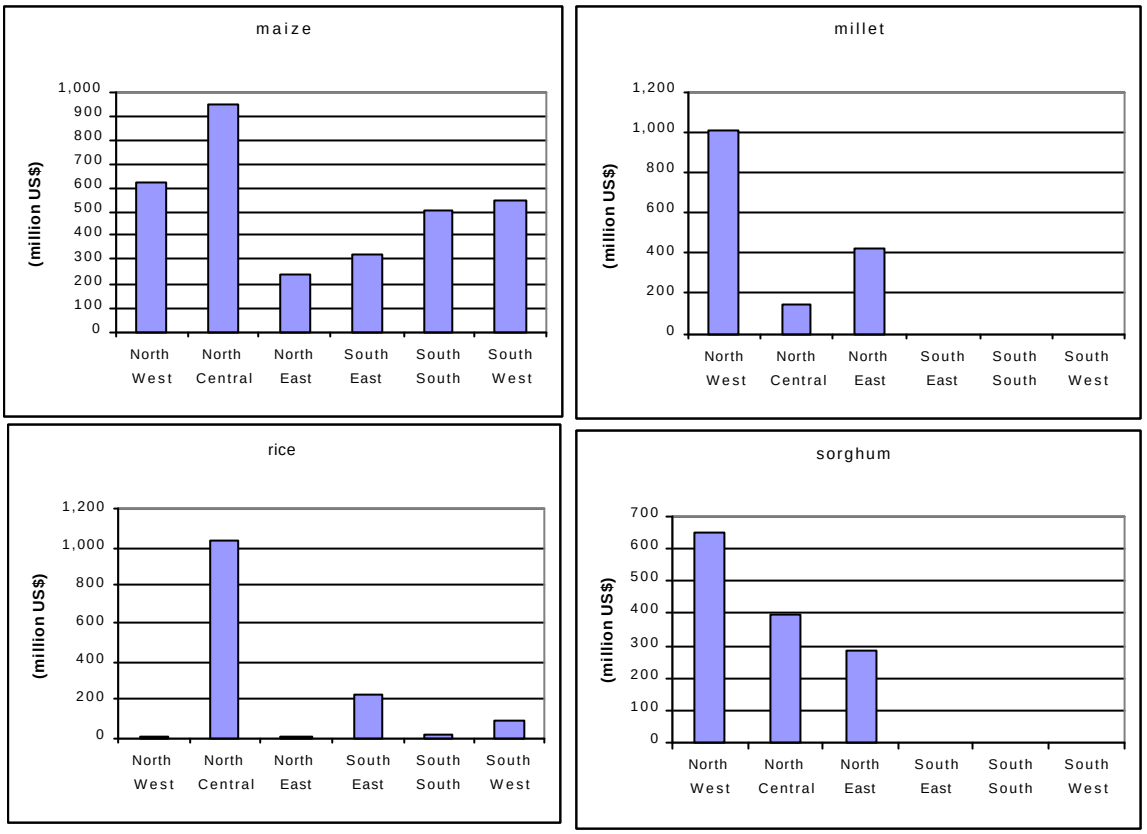


Figure 7.4: Ranking Development Domains for Cereals

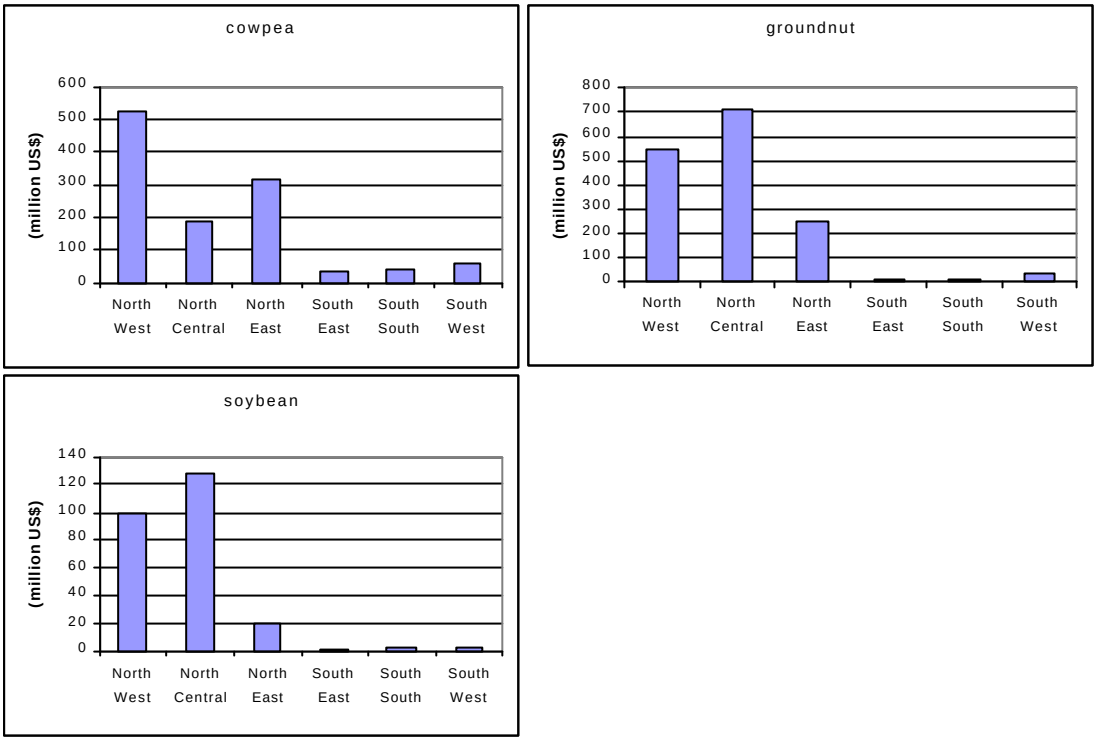


Figure 7.5: Ranking of Development Domains for Grain Legumes

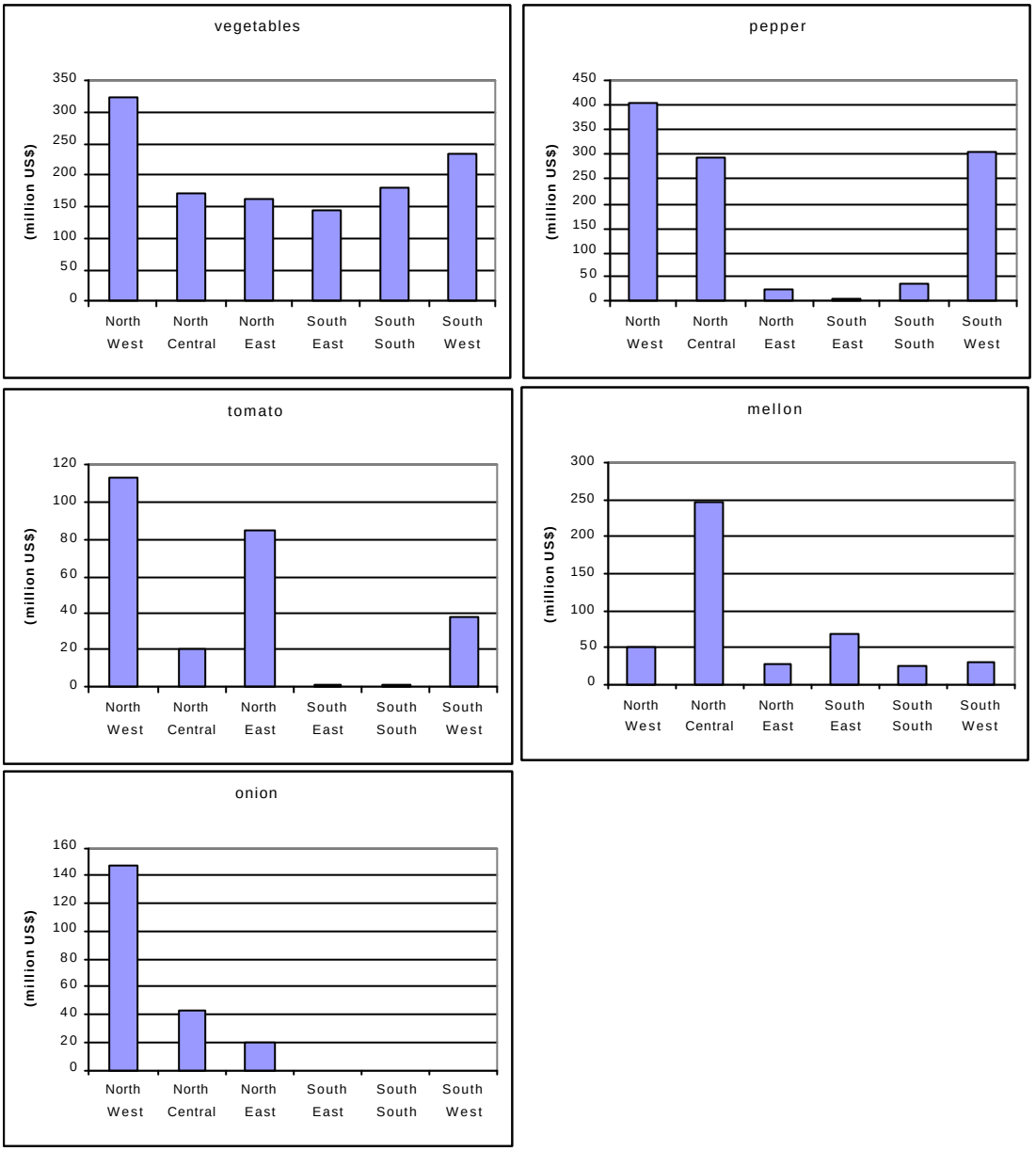


Figure 7.6: Ranking of Development Domains for Vegetables

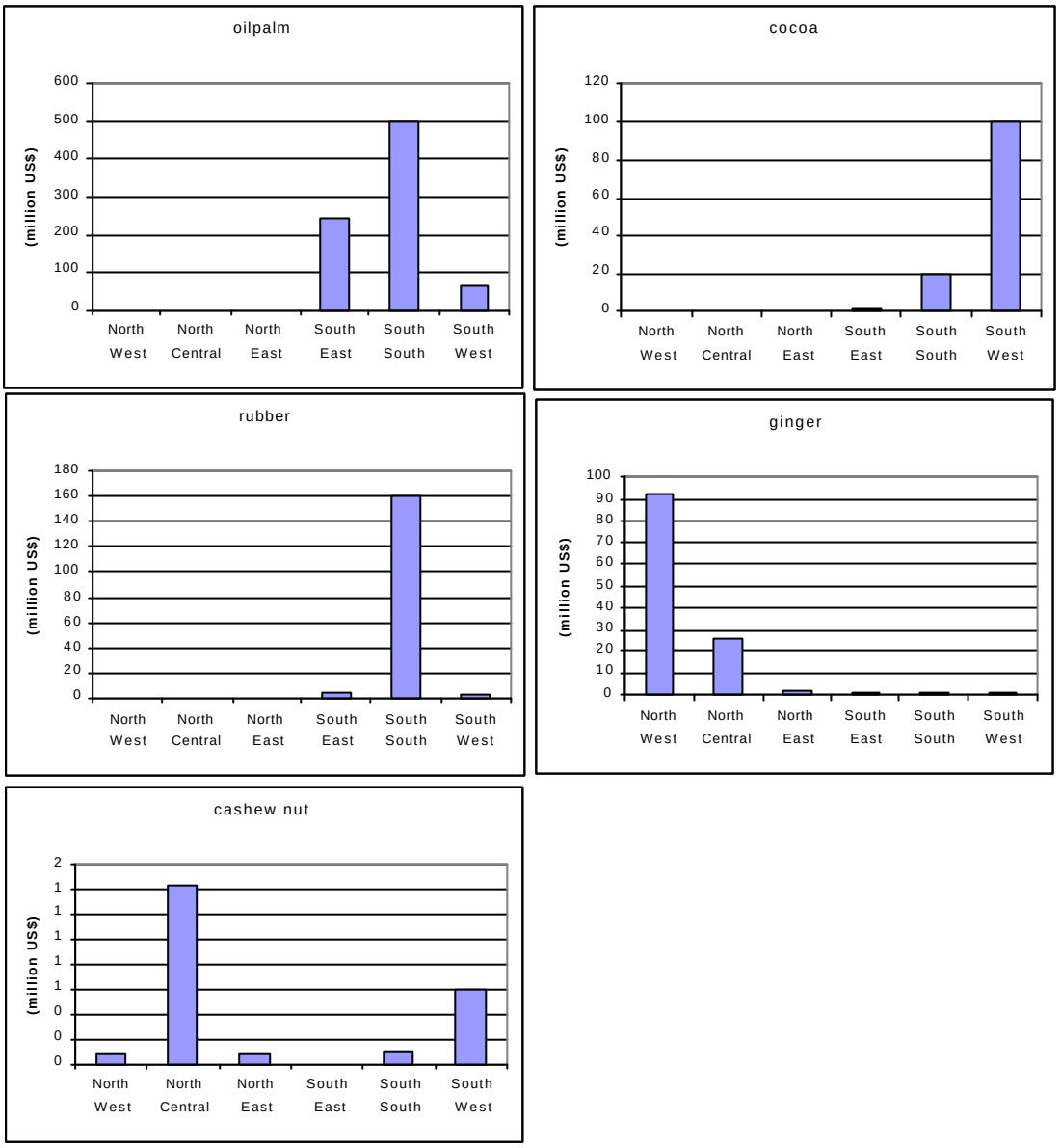


Figure 7.7: Ranking of Development Domains for Tree Crops

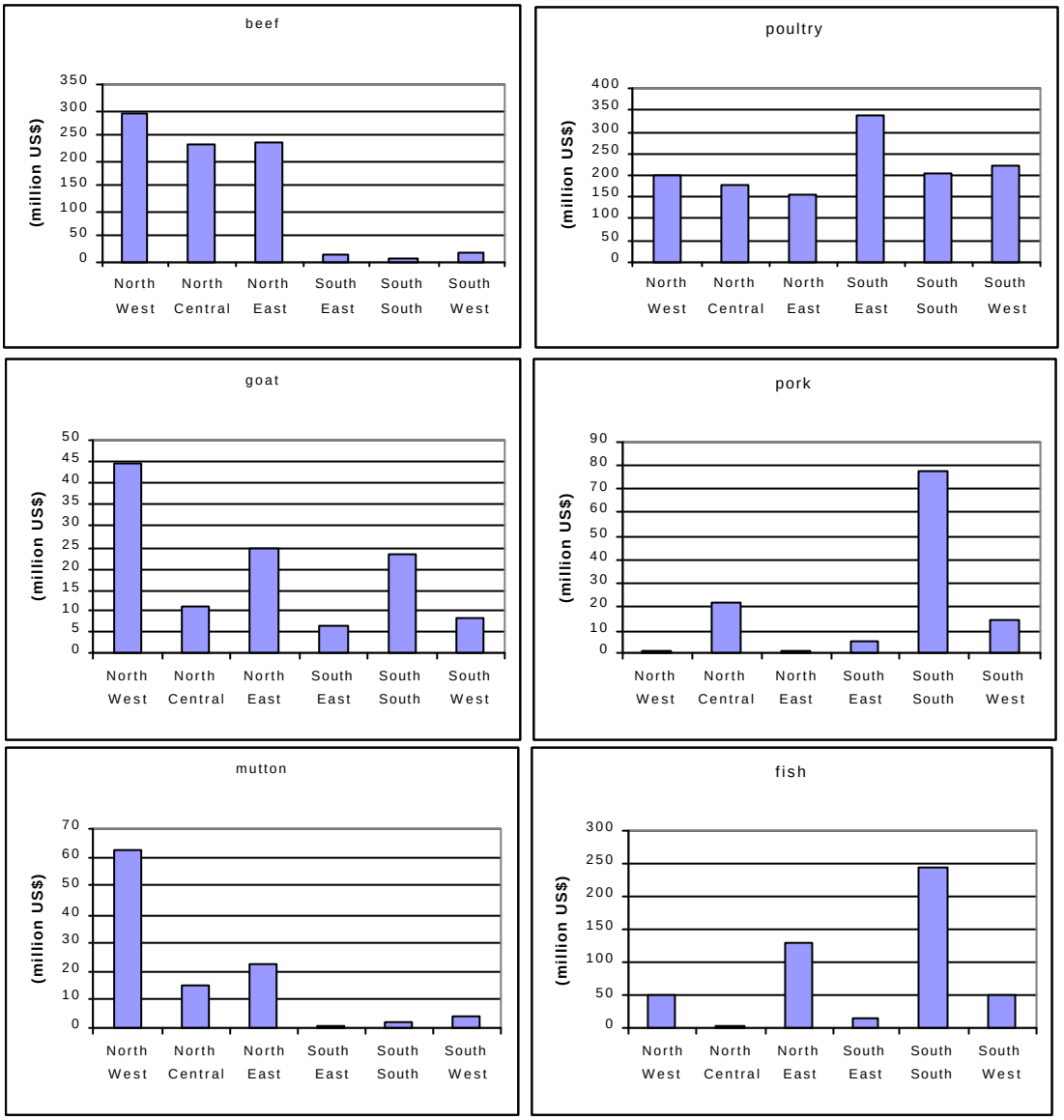


Figure 7.8: Ranking of Development Domains for Livestock Products

CHAPTER EIGHT
RECOMMENDED INTERVENTION STRATEGIES

This concluding chapter focuses on those intervention strategies that arise from the preceding chapters of this report and that the Study Team feels could assist in rapidly developing Nigeria's agriculture sector. Such strategies, when implemented, are intended to particularly:

- ✓ Accelerate both private and public domestic and foreign investments in the sector;
- ✓ Increase agricultural productive performance by improving the sector's competitiveness and commercialization;
- ✓ Mitigate negative impacts of commercialization on gender and equity;
- ✓ Enhance food security in Nigeria;
- ✓ Sustain environmental management;
- ✓ Create a conducive policy environment for developing the commodity sector; and
- ✓ Focus investments in a few but well-defined development hubs.

The level to which the above intervention objectives are attained will depend very much on the intensity of investment in the selected development domains and the implementation of those government policies affecting them. Details of recommended strategic interventions in each of these areas are discussed below.

8.1 Strategies for Accelerated Investment in Nigeria's Agriculture

Developing intervention strategies for increasing investment in Nigeria's agriculture is best done on a commodity-by-commodity basis. In this section of the study, the commodities used are those that have been selected from each development domain based on a DREAM-model analysis that previously considered not only their domestic demand levels but also their commercialization potential in the regional and international markets. Adopting this suggested approach to arrive at workable strategic options requires that we combine five pragmatic considerations:

- ➢ First, identifying the key constraint(s) on known sections of the commodity continuum that hinder(s) the complete development of each commodity system;
- ➢ Then, selecting for development support those principal commodities identified by the DREAM-model analysis in each of the six geopolitical zones;
- ➢ Thirdly, pinpointing the specific aspect(s) of the commodity continuum on which the intervention(s) would be most cost-effective and most impacting;
- ➢ Fourthly, isolating the specific policies whose systematic implementation within the specified period could eliminate or minimize the identified constraint(s) so that USAID/Nigeria or any other intervening agency can convince the Government of Nigeria (GON) to ensure their timely and assiduous implementation; and
- ➢ Finally, determining the outcome indicators that would best highlight the desired impacts of the implemented intervention(s).

Results of analyses in Chapter Six show that the first five key constraints (in descending order of importance) that continue to hinder foreign and domestic agricultural investments in the various geopolitical zones are:

(i) *For the Northcentral*: technical, infrastructural, financial, environmental, and political constraints;

(ii) *For the Northeast*: technical, infrastructural, economic, financial, and microeconomic policy constraints;

(iii) *For the Northwest*: infrastructural, technical, socio-cultural, financial, economic constraints;

(iv) *For the Southeast*: infrastructural, economic, financial, socio-cultural, and political constraints;

(v) *For the Southsouth*: infrastructural, environmental, labor, land-tenure, and financial constraints; and

(vi) *For the Southwest*: technical, financial, macro-economic policy, socio-cultural, and infrastructural constraints.

Thus, in descending order of importance, Nigeria as a whole has the following five most critical constraints that hinder foreign and domestic investment in her agriculture: infrastructural, financial, technical, economic, and macroeconomic policy/socio-cultural.

In the case of commodities with the highest domestic consumer demand and the greatest potential for commercialization/trade internationally, especially within the West Africa sub-region, results of the analyses in Chapter Seven show that the following are the most important (in descending order) in the various development domains:

- *For the country as a whole*: cassava, yam, maize, millet, groundnut, rice, sorghum, poultry, vegetables, cowpea, pepper, beef, oil palm, and fish;
- *For the Northcentral*: yam, cassava, rice, groundnut, maize, pepper, melon, and beef;
- *For the Northeast*: millet, cowpea, maize, beef, sorghum, groundnuts, and pepper;
- *For the Northwest*: maize, sorghum, groundnuts, cowpea, vegetables, beef, and pepper,
- *For the Southeast:* cassava, yam, poultry, maize, oil-palm, rice, and vegetables;
- *For the Southsouth*: cassava, oil-palm, fish, cocoa, yam, rubber, maize, and pineapple; and
- *For the Southwest*: cassava, cocoa, maize, pepper, poultry, and vegetables.

These commodities could form the basis for investment with expected high returns in Nigeria.
There are, however, some other commodities with great international-trade potential and that are very commercially important in certain development domains that did not show up in the partial equilibrium analysis because of their few zonal-specific distribution and comparatively little total national output. These include:

- Gum Arabic in Northcentral and Northwest zones;
- Prawns, shrimps and plantain in the Southsouth zone;
- Dairy and associated hides and skins in the Northeast and Northcentral zones; and
- Cotton in Northcentral, Northeast, and Northwest zones.

8.2 Strategies for Increased Commercialization

Once a commodity has been selected for investment activity support, its commercialization has to be encouraged. Such increased commercialization is achievable through the adoption of any one or all of the following four suggested modules (Ikpi, 2002):

- Module 1: The integrated commodity marketing system module;
- Module 2: The public-private sector agro-industry investment module;
- Module 3: The cooperative commodity enterprise investment module; and
- Module 4: The Songhai-Project-agricultural-investment module.

Module 1: *The integrated commodity marketing system module*

This module requires a symbiotic link or association being formed between large operators (producers and/or processors of a named commodity) and small/medium enterprises (SMEs) in the same commodity sub-sector. The module is necessary because small-scale and medium-scale commodity-enterprise operators in the country find it financially difficult to provide the type and size of marketing infrastructure, equipment, and management staff needed to operate an assured integrated marketing system for disposing of their produce. It, therefore, becomes necessary that they form a symbiotic link or association with already existing large and successful commodity-enterprise operators who already have well-established marketing and distribution facilities within and outside the country. Such an arrangement will ensure a successful implementation of the marketing component of any selected commodity sub-sector through the provision of a ready-to-use integrated marketing system.

The implication here is for USAID/Nigeria or any other donor agency in the country to select some known large-scale operators in a given commodity sub-sector that they may have chosen to support investment activities in, and then link them with small and medium-scale enterprise (SME) operators in the same commodity sub-sector within a given geopolitical zone. Promoting such links between SMEs and large-scale operators will create very desirable commercial synergies that would greatly improve productivity and competitiveness in the sub-sector.

Module 2: *The public-private sector agro-industry investment module*

This module is essentially a private-sector-driven initiative in which a State government initiates a commodity agro-industrial/marketing investment by leading in the provision of the basic infrastructure and the "warehousing" of it for a limited period before handing the entire investment over to selected private sector stakeholders who, within the period of government warehousing, showed sufficient dedication and commitment to the successful running of the project. Such included stakeholders must be selected from the various sub-components of the marketing continuum, namely: raw material collection and delivery, processing/semi-processing, packaging, storage, transportation, and final sale/trade.

Two existing good examples that are already operating in the country are:

(i) *The Akamkpa Model Agro-Industrial Village* where the Cross River State Government has successfully established a modern agro-processing facility as a model to process and/or semi-process pineapples (into pineapple chunks and pineapple juice) and cassava (into cassava chips and pellets) produced within the State for both domestic consumption and export; and

(ii) *The Maigatari Model Commodity Free Trade Zone and Export Free Zone* created by the Jigawa State Government in the Maigatari international border town - right next to the Nigeria/Niger Republic official border. In the 7km-by-7km Export Free Zone, the Jigawa State Government has so far constructed ten model processing plant industrial houses that are to be rented by the private sector within a walled enclosure in the town. In the Commodity Free Trade Zone, various marketing facilities (like sheds, watering holes for livestock, public toilets, etc) have been provided by the government for use by traders who come there from not only Jigawa State but also other neighboring Nigerian States (Bauchi, Taraba, and Kano) and the Niger Republic during their market day on Thursdays. In both cases, the Jigawa State Government is warehousing the initial investment, maintenance, and oversight of the facilities until an agreement is worked out for handing over the entire investment facility to the private sector.

In these Cross River and Jigawa model cases, the State governments are expected to recover the cost of providing the facilities from the private sector operators who are using and will be expected to take them over ultimately. The length of time the facilities are actually warehoused will depend on how long the private sector (especially the companies that use them) takes to pay up the cost of construction or when they decide to take over and start paying back in installments.

If this module is selected by USAID/Nigeria or any other donor agency in the country and used for supporting increased investment activities in a given commodity sub-sector, it will require the Mission identifying or supporting the development of such facilities and encouraging the State government concerned to warehouse the facilities for a given period before handing it over to private-sector operators.

Module 3: *The cooperative enterprise module*

This module is recommended purely for areas where there is a spirit of natural cooperation exhibited among certain commodity farmers. The module requires the members forming and registering an association, through which they establish simple, jointly owned, and low-scale cassava processing and marketing facilities for their produce. The members could also use it to purchase farm inputs at reduced prices through quantity discounting. Where it is established, the cooperative model could become a powerful force for ensuring effective low-scale processing and distribution of farmer members' produce. Under the module, members may own their individual farms and production resources, but they collectively purchase their inputs and sell their outputs through the jointly owned marketing facilities. In a cooperative enterprise module, proceeds from sales of members' output are shared according their measured contribution to the common sale basket.

Adopting this module will require donor agencies identifying and supporting already existing groups of farmers. The secret of success in this module is that the number of cooperating operators should not be large so that commitment can easily be achieved between the associating members. Providing small recoverable loans to such groups will be a form of micro-credit to a type of non-governmental organizations.

Module 4: *The Songhai-Project investment module*

This module, named after a private-sector-operated agricultural project in Porto Novo, Benin Republic, involves the identification and use of really dedicated and knowledgeable agricultural investors to establish integrated, resource-recycling, multi-enterprise farm facilities/centers in the country for short-term training of different commodity farmers who, after completing their training, set up and/or operate their own agro-enterprises with the understanding that they can sell their produce (raw, processed, or semi-processed) through these centers. For this to happen, the centers have to be built around some already existing and successful farm, such as Zartec Farms in Ibadan, Oyo State, the Obasanjo Farm at Sango Ota in Ogun State, or the Nyako farm (Agricole Internationale) in Gombe State, etc. The idea is to encourage young agriculture graduates from the many Nigerian universities who come out of school each year to set up on their own after a one-to-two-month practical-exposure attachment to any of these

farm facilities. The success of this module would depend on the provision of micro-credit to these young farmers on completion of their attachment. The assured market for the products of the young farmers through the nationwide marketing facilities that would be established under the module should provide a means of reducing graduate unemployment while also ensuring increased food production and national food security.

It is important to note here that the success of each of the above four modules is very private-sector-dependent. Each is a demand-driven initiative that guarantees ready acceptance and ease of implementation wherever adopted. The fact that the intended beneficiaries are the engines of implementation ensures minimum conflict between the project management and the operators. Donor agencies in the country could select one of the already existing farm centers to support for the training of future young farmers who can be expected to be more commercially oriented under a competitive environment. Whichever of the above modules is adopted by a donor agency wishing to support increased investment in Nigeria's agriculture, it will require a pragmatic hands-on involvement with the beneficiary farmers. That way, measurable impacts will be easy to identify and ascertain at any given point in time.

8.3 Strategies for Mitigating Negative Impacts of Commercialization on Gender and Equity

Owing to its envisaged positive effect on income generation and resource control, commercialization usually tends to promote negative impacts on gender and equity considerations. In particular, given the current largely micro-enterprise nature of Nigeria's agriculture, the contributions of increased commercialization will effectively contribute to economic growth, domestic savings accumulation and capital formation, employment generation, and structural definition of the economy. (Ikpi, 2000c) These are all areas that usually cause class and gender struggles and equity imbalance. In order to prevent any possible negative impacts of increased commercialization in the sector, recommended strategies in section 8.2 above need to be implemented bearing in mind the following complementary strategies that donor agencies could adopt so as to mitigate or at least ameliorate them:

- Promoting the facilitation of more women involvement in the post-harvest, economic and marketing activities of commercialized agriculture through the organization and funding of various supporting social activities such as child care and group discussions to develop better social awareness of women's economic roles in society;
- Assisting women to get organized into marketing groups that can effectively carry out the commercialization of key agricultural commodities by providing such organized groups increased access to credit on a competitive basis with men; and
- Facilitating the establishment of other women empowerment groups that will promote an early start to improve girls' access to education and training in modern technical skills as well as in leadership.

For the above-suggested strategies to be effectively implemented, it will be necessary for any donor agency promoting agricultural development in Nigeria to encourage (through the setting up of deliberate programs) the training of officials in many public departments, banks and other lending institutions that have anything to do with agriculture and micro-enterprise development to recognize the economic potential of women entrepreneurs. Furthermore, implementing the above strategies will require encouraging the Nigerian government to build up networks and ensure appropriate co-ordination between all relevant government and non-government departments and institutions in the field of agribusiness promotion and development (such as credit, technical and managerial training, choice of technology, input procurement, legal counseling, marketing, and management).

8.4 Strategies for Enhanced Food Security

Analysis of stakeholder input into the choice of commodities necessary for ensuring food security in the country shows that the following commodities should be produced, processed and marketed in Nigeria: cassava, yams, maize, millet, groundnuts, rice, sorghum, poultry, vegetables, cowpea, pepper, beef, oil-palm, fish, and melon. Increased production together with greatly reduced post-harvest losses in these crops could have a positive effect in the food security situation of the country. To achieve this, the study recommends three main strategies that can enhance food availability and security:

- Increasing agricultural productivity to reduce the gap between actual yields and potential yields offered by research institutions. The results from a yield gap analysis on selected commodities shows that crop yields could be increased up to 6.5 times the current achievements in farmers' fields (see Table 8.1);

- Intervening in the post-harvest processing and preservation activities of the commodity continuum that will reduce major losses in crops like cassava, yams, vegetables, and cowpea. Current estimates show that post-harvest losses in these crops range from 35% in cowpea (due to poor handling and packaging and pest attack) to as high as 55% in cassava (due to delays in processing and poorly-developed marketing infrastructure);
- Promoting the establishment, hosting and management of an easily accessible and comprehensive national database/center that could store data at household and national levels on all aspects of food production, domestic consumption, food processing/semi-processing, and commercialization/trade on every food commodity of the country. Such a database Center will be charged with the responsibility of constantly analyzing and updating data and information for the purpose of monitoring the status of food security at the household, State, and national levels in order to facilitate easy inter-state comparisons using an index of food security and a battery of food security indicators that are developed and commonly accepted for all States in the country; and
- Building capacity of government officials from the various States of the country in monitoring the status of food security of their States by providing hands-on training for them on the methods of data collection and analysis in food security using software and economic models that fit their development zones' specific needs.

Table 8.1: Yield gaps of selected commodities.

Crop Name	Actual yield (t/ha)	Potential yield (t/ha)	Yield gap (%)	Development Zone
Millet	1.1	5.4	391	NW, NE
Maize	2.8	7	150	NW
Sorghum	1.14	5	339	NW
Rice	3	5	67	NC
Sesame	0.55	2	264	NC
Yam	11.36	30	164	NC, SE, SS
Cassava	12	45	275	SW, SS, SE, NC
Cowpea	1.4	4	186	NW, NE
Groundnut	1.15	3.5	204	NW, NE
Soybean	1.53	4	161	NC, NW
Vegetables (leafy)	4.28	6.1	43	SW, SS, SE, NC
Melon	1.1	2.5	127	NC
Tomato	6.9	18	161	NW, NE
Onion	15	18.5	23	NW, NE
Ginger	6.55	50	663	NC
Cocoa	0.3	1	233	SW

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

8.5 Strategies for Sustainable Environmental Management

Increased investment in the agriculture sector of Nigeria and the resulting commercialization of products will most likely pose increased threat to environmental damage either through land degradation, pollution of the ecosystem by the effluent of processed agricultural commodities, or the exhaustion of agricultural resources. Sustaining the agriculture environment will require adopting the following strategies:

- Promotion and adoption of proper cultural practices associated with various commodities recommended by developers of improved agricultural technology packages for increasing Nigeria's agricultural productivity;

- Adoption of post-harvest processing technologies that minimize waste and control pollution of the environment; and
- Use of crop and/or livestock mix enterprises that prevent erosion and minimize soil degradation.

8.6 Sectoral Policies for Specific Priority Commodities

There is the need to design policies for a specific commodity in order to attract investments towards that particular commodity along the continuum from production to consumption. Promoting investment into commodities through sectoral policies could involve the following strategies:

- Promotion and creation of lobbying groups to look after he interests of the commodity. A mixture of actors with a stake at the commodity will constitute the lobbying group;
- Design and adoption of grades and standards that favour the utilisation of existing products and the development of new products with added value; and
- Creation of an enabling macro-economic policy that facilitates the commercialisation of products; therefore contributing to an appeal of private investments.

8.7. Regional Development Hubs

The implementation of the above strategies would yield remarkable results if investments were geographically concentrated in well-identified high-potential areas. *Three* regional development hubs along major agro-ecological zones seem to emerge from the priority commodities identified in Chapter 7 for consideration by USAID/Nigeria or any other development investor, namely:

- The *northern development hub* could be built on grain legumes and cereals. In this connection, cowpea, groundnut, soybean, maize, and sorghum are emerging as leading commodities. Rotating these commodities will be environmentally sound, especially if coupled with livestock. Tree crops such as gum Arabic or ginger and livestock hides and skins offer high potentials for export. This zonal hub will greatly benefit from national research centers located at the extreme northwest such as the Institute of Agricultural Research (IAR) and at the extreme northeast, the Lake Chad Agricultural Research Institute (LCARI).
- A mixture of cereals and roots and tubers characterizes the *central development hub*. Rice for cereals and yam for roots and tubers form the leading commodities for the zone that could benefit from research centers such as the National Cereals Research Institute (NCRI) located in the middle belt of this zonal hub.
- The *southern development hub* includes many states of southern Nigeria. Cassava and yam are the dominant commodities. Cocoa, fish, and plantain offer additional opportunities for export, food security, and income generation. National Root Crop Research Institute (NRCRI) and Cocoa Research Institute of Nigeria (CRIN) are the national research institutes that can back up the implementation of the strategy for this region.
- The above major development hubs can further disaggregated in sub-hubs on the basis of the geographic and economic comparative advantage of a priority commodity.

8.8. Recommended Future Studies

Three future in-depth studies are recommended in this section as action plans to be implemented by USAID/Nigeria and other development donor agencies in the country. The studies center on three major intervention areas that are considered critical to the attainment of the stated strategic objectives in the country's agriculture sector, namely:

- A *sub-sector concentration analysis study* that will identify meaningful interventions for optimal project impacts along the major commodity continuum sections;
- A *downstream agriculture activities' study* that specifies which products and processes are needed for increased high value-added outputs of the selected commodities; and
- An *integrated monitoring and evaluation program design* that will develop a strategic knowledge management and evaluation system with well-defined impact indices for each selected priority commodity in the regional hubs of the country.

These three areas of intervention are discussed individually below.

8.8.1 Subsector Concentration Analysis

In order to meaningfully implement the above-recommended strategies, there is a need for an in-depth study that should focus analysis on the specific commodity development sections in each selected commodity project that USAID/Nigeria is implementing. Such a study will:

- Identify the portion of the commodity continuum (production, processing, packaging, storage and/or quality control) that needs appropriate intervention;

- Include detailed structure-conduct-and-performance model analysis for each of commodity sector selected for development concentration;
- Identify specific input requirements that will support the regional hub development approach recommended above for selected commodity sectors;

8.8.2. Downstream Agricultural Commodity Activities

Primary agricultural production activities encompassing crop planting and harvesting constitute upstream agricultural commodity activities from which primary commodities emerge. Following these are some essential secondary or post-harvest activities that constitute downstream activities. These secondary activities are important because they add value to the primary product, improving its quality and rendering it less perishable. In general, downstream commodity activities improve the market opportunities for agricultural products and promote their commercialization, enhancing not only its competitiveness in the market but also the rate of return on their investment.

Key downstream commodity activities include: storage, processing into intermediate or final (finished) products, and marketing/distribution through domestic and/or export trade. Key intermediate supporting services for these downstream activities include adequate infrastructure (physical, economic, and social), efficient financial institutions, adequate human capital, relevant local organizations (such as community-based organizations, farmer organizations, etc.), transport services and commodity grading and quality control services. Availability of primary products, efficient storage and processing technologies and efficient marketing systems with modern market information system are pre-requisites for successful downstream activities.

Having identified priority primary commodities that can be produced in the various zones of the country in this AIN study, a logical follow-up study would be to examine the nature and state of existing downstream activities currently in practice with respect to these priority commodities in the various zones, identify available technologies, infrastructure, institutions, organizations and services that support these downstream activities, evaluate them for adequacy, identify bottlenecks and constraints associated with them and propose policy, institutional and organizational frameworks for improved performance. It is a well-known fact that wealth creation in a country comes about returns to investments in the secondary or manufactured sectors.

Specifically, the study of downstream activities for the identified priority commodities will have the following objectives:

(i) To identify and critically evaluate available technologies for commodity storage, processing and marketing/trade with a view to identifying weak links and bottlenecks in them.

(ii) To examine policies, institutions and organizations that support downst5ream activities with a view to identifying bottlenecks in them.

(iii) To carry out an investment opportunity analysis of these downstream activities in relation to the priority commodities already identified in the various zones.

Following the analysis of data, requisite technological infrastructural, policy, ins6titutional and organizational components required to support development projects for the apriority commodities already identified in the various zones will be recommended.

8.8.3 Strategic Knowledge Management and Evaluation System

This study recommended the adoption of an integrated production-to-consumption chain approach centered on the most profitable commodities identified during the course of this study. The integrated projects would be science-based. Therefore, they would be located strategically in areas where they can be backed up by national research centres within each regional hub.

Equally important to the success of an integrated project is the development of a Strategic Knowledge Management and Evaluation System (SKMES) within each integrated project. The SKMES would constitute a separate but integrated module that aims at evaluating the economic, financial, technical, institutional, environmental, and social performance of the integrated project. The SKMES would assist the project in:

- The development of performance monitoring and evaluation indicators that are in line with the objectives of economic growth of IEHA.

- The constitution of benchmarks against which progress can be measured.
- The monitoring of project performances according to agreed milestones and activities.
- The measurement of benefits generated by the project in the short, medium and long term.

An important issue that emerged from the completed study is related to the availability and quality of data used in the strategic analysis of investment options. Stakeholders perceived several commodities to be important in some of the development domains such as plantain and banana and shrimps in the Southsouth zone, or gum Arabic in the Northwest zone and Northeast zones and cotton in the Northwest. Forest products did not enter the ex-ante evaluation of returns because of lack of data. The rigorous evaluation of benefits also requires not-often used data such as elasticity of production and consumption, probability of success, spillover parameters for benefits, etc. These data are not always readily available. One major task for SKMES would be a continuous development and refinement of databases required for the performance monitoring and evaluation of integrated projects. SKMES would also identify and recommend appropriate statistical programmes and software packages for easy and effective monitoring and evaluation of projects.

As an integrated component of projects, SKMES would ensure that the project implements steps that lead to success. Therefore, SKMES would have to carry out periodic training sessions in favour of all staff involved in the implementation of the integrated project to improve on skills and expertise within the project.

REFERENCES

Adams, C.S. (1992). Recent developments in econometric methods. An application to the demand for money in Kenya. AERC Spcaial Paper 15. September

Ajakaiye Olu (1997). The Structural Adjustment Program and Changes in the Structure of Production in Nigeria 1986-1994 NCEMA Monograph Series No. 9. Ibadan

Ahmed, A. (1988): "Strategies for Foreign Investment Promotion in Nigeria" in *Giant Strides*. VBO International Limited, Vol. 2.

Ajibola, B. (1988): "Legal Protection of Foreign Investment in Nigeria." In *Giant Strides*. Lagos: VBO International Limited, Vol. 2.

Akpokodje Godwin, Frederic Lancon, and Olaf Erenstein (2001). Nigeria's Rice Economy: State of the Art. WARDA. Bouake, Cote d'Ivoire

Alston, J.M., G.W. Norton, and P.G. Pardey. 1995. Science Under Scarcity: Principles and Practices for Agricultural Research Evaluation and Priority Setting. CAB International (CABI), Wallingford, U.K.

Alston, J. M. P.G. Pardey, S. Wood, and L. You. 2000. Strategic technology investments for LAC agriculture: a framework for evaluating the local and spillover effects of R&D. International Food Policy Research Institute, Washington, D.C

Alston, J.M. and W.K. Wohlgenant. 1990. Measuring research benefits using linear elasticity equilibrium displacement models. In: J.D. Mullen and J.M. Alston, *The Returns of the Australian Wool Industry from Investment in R&D (Appendix 2)*, Rural & Resource Economics Report No. 10, New South Wales Department of Agriculture and Fisheries, Sydney, Australia.

Anon (2000): "IMF-Nigeria Ratify Memorandum on Economic Policies." Reported in *Nigerian Tribune*, August 9.

ARD, Inc. (2002). Nigeria Environmental Analysis Final Report. Vermont, USA.

Aremu, J.A. (1997): *Foreign Private Investment: Issues, Determinants, Performance and Promotion*. CBN Research Department Seminar paper No.4.

Babalola, J.A. and Adegbite, M.A. (2001): "The Performance of the Nigerian Capital Market Since Deregulation in 1986" *CBN Economic and Financial Review*, Vol. 39 No.1, March..

Balogun, E.D. and Otu M.F. (1991): "Credit Policies and Agricultural Development in Nigeria." *CBN Economic and Financial Review*, Vol. 29 No.2, June.

Buxton M. Boyd (2001). An Assessment of the Dairy and Feed Industries in Nigeria. A Consultant Report to Land O'Lakes. USAID Abuja, Nigeria.

Cardoso, Eliana (1993). Private Investment in Latin America. Economic Development and Cultural Change 41(4), 833-848.

CBN (1999): *Infrastructure Expenditure Policy and Private Sector Output in Nigeria, 1970-1998*.

CBN (2000): *Statistical Bulletin*, Vol. 11 No. 2, December.

CBN (2001): *Annual Report and Statement of Accounts. CBN, Abuja*.

CBN/World Bank (1996). *Nigeria: Prospects for Development (a.k.a. vision 2020)*. Proceedings of a Workshop held at Abuja.

Central Bank of Nigeria (CBN) (1998): *Issues in Agricultural Input Policy: An Empirical Evaluation of Fertilizer Production, Distribution and Price Subsidy in Nigeria*.

Chemonics International Inc. (2002). Agribusiness Development Assistance Project in Nigeria. Export Opportunities for Sesame and Cashew, Prawn and Shrimp Production, Hides and Skins in Nigeria. Powerpoint presentation. Nikkon Hotel, Abuja, Nigeria. November 2002.

Chete, L.N. and Akpokodje, G.A. (1997): "Macroeconomic Determinants of Domestic Private Investment in Nigeria: An Empirical Exploration." *CBN Economic and Financial Review*, Vol. 39 No. 1, March.

Dalil, A.A. (1988): "The Historical Survey and Development of Foreign Investment Policy in Nigeria." *In Giant Strides*, Vol. 2, Lagos: VBO International Limited.

Dornbusch, Rudiger and Alejundro Reynoso (1989): Financial factors in economic development, American Economic Review, Papers and Proceedings 6(79), 204-209

Ekpo, A.H. (1997): " Foreign Direct Investment in Nigeria: Evidence from Time Series Data." *CBN Economic and Financial Review*, Vol. 39 No. 1, March.

Eleazu, U. (1988): "Strategies for Attracting Foreign Investment in Nigeria." In *Giant Strides*, Lagos: VBO International Limited, Vol. 2.

Federal Environmental Protection Agency (FEPA) (1999): *National Policy on the Environment*, FEPA, Abuja.

Federal Ministry of Agriculture and Rural Development (FMARD) (1999): *Report of the National Committee on Marketing Problems of Farmers in Nigeria*.

Federal Ministry of Environment (2002): *Sustainable Development in Nigeria: Ten Years After Rio (UNCED)*, National Assessment Report (main version). Prepared for the World Summit on Sustainable Development, Johannesburg, South Africa, August/September, 2002.

Federal Office of Statistics (FOS) (1999): *National Accounts of Nigeria*, 1981–1998, FOS, Abuja.

FOS (1999): *Annual Abstract of Statistics*. FOS, Abuja.

Froot, Kenneth and Paul Krugman (1990). Market-based External Debt Reduction for Developing countries: Principles and Prospects. Unpublished, Cambridge Massachusetts, National Bureau for Economic research.

Greene, J. and D. Villaneuva (1991). Private Investment in Developing countries: An Empirical Analysis IMF Staff Paper 38: 33-58.

Idachaba, F.S. (1998): *Instability of National Agricultural Research Systems in Sub-Saharan African: Lessons from Nigeria*." ISNAR Research Report No. 13, The Hague, Netherlands.

IFDC (2001): *Agricultural Input Markets in Nigeria: An Assessment and A strategy for Development*. IFDC, USA.

IFPRI (2003): IEHA Analysis & Knowledge Management System (AKMS): Results from the First Technical Group Meeting (14-16th January 2003) IFPRI, IITA, ILRI, IFDC Technical Group IFPRI, Washington D.C. USA

Ikpi, A.E. (2000): *Nigeria's Agricultural Sector Assessment: Issues of Technology Development and Transfer*. Prepared for USAID/AFR/SD, Washington, DC, USA

Ikpi, A.E. (2002): *"Trade Facilitation, Market Development and Agro-enterprise Support in the 2nd Fadama Development Project in Nigeria"*, a Report prepared as input into the World Bank's Preparation Mission Report on FADAMA II, Abuja, Nigeria

Ikpi, A.E., and Olayemi J.K. (ed.) (1995): *Sustainable Agriculture and Economic Development in Nigeria*. African Rural Social Sciences Research Networks (ARSSRN), Winrock International, U.S.A.

IMF

Iwayemi, A (2000): *JFA-PRESA: National Review Workshop on Investment for Poverty Reducing Employment (IPRE) Study*. Draft Final Report, Prepared for the International Labor Organization (ILO)

Iwayemi, A. (1995): "External Debt and Capital Flows in Nigeria" In Iwayemi, A. (ed.). *Macroeconomic Policy Issues in an Open Economy: A Case Study of Nigeria*, NCEMA, Ibadan, Nigeria

Iwayemi, A. (ed) (1995): *Macroeconomic Policy Issues in an Open Developing Economy: A Case Study of Nigeria*, NCEMA, *Ibadan*.

Jerome, Afeikhena, and Associates (1999): "Private Sector Investment." *Jobs for AFRICA/ PRESA Nigeria Investment for Poverty-Reducing Employment* (IPRE) Study. Interim Report.

Kalegha, J.O. (1996): "Trade Policy." . In Awoseyila A.P. (ed.) *Nigeria: Prospects for Development (a.k.a. vision 2020) Proceedings of a CBN/World Bank Collaborative Study Workshop*, held at Sheraton Hotel and Towers, Abuja, April 15 – 17.

Mamman, I. (1988): "Nigeria's Foreign Trade Policy". In *Giant Strides*. Lagos: VBO International Limited, vol. 2.

Nasko, M.G. (1988): "Agriculture." In *Giant Strides*. Lagos: VBO International Limited vol. 2.

Nigeria (2001): *New Agricultural Policy*. FMARD, Abuja.

Nigeria Investment Promotion Commission (NIPC) (2003): *Agricultural Sector Profile*. Unpublished report.

Nigerian Institute of Social and Economic Research (NISER)(2001): *The State in Nigerian Development: NISER Review of Nigerian Development*, 2000. NISER, Ibadan.

_____ (2001): "Structure of Agricultural Production" in *NISER Review of Nigerian Development, 2000*. NISER, Ibadan

_____ (2001): "The State in Nigerian Agricultural Development in *NISER Review of Nigerian Development 2000*. NISER Ibadan.

Njoku, P.C. (1998): "Nigerian Agriculture and the Challenges of the 21st Century." Faculty Lecture, Faculty of Agriculture, University of Nigeria, Nsukka.

Nwachukwu, I.O.S. (1988): "Foreign Policy Strategies for Attracting Foreign Investment". In *Giant Strides*. Lagos: VBO International Limited (1988), Vol. 2.

Obayomi, W. (1996): "The Business Climate: Legal Framework. In Awoseyila A.P. (ed.) *Nigeria: Prospects for Development (a.k.a. Vision 2020) Proceedings of a CBN/World Bank Collaborative Study Workshop*, held at Sheraton Hotel and Towers, Abuja, April 15 – 17.

Ogunfowora, O., Olayemi, J.K., Mabawonku, A.F. and Okunfulure O.E. (1985): A *Study of Commercial Agriculture in Nigeria*,. A study Commissioned by the Federal Department of Agricultural Planning, Lagos.

Ojikutu, A. (1988): " Strategies for Effective Development of Small-Scale Industries." In *Giant Strides*. Lagos: VBO International Limited, Vol. 2

Okigbo, B. (1988): "Large-Scale Agriculture and Integrated Agro-Industries." In *Giant Strides*. Lagos: VBO International Limited, Vol. 2

Okunmadewa, F. and Olayemi, J.K. (1999): *Nigeria: Globalization, Policy Changes and Agricultural Research and Development*. Commissioned Technical Report Prepared for ISNAR, The Hague.

Olayemi, J.K. (1988): "*Agricultural Policies and Programs in Nigeria*." Unpublished paper.

Olayemi, J.K. and Akinyosoye, V.O. (1989): *A Review of the Nigerian Economy and the Agricultural Sector*. FACU-IFAD Research Report.

Olayemi, J.K. and Dittoh, Saah (1995): "Macroeconomic Policies and the Agricultural Sector". In Iwayemi, A. (ed.) *Macroeconomic Policy Issues in an Open Developing Economy: A Case Study of Nigeria* NCEMA, Ibadan.

Olayemi, J.K. (1995): *Issues in Nigerian Food Security*. Working paper. Development Policy Centre, Ibadan.

Olorunshola, J.A. (2001): "Industrial Financing in Nigeria: A Review of Institutional Arrangements." *CBN Economic and Financial Review*, Vol. 39 No. 1, March.

Omoniyi, S.E. (1996): "Role of Private Investment Flows, Aid and Debt Relief. In Awoseyila A.P. (ed.) *Nigeria: Prospects for Development (a.k.a. Vision 2020) Proceedings of a CBN/World Bank Collaborative Study Workshop*, held at Sheraton Hotel and Towers, Abuja, April 15 – 17.

Onyenweaku, C.E. (2000): "Policy Issues and Strategies for Agricultural Production in Nigeria." Paper Presented at the National Workshop on Enhancing Research and Development in Agriculture and Root Crops Towards Poverty Alleviation and Rural Development in Nigeria. NRCRI, Umudike.

Oyejide, T.A. Ogunkola E.O. and Ndung'u, N.S. (2002). *Trade, Investment and Growth in Africa: Patterns, Trends and Puzzles*. Unpublished report.

Rama Martin (1990). Empirical Investment Equations in Developing countries. Policy, Planning and Research Working Papers Series 563 World Bank, Washington D.C.

Salako, H.A. and Adebusuyi, B.S. (2001): "Determinants of Foreign Direct Investment in Nigeria: An Empirical Investigation." *CBN Economic and Financial Review*, Vol. 39, No. 1, March.

Serven L. and A. Solimano (1991). Adjustment Policies and Investment Performance in Developing Dountries: Theory, country experiences and policy Implications Policy, Planning and Research Working Papers. Series 606 World Bank, Washington D.C.

VBO International Limited (1988): *Giant Strides*, Vol. 2. Lagos: VBO International Limited.

World Bank (2002): *World Development Report 2002: Building Institutions for Markets.*

Wood, S., L. You, and W. Baitx. 2000. DREAM User Manual 2000.

APPENDICES

Appendix 4.1: Agricultural Sector Policies

Policy		Objectives	Policy Strategies
.1	1. Commodity Pricing Policy	Remunerative prices and income for farmers. Stable prices and income for farmers. Competitiveness of Nigerian agricultural .commodities in the world market. Agricultural imports not to enjoy undue comparative price advantage over local substitutes. Parity in agricultural prices compared to non-agricultural prices.	Market information expansion and access with emphasis on sub-regional and regional markets and the markets of major trading partners. Operationalisation of the Multi-Commodity Development and Marketing Companies.
2.	Agricultural Trade Policy	Promotion of agricultural export and local production for import substitution.	In addition to the existing policy strategies, WTO issues will be integrated into the trade policy to take advantage of available caveats such as those within market access (trade ceiling bindings,, tariffication, tariff rate, quotas and tariff commitments), domestic support (subsidy to resource-poor or low-income producers, and green box measures), and export competition (capped export subsidies and export restriction on importing members' food security.
3.	Exchange Rate	Realignment of exchange rate	Strict enforcement of foreign exchange regulations.
4.	Agricultural Land	Nationally acceptable land tenure system. Optimal utilization of available agricultural land Sustainable land use management.	Implementation of the new Land Use Policy to promote sustainable use of agricultural land.
5.	Food Production (i) Crops:	Self-sufficiency. Technical and economic efficiency of production.	The thrust of the policy will be the promotion of community seed development, seed industry development and provision of incentives to the private sector to support out-grower seed production. Rehabilitation and expansion of production capacities to meet local demand and for export. New strategy for fertilizer subsidy administration will be at the producers' level. Rehabilitation, maintenance and supervision of existing large dams, irrigation canals and pumping facilities to be undertaken. Encouragement of the construction of small dams, wash-bores and tube-wells, in addition to pumping of surface water for irrigation.

Policy		Objectives	Policy Strategies
	(ii) Livestock	Self-sufficiency in livestock production . Enhancement of nutritional status of the populace. Efficiency in use of bye-products and stabilization of income from livestock production and processing. Provision of veterinary public and animal health services.	Capacity expansion and modernization of the National Veterinary Research Institute Vom to produce vaccines to meet local and regional demands. Promotion of the manufacture of veterinary drugs for Nigeria and West African sub-region. Upgrading of local livestock breeds through the open nucleus-breeding program. Sedentarisation of nomadic pastoralists and promotion of range management.
	(iii) Fisheries	Self-sufficiency in fish production. Application of improved technology and management practices in fish production, processing, storage and marketing. Promotion of fisheries export. Fisheries research and development. Fisheries man-power development and training. Fisheries infrastructure development. Aquaculture development.	Aquaculture development. Fish seed and fingerlings production and stocking of inland water bodies. Provision of fisheries inputs subsidy. Intensification of monitoring, control and surveillance of Nigeria's international waters, including the exclusive economic zone.
6.	Industrial Raw Materials Crops	Increased production. Productivity and production improvement. Modernization of the structure and organization of industrial crop production.	Strengthening the National Agricultural Industrial Crop Production Program. Promoting the agricultural commodities development and marketing companies. Timely supply of production inputs such as seeds, seedlings, fertilizers, credit, agro-chemicals, technology support and extension service.
7.	Support for Agricultural Extension	Dissemination of useful and practical information relating to agriculture. Practical application of modern agricultural technology.	Integration of the state extension with the ADP extension system for greater effectiveness. Strengthening the agricultural extension service, including the use of demonstration farms and adoption of integrated production and pest control.

Policy		Objectives	Policy Strategies
8.	Agricultural Credit	Availability of adequate investment funds to agriculture. Accessibility of funds at the right time, at affordable rate of interest to make agriculture profitable.	Merger of NACB & PBN to form the NACRDB and expanding the mandate to include savings mobilization. Integration and linkage of rural financial institutions to the formal banking sector. Regulating and supervising the growth of non-bank financial institutions. Promotion self-help groups for savings mobilization and credit delivery.
9.	Agricultural Insurance	Protection of Nigerian farmers against the effect of natural hazards through the operation of mechanisms that ensure quick indemnity. Improvement in the availability of agricultural loans and improvement in loan recovery.	Insurance cover to be extended to at least 50% of farmers involved in all agricultural and rural developmental activities to mitigate the risks.
10.	Agricultural Produce Marketing	Effective distribution of agricultural produce to stabilize supply and price. Encouraging export of agricultural commodities.	Promotion of organized market for Nigeria's agricultural commodities through a functional Commodity Exchange market and operational Buyer-of Last-Resort mechanism for market assurance through the three Multi-Commodity Development Companies approved by government. Streamlining and invigoration of produce inspection and the establishment of a mechanism for quality assurance.
11.	Agricultural Commodity Storage	Reduction of intra - and inter-seasonal price variability. Ensuring food security.	Maintenance of national strategic food reserve through encouragement of State Buffer Stock Food Storage Program. Promotion of the use of simple but effective on-farm and off-farm storage facilities. Operationalizing the National Food Reserve Program and strengthening and modernizing the Strategic Grain Reserve Scheme.
12.	Agricultural Commodity Processing	Processing of commodities and accelerating the growth of the agricultural sector. Preservation of commodities to reduce waste and reduce seasonal price fluctuations.	Promotion of SMEs through increased participation of Commercial banks and improvement in the quality, preservation, packaging and presentation.

Policy		Objectives	Policy Strategies
13.	Agricultural Research	Development of improved and high yielding production materials. Development of appropriate technologies.	Provision of enabling infrastructure such as laboratories, renovations and up-grading of laboratories and provision of modern information technology (e-mail, internet, telephone). Application of biotechnology in genetic improvement research and promotion of natural resources management research. Effective collaboration between the research institutes and the universities and development of a strong outreach program beginning with the host communities. Strengthening and adequately funding the research system and REFILS.
14.	Agricultural Cooperatives	Evolving a virile system that serves an effective vehicle for social and economic development. Using cooperatives as a machinery for rural transformation.	Increasing cooperative education and enlightenment to mobilize and promote group/cooperative action and democratic ideals in the management of cooperative societies. Formation of farmer-managed commodity associations.
15.	Water Resources Development	Development of both underground and surface water resources for agricultural purposes. Erosion, flood control, water shed management for sustainable agricultural production. Pollution control in water bodies.	Articulation of a systematic way of developing small dams for small scale irrigation. Completion of outstanding downstream irrigation infrastructures. Provision of down-stream facilities. Formation/strengthening of Water Users and Fadama Users Associations as grassroots organizations for irrigation development.
16.	Agricultural Mechanization	Provision of mechanical power to reduce drudgery in agriculture. Reduction of cost of production arising from high cost of labor	The zero tariff regime on imported agricultural machinery to be maintained: - Universities, Polytechnics and Research Institutes to be supported to develop and fabricate suitable equipment for use especially by the small-scale farmer. - NCAM to be expanded and modernized as a center of farm machinery and equipment development and standardization.
Policy		Objectives	Policy Strategies
17.	Rural Infrastructure	Improvement of the quality of life of rural dwellers to stem and reverse rural-urban drift. Promoting equitable distribution of public sector investments between rural and urban areas. Creation of infrastructural base which is conducive for profitable investment in the rural areas.	Articulating and implementing rural development through accelerating the provision and maintenance of rural infrastructures such as: - rural water supply; - rural markets; - rural electricity;

		Promotion of sustained and orderly development of the vast resources available in the rural areas.	- rural telephony - rural institutions. - Rural transport and travel. Mechanism to mobilize and empower the rural population to create wealth through both improved agricultura l production and skills acquisition for non-agricultural enterprises.
18.	Agricultural Statistics and Data Bank	Re-organization of various government agencies and departments to provide on a continuous basis accurate and timely data on agricultural output, prices, incomes, inputs, production costs, and so on. Adoption of a system of agricultural census that will secure, prepare, tabulate and realize annual agricultural data on all aspects of agriculture on a fairly standard format throughout the states on a set date within each year; and Inculcation of statistics and record keeping culture in agricultural production.	Strengthening of agricultural data management and information dissemination. Enhancing capacity in policy analysis, socio-economic research, market information service and program monitoring and evaluation. Strengthening the institutional capacity for coordinating data collection at the State and Local Government (primary) levels.
19.	Agricultural Investment and Management Advisory Services	Encouragement of active participation of private investors in all facets of agricultural development, and Provision of a conducive investment climate on a continuous basis for private entrepreneurs.	Improving information flow through strengthening the Agricultural Trade Information Centre and creation of Investment Promotion nodes throughout the country.
20.	Agricultural loan terms		There was a liberalization of agricultural loan terms so that small-scale farmers could obtain loans of up to ₦20,000 naira without tangible collateral. In 1988, the grace period for the repayment of commercial bank loans and advances to investors in long-gestation cash crop plantation was increased from 4 to 7 years while that of investors in mechanized large-scale farms was increased from 5 to 7 years.

Policy		Objectives	Policy Strategies
21.	Rural bank deposit		Also in 1988, the minimum share of total deposit generated by rural banks which must be given as loans and advances in the rural localities was raised from 40 to 45 percent.
22.	The Nigerian Agricultural and Cooperative Bank (NACB) Now known as the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB).	This specialized bank was established in 1973, mainly to finance agricultural development projects and allied industries. In its operations, the bank usually interacts with States' Ministries of Agriculture. It also sources its funds from government subventions, credit short-falls on agricultural loans by commercial and merchant banks through the CBN, and loans from international finance institutions like the IBRD, ADB, IFAD, etc. Following a recent major reorganization, the name of the bank has been changed to the Agricultural, Cooperative and Rural Development Bank (NACRDB).	
23.	National Agricultural Insurance Company (NAIC)	This was established in 1987 to operate and administer the Nigerian agricultural insurance scheme. The idea of the scheme was first mooted in 1984 as a strategy for tackling the problem of small farmers' inability to satisfy the collateral requirements of banks when asking for loans. It was expected that the insurance scheme would serve a number of complementary purposes. It would enhance the confidence of commercial banks in giving loans to small farmers. The insurance certificate would serve as collateral, and funds mobilized from the scheme would be utilized for agricultural investment. NAIC, has expanded its scope of coverage from the original rice, maize, poultry, cattle and tangible fixed assets (like farm building and farm machinery and equipment) to include groundnut, oil palm, sugarcane, plantain, rubber, citrus, forestry, fishery bee keeping, snailery, piggery etc.	

Policy		Objectives	Policy Strategies
24.	The Agricultural Credit Guarantee Scheme (ACGS)	The Agricultural Credit Guarantee Scheme (ACGS), established in 1977, took off in April 1978 under the management of the CBN, while a board of directors was constituted for policy making. The scheme was designed to encourage banks to increase lending to the agricultural sector by providing some form of guarantee against risk inherent in agricultural lending. In case of default, the lending banks is expected to exhaust all legal means of loans recovery, including realization of any security pledged for loans, before the Fund pays 75 percent of guaranteed loans in default. The authorized capital of the Fund was contributed by the Federal Government (60 percent) and the CBN (40 percent). Interest earnings from the Fund's investment in government securities have boosted its capital base. The scheme covers the production of all crops, fish farming, fish captures, animal husbandry, storage, farm machinery and hire services, an integrated agricultural projects incorporating production and processing, provided the primary production element accounts for no less than 50 percent of the raw materials required by the business. Collaterals are required for lending under the scheme. However, this requirement (collateral) is waived for farmers borrowing N20,000 and below. For a farmer in this category, the only requirement is an introduction by a person of repute in the community confirming that the borrower was a genuine farmer. Loans under the scheme were at concessionary interest rates until 1987. Following the deregulation of interest rates in 1987, farmers, like other borrowers, were to borrow at going market interest rates.	

Appendix 5.1: Indices of Agricultural Investment Levels, Annual Growth Rates and Variability

	Indicators	1981-85	1986-90	1991-95	1996-2000
A.	**Mean Annual Values (₦'million)**				
1.	*Gross fixed capital formation (at 1984 purchasers value)*:				
	• Total GFCF	8,093.4	4,300.8	5,648.8	6,399.0
	• Agricultural-sector GFCF	424.6	309.3	686.6	873.5
	• Agriculture's share of total (%)	5.1	6.9	12.2	13.7
2.	*Public capital expenditure (₦'million):*				
	• On infrastructure	1,123.0	943.4	2,415.7	21,113.5
	• On non-infrastructure	43,64.0	11,521.0	60,516.8	292,869.7
	• Infrastructure's share of total (%)	20.5	7.6	3.8	7.2
3.	*Annual flow of foreign net private investment*:				
	• All sectors	608.4	910.0	1913.6	8579.9
	• Agricultural sector	1.1	41.7	174.9	0.0
	• Agriculture's share of total (%)	0.2	4.6	9.1	0.0
4.	*Cumulative foreign investment:*				
	• All sectors	5,488.8	10,396.4	57,929.9	134,383.4
	• Agricultural sector	125.3	219.7	1045.6	1209.0
	• Agriculture's share of total	2.4	1.6	1.9	0.9
B.	**Average Annual Growth Rates (%)**				
1.	Gross fixed capital formation (at 1984 purchasers value):				
	• Total GFCF	-27.2	5.6	-1.0	6.4
	• Agricultural-sector GFCF	-29.9	24.5	3.6	7.1
	• Agriculture's share of total	-3.8	17.7	4.7	0.6
2.	*Public capital expenditure:*				
	• On infrastructure	-38.3	15.3	54.0	23.4
	• On non-infrastructure	0.2	35.7	41.2	12.5
3.	*Annual flow of foreign net private investment:*				
	• All sectors	88.9	-27.7	79.1	1.5
	• Agricultural sector	-	155.7	-58.1	0.0
4.	*Cumulative foreign investment:*				
	• All sectors	15.6	36.3	78.6	4.5
	• Agricultural sector	1.3	39.5	25.6	0.0
	• Agriculture's share of total	-12.4	17.8	-21.1	-4.3

	Indicators	1981-85	1986-90	1991-95	1996-2000
	Annual Variability (%)				
C. 1.	*Gross fixed capital formation (at 1984 purchasers value)*:				
	• Total GFCF	50.7	23.7	6.8	13.2
	• Agricultural-sector GFCF	61.5	74.5	5.6	13.2
	• Agriculture's share of total	21.7	49.9	9.8	3.7
	Public capital expenditure:				
2.	• Infrastructure	69.8	23.6	63.2	39.7
	• Non-infrastructure	15.6	61.3	57.6	43.8
	Annual flow of foreign net private investment:				
3.	• All sectors	85.8	60.1	54.1	61.0
	• Agricultural sector	92.7	63.2	72.3	-
	Cumulative foreign investment:				
4.	• All sectors	27.3	75.7	74.8	9.6
	• Agricultural sector	15.0	58.3	35.2	-
	• Agriculture's share of total	29.0	54.9	40.0	9.0

Sources: Computed with data extracted from: (1) CBN (2000): (2) FOS (2000) (3) Iwayemi (1995)

Appendix 5.2: Determinants of Private Investment Flow into Agriculture

	Investment Variable	Nature of Effect on Investment
1.	Size of domestic public investment	Public and private investments are normally complementary, that is positively correlated.
2.	Adequacy of domestic credit flows to the private sector	Adequate credit has positive effect on private investment and vice versa.
3.	Adequacy of foreign exchange	Since the bulk of capital goods and some raw materials are imported, foreign exchange shortage will impinge adversely on private investment.
4.	Real Naira devaluation	This induces a rise in foreign prices measured in domestic currency, thereby boosting investment in tradeables and shrinking that of non-tradeables. On balance, real devaluation is expected to have a negative effect on private investment as a substantial proportion of capital and intermediate goods are obtained offshore.
	Investment Variable	Nature of Effect on Investment
5.	Economic instability	Because long-term private investment expenditure is largely irreversible, that is installed capital assets in the agricultural sector can seldom be easily transferred to another uses or other sectors without considerable loss, private investors will be unwilling to commit large expenditure to long-term fixed investment when there is economic instability.
6.	Domestic rate of inflation	Accelerating domestic inflation increases the riskiness of long-term investment, reduces the average maturity of commercial lending, distorts the information content of relative prices and, therefore, discourages private investment.
7.	External debt burden	High external debt burden impairs the country's credit worthiness and the high debt service charge diverts funds from domestic public investment. Hence, external debt burden correlates negatively with private investment.
8.	Terms of trade	Adverse terms of trade adversely affects investment in the sector, and vice-versa.
9.	Domestic price stability	Price stability attracts private investment, and vice versa.
10.	Size of domestic market for the products of investment	Large market size attracts investment, and vice versa.
11.	Rate of return on investment	The higher the rate the higher is the flow of private investment, and vice versa.
12.	Availability of inputs and raw materials	Adequate availability promotes investment, and vice versa.
13.	Domestic investment	Domestic investment (public and private) is positively correlated with foreign investment flow.
14.	Labor and production costs	Low labor and production costs attract investment, and vice versa.

15.	Social stability	Social stability enhances investors' confidence, reduces investment risks and, therefore, promotes private investment.
16.	International product differentials	Investment flows in the direction of countries that produce dissimilar products as trade between them tends to be higher than between countries producing similar products.
17.	Regulatory environment	Favourable and conducive regulatory environment inspires investors' confidence and, therefore, promotes investment flow.
18.	Functional infrastructural facilities	Adequate infrastructural facilities (e.g. roads, energy, telecommunication, security) lower the cost of production and marketing as well as the cost of operating business, and, to that extent, increase the rate of return on investment and promote private investment.
19.	Exchange rate volatility	This creates foreign exchange risk and uncertain investment climate.
20.	Real interest rate	Real interest rate affects the cost of capital. Low real interest rate attracts higher investment. But it may also adversely affect savings, thereby hampering capacity to invest.
	Investment Variable	Nature of Effect on Investment
	Investment Variable	Nature of Effect on Investment
21.	Macroeconomic stability	This inspires confidence in a country's economy, reduces the risk of investment and promotes private investment, particularly long-term investment.
22.	Political stability	This also engenders confidence in the economic climate and reduces risks and uncertainties of investment
23.	Openness of the economy	Openness of the economy, sometimes measured as the ratio of total export and import value to the GDP, is determined largely by trade policies, and the more open an economy, the more it attracts foreign private investment in internationally tradeable goods due to the potential for participation in international trade.
24.	Existence of protectionist policies	These are expected to attract investment for the production of locally traded goods.
25.	Multi-and bilateral international agreements	These may promote increased flow of trade between nations, protect their citizens' investments and generally create goodwill which engenders confidence of foreign investors.
26.	Per capita real income	This is supposed to attract private investment as it is correlated with size of market and effective demand for the product of investors.
27.	Corruption	This creates a bad international image for a country, tends to increase investors' cost of doing business and, therefore, discourages private investment, particularly foreign private investment.
28.	Institutional inefficiencies and bottlenecks	These cause undue delays in business transactions, increase the cost of doing business and, therefore,

	and bottlenecks	increase the cost of doing business and, therefore, discourage private investment.

Source: Collated from many sources, including VBO International (1988); Balogun and Otu (1991); Chete and Akpokodje (1997); Ekpo (1997); Iwayemi (1995; 2000); Salako and Adebusuyi (2001); and, NIPC (2003).

Appendix 6.1: Summary of Investment Constraints

Sources	Technical	Infrastructural	Economic	Financial	Political	Social	Policy	Institutional	Environmental	External environment	Labor market
FGN (2002)			•Pervading poverty (70%) •Mismanagement		•Instability •Poor governance	•Ignorance •Corruption •Over-population			•Degradation		
CBN (1998)	•Low productivity •Poor technological base	•Poorly developed infrastructure	•High cost of production •Poor access to market information •Inadequate public-sector investment	•Inadequate access to credit •Inadequate financial services			•Political instability/ uncertainty	•Weak legal and regulatory framework	•Poor soil nutrient management		•Inadequate human capital
IFDC (2001)		•Poor infrastructure	•Lack of market and management information			•Physical insecurity of life and property	•Macro-economic instability •Policy uncertainty	•Weak regulatory framework			•Lack of human capital
Idachaba (1998)					•Political instability		•Macro-economic instability	•Instability of national research system		•Unconducive external environment	
Ikpi (1999)		•Inadequate basic infrastructure	•Poor investment climate •High business risk	•Poor access to credit			•Poor policy environment	•Market fragmentation •Under-developed property rights			

Sources	Technical	Infrastructural	Economic	Financial	Political	Social	Policy	Institutional	Environmental	External environment	Labor market
Chete and Akpokodje (1997)				•High external debt service •Inadequate credit			•Macro-economic uncertainty				
Balogun and Otu (1991)	•Inadequacy of viable technology •Subsistence production system •High production hazards			•Weak base of credit supply	•Political interference			•Complex procedures for investment approval			
Babalola and Adegbite (2001)							•Macro-economic instability •Multiple taxation	•Poorly developed capital market			
Salako and Adebusuyi (2001)		•Poor infrastructure	•Uncertain economic environment		•Political instability		•Unwieldy institutional framework •Unstable exchange rate regime •Investor-unfriendly policies			•Low external credit rating	

Aremu (1997)	•Technological underdevelopment •Over-dependence on imported raw materials and equipment	•Poor state of infrastructure			•Political instability	•Corruption	•Frequent changes in policies and regulations	•Stringent regulations and approval procedures. •Administrative delays		•Poor country image •Unfavourable perception of investment climate	•Inadequate skill •Low productivity
Sources	Technical	Infrastructural	Economic	Financial	Political	Social	Policy	Institutional	Environmental	External environment	Labor market
Iwayemi (1995)					•High country risk factor •Excessive political control	•Corruption and mismanagement	•Poor macro-economic environment •Low credibility of policies			•Lack of confidence in the economy	
NIPC (2003)	•Low level of technology		•Uncompetitiveness of agricultural products due to high cost and low quality •Unattractive investment •Low comerciali-zation of agricultural business		•Political instability	•Social instability •Corruption and indiscipline •Insecurity to life and property	•Macroeconomic policy instability •Policy ineffectiveness •Excessive trade barriers	•Deficient legal and regulatory framework •Weak regional integration •Deficient marketing system			
Obayomi (1996)	•Poor and declining quality of export products					•Dishonest business practices		•Deficient legal and regulatory framework •Administrative lapses		•Unstable world prices.	

FGN-IMF Joint Memorandum on Economic Policies (2000)			•High cost of doing business		•Political instability	•Corruption	•Poor policy implementation •Frequent changes in policies •Inconsistent trade and foreign exchange policies •Weak fiscal/ monetary discipline	•Demoralized bureaucracy		•Lack of confidence in the economy	

Appendix 6.2: Causes of Persistence of Constraints in the Different Zones of Nigeria

No	Constraints (Nature)	Causes of Persistence of Constraints					
		North Central	North East	North West	South East	South South	South west
1	Technical-power failure, poor technology, poor quality of raw materials, inadequate supply of fertilizer.	Low support from government, inadequate training, over-dependence on foreign supply poor government policy, low investment	Lack of awareness, lack of government support, poor local technology, lack of machines	Low level of awareness, ineffective policy, poor road maintenance, poor government policy, corruption	Bad government, neglect from government, insecurity, corruption. Lack of technological know how, poor agricultural policies.	Inadequate effort to improve technology, lack of government assistance, increases in prices of inputs, lack of adequate research, conservation	Government policy, poor implementation, non- prioritization.
2	Infrastructure- irregular water supply, erratic power supply.	Inadequate supply, poor infrastructure, poor government policy, poor maintenance culture, absence of godfather in government,	Government neglect, poor governance, inefficiency of institutions.	Poor leadership, ineffective policy, inadequate funding, little government concern.	Poor political leadership, interest vested in alternative sources, lack of government attention.	Bad governance, government neglect, corruption, poor prioritization of government spending, low supply capacity, lack of maintenance culture	Ineffective government policy, greed, poor financing, population increases, bad administration.
3	Economic -low returns on investment, inadequate funding	Frequent change of government, corrupt leaders, bad fiscal policy, poor funding of economy.	Hig tax levies, bad roads, poor resource management, high cost of production, unstable economic policies, general economic problems.	High inflation , poor governance, ineffective policy, low investment, lack of credit, economic instability, depreciation of the naira, high cost of production.	Bad governance, political instability, ineffective and inconsistent policies, diversion of credit from the agricultural sector.	Government neglect	Ineffective government policy, inadequate credit, poor administration, under-funding

4	Financial- insufficient credit to farmers, high risk of lending, inadequate financial institutions.	lack of transparency, no inadequate financial facilities, poor credit policy, poor capital base, inadequate assistance from government, risks and uncertainties of agricultural lending.	High rate if interest, lack of credit facilities, lack of awareness of credit sources, unfavorable financial institution policies.	High loan repayment default rate, poor policy, lack of trust, poor leadership, poor government interaction, poor funding, ineffective policy implementation.	Banks reluctance to lend to farmers, unfavorable economic climate, high crime rate, corruption, lack of mutual trust, inadequateallocation of funds to agriculture..	Unstable exchange rate, high interest rate, government bureaucracy, corruption, banks refusal to give loan to agriculture, , lack of government assistance, low returns from farming, discrimination against agriculture.	Ineffective policy, high interest rate, corruption, poor agricultural funding, poor credit supply, under investment, inefficient banking system.
5	Political-political crises, lack of trust, poor leadership.	Government inaction, personal gains, political instability, buyers, poor governors.	Political instability, military intervention, poor governance.	Poor governance, greed, poor leadership, inefficient policy, militocracy, resource control.	Political instability, poor leadership, greed, weak policies.	Frequent changes of government, diverse geopolitical groups, non-participatory governance, lack of political reforms	Ineffective policy, political instability.
6	Health- malaria, inadequate health facilities.	Government inaction.	Inadequate health facilities, poverty, bad governance.	Ineffective policies, limited resources, poor government intervention, high veterinary cost.	Poor leadership, inconsistent policies, policy instability, poor environmental management.	Inadequate health facilities, lack of good drugs, no permanent solution e.g. malaria vaccines.	Ineffective policy.
7	Macro economic policy- massive importation of food, inconsistent export policies, weak import policies.	No government commitment, frequent change in government policy.	political instability, unstable policy.	Poor banking policy, ineffective policy, high taxes, bad government policies.	Policy inconsistencies, corruption, adverse domestic economic environment, vested interest in trade	Inconsistence and non- cohesion of policy from policy makers.	Ineffective policy.

8	Micro economic policy- poor input and commodity storage, inadequate input supply, poor marketing facilities	Lack of commitment, frequent change in government policy.	Lack of awareness, lack of credit facilities, lack of government support	Government neglect, ineffective policies, poor government intervention, poor policy implementation, non-availability of credit.	Policy inconsistency, poor leadership, poor management.	Lack of attention to micro economic policies.	
9	Institutional- inefficient banking system, bureaucracy, and inadequacy of policies.	lack of institutional reforms, poor regulatory mechanism for institutions.	Cumbersome loan processing procedure, inefficient banking services.	Wrong policy, bureaucratic bottlenecks, poor governance.	Inconsistent and ineffective policy, high interest rate, high crime rate, corruption, bureaucracy.	Perceived risky nature of agriculture, long gestation period of agricultural investment.	Corruption, lack of clear-cut policy.
10	Land tenure- land fragmentation,	Communities do not want to lose their land, rapid growth in population, land fixed in size, inadequate skill	Greed, bureaucracy, high monetary demand by landowners.		Political instability, policy inconsistency, land tenure system, traditional and cultural practices.	Rigid cultural norm, weak enforcement of land policy.	Gender discrimination cultural norm, land scarcity.
11	Labor –high cost of labor	Inadequate skill training scheme, rural-urban drift, urban wage increases	High wages, poor technology	Labor shortage, high cost of living, low mechanization, high rural urban migration,	Inadequate labor supply, high wage rate, bad governance, rural urban migration.		Labor supply instability, lack of skilled labor, poor technology.

Appendix 6.3: Gainers from Persistence of Constraints and Nature of Gains.

No	Gainers from Constraints	Nature of gains from the constraints					
		North Central	North East	North West	South East	South South	South west
1	Technical- Foreign suppliers, importers, foreign investors, bankers, middlemen, generator dealers, government officials/policy makers, fraudsters and quacks, politicians, local investors, transporters.	Hard currency, buy cheap products.		Monetary, financial, employment.	Financial kick back on supplies/import	No allocation of funds for purchase of tools. Organizing seminars and making farming calendars.	Financial under market advantage.
2	Infrastructure- Generator importers, merchants, foreign firms, , importers, transporters, top government officials, politicians, contractors, marketers.	Monetary		Monetary, Financial	Financial	High charges, foreign trips, monetary, buying cheaply and selling at high prices.	Financial, hike in charges/fares.
3	Economic – Government, middle men, importers, spare part dealers, politicians, fuel dealers, foreigners, multinationals, policy makers, , government officials, bankers, technical partners, fertilizer merchants..	Diverting of funds, declaration of huge dividends at the end of the year, finance.	Revenue, high transport charges.	Monetary, financial, high import prices.	Financial, Monopolistic over gains, promotion.	Monetary	Financial.
4	Financial- Government officials, financial institutions, financially advantaged farmers, politicians, policy makers, importers, foreigners, private moneylenders,	Monetary, buy at cheap rates, make money from other ventures.	Profit, illegal wealth amassing.	Monetary, financial, High interest rate.	Financial, risk aversion, High interest rate.	Monetary, Profit, Increased output.	Financial.
5	Political- Politician, military, policy makers, political thugs, corrupt government officials, relatives/associates of government	Export of their commodities, bought commodities	Power, Financial, Illegal wealth.	Power/Political control, financial.	Financial, recognition.	Monetary, self-enrichment with project funds.	Power, financial.

	officials, buyers, American government.	at cheap rates, embezzlement, financial.					
6	Socio cultural- elites, criminals, investors, religious leaders, fraudsters, touts, political leaders, middlemen.	Secure of land permanently.	Income.	Power, Financial, Relevance, Money, Goods.	Financial looting of materials.	Cheap goods.	Financial.
7	Health- Foreign investors, politicians, smugglers, quacks in health profession, fraudsters, private investors, pharmaceutical companies, fake drug manufacturers and vendors, private owners of health facilities.	More patronage, drugs available.		Financial, high veterinary cost	Financial	Monetary, high financial gains from sales of drugs.	Financial.
8	Macro economic policy- government, importers, foreigners, financial houses, smugglers, local entrepreneurs, customs officials.		Revenue.	Monetary	Financial, Materials.	Economic gains.	
9	Micro economic policy- Middlemen, government, financial institutions, businessmen, policy makers, importers, fraudsters.			Monetary, Recognition.	Financial	High profit.	
10	Institutional- Institutions, foreigners, local moneylenders, policy makers, , bureaucrats, corrupt government officials.	Monetary, personal enrichment.	High interest rates.	Political recognition, Power.	Financial, Irredeemable collateral.	Farmers	Middlemen
11	Environmental- Policy implementers, saboteurs, landowners, processors, fishermen.	Financial.		Financial.	Financial, Free health care.	Monetary.	
12	Land tenure- land owners, land speculators, estate agents, governments	Exploitation of tenants	Inflation of prices and rents	Acquisition of land at cheap rates	Seizure of land	High rent income	High tax on land

13	Labor –foreigners and their agents, employers of labor, skilled workers, labor union leaders	Big contracts, high wage, income.	High Income,	High Income,	Financial, reward, cheap labor.	-	High wages.

Appendix 6.4: Losers from Persistence of Constraints and Nature of losses

No	Losers from Constraints	Nature of losses from the constraints.					
		North Central	North East	North West	South East	South South	South west
1	Technical- Farmers marketers, Nigerian investors, women, road users, masses, the economy, government, processors.	Foreign exchange, low wages, poverty, high cost of products, inadequate supply of inputs	Low level of production, , low income, , use of local unproductive technology, high production cost.	High cost of transportation, spoilage of produce, low productivity, low technical skill, output, employment, low return on investment	Loss of agricultural produce, loss of employment, low income, low standard of living, low return on investment,	Reduced output, monetary, reduction in land area, poor economy.	Low profits, unemployment, indiscipline, high input cost, loss of market, financial losses.
2	Infrastructure- Marketers/traders, Nigerian investors, women, farmers, transporters, consumers, unemployed, processors, common man/poor people.	Loss of investments, poor output, enduring poverty, low return on investment, unemployment, inadequate input supply	Loss of income, reduced profit, health hazards, slow development.	Low profit, poor technical skill, low productivity, low returns, high transport cost.	Poor living standard, capital flight, financial loss, high cost of input, high death rate .	High cost of transportation, inability to expand business, low returns, spoilage of farm produce, poor quality of produce, poor access to markets	Production losses, spoilage, high cost of production, poor market access.

3	Economic – Marketers farmers, investors, women, the economy, entrepreneurs, ordinary citizen.	Chronic poverty, poor farm yields.	High marketing cost, high transport cost, lack of fund for investment, slow rate of developmental, low returns on investment	High production cost, monetary loss, low productivity, employment loss, low returns on investment.	Business failure, financial loss, lack of capital to invest.	High cost of input, high cost of production, low output.	Business stagnation, low purchasing power.
4	Political- Investors, citizens/masses, women, entrepreneurs, farmers,	Low output, financial, loss of confidence in government/economy.	loss of human rights political instability.	Insecurity, lack of freedom political instability,	Loss of investments, low return on investment,	Instability in government, extra investment in product line.	-
5	Socio cultural- Marketers, women, masses, farmers, entrepreneurs, exporters, youths.	Unemployment.	Loss of properties, income and lives, socio political and economic instability.	Insecurity, lack of freedom of speech, loss of property,	Loss of lives and property, collapse of businesses, financial loss.	Loss of property, monetary loss.	Production losses.
6	Health- Farmers, marketers, , women, masses, manufacturers, low income earners, , government.	Inadequate heath care, unhealthy citizenry.	Sickness, diseases, low productivity, physical and mental instability.	Sickness, loss of lives, financial loss, low productivity.	Financial loss, collapse of enterprise, high cost of production, high cost of health care..	Poor health, reduction in output, loss of man-hours due to sickness l.	High cost of health care
7	Macro economic policy- Marketers/traders, investors, women, farmers, entrepreneurs, consumers, private sector, government.		Low profit increased marketing cost, retarded economic growth.	Low investment, , financial loss, loss of employment,	Loss of market share, financial loss.	Unhealthy and risky investment climate	-

8	Institutional- farmers, women, investors, workers, government, masses.	Low income	Low production	Inadequate production technology, low investment, loss of employment.	Financial loss, loss of employment.	Monetary loss, low production, low capacity utilization.	Unemployment
9	Environmental- Women, , masses, farmers, entrepreneurs, processors, government,	Loss of aesthetic beauty, loss of life, ill health.	Destruction of farms.	Loss of soil fertility low productivity.	Financial loss, loss of soil fertility, loss of arable land, poor return on investment returns.	Monetary loss.	Environmental pollution, health hazards.
10	Land tenure- Women, landowners, society, entrepreneurs, processors, prospective farmers.	High cost of investment, unemployment, and high Cost of land	High cost of investment, insufficient land for farming.	Financial loss	Lack of a adequate access to land, inability to expand farm.	Lack of land for farm expansion, inability to mechanize due to small farm size, high cost of land acquisition,	High cost of land.
11	Labor – Farmers, indigenous investors, women, workers businessmen, youths.	Low labor efficiency high cost of production.	High cost of production, high cost of investment.	Low returns, financial loss, high cost of production.	Financial loss, loss of farm labor.		Low supply of labor, poor output, production losses.

Appendix 6.5 Effects of Constraints to Investment in Nigeria's Agriculture

Effect	Technical	Infrastruc-	Economic	Financial	Political	Socio-	Health	Macro-	Micro	Institut-	Environ-	Land	Labor
(1) Low output/ productivity or low level of production	all zones	NE, SS SW	NW, SS	all zones	NC	NC, NW	NC, NE NW, SS SE	NW	NC, NE SW	NW, SS SW	SS	NC, SS SE, SW	NE, SS SE, SW
(2) High cost of investment/ production or high inputs cost	NW, SS SE,SW	NC, NW SS, SE SW	NC, NW SS, SE	NW,SS	SS, SE	SS, SW	-	all zones	NS, NW SS, SE	NC, SS SE	NC, NW SE,SS	NE, NW SE, SW	all zones
(3) Low returns to investment/low attractiveness to investors	NC, NE NW, SE	NC, NW SE	NC, NE NW, SS	-	NC, SW	-	SS	NE, NW	-	SE	NE	SE	-
(4) Low or poor level of investment	-	-	NW	SS, SW	NW, SE	NW, SE	NW	NC, NE	NE, NW SS, SE	NW	-	NW	-
(5) High prices of produce	-	NC	SE,SW	-	-	-	-	-	-	-	-	-	SE
(6) Collapse of business or its abandonment	NC	-	SS	NC	NE	SS,SE	-	-	-	NE	-	-	-
(7) Poor access to credit/	-	-	-	NC, NE	-	-	-	SW	-	NE, NW	-	-	-

insufficient working capital				SE						SS, SE			
(8) Low capacity utilization	-	-	SE	SW	-	-	-	-	-	-	-	-	-
(9) Poor investment climate	-	-	-	-	SS	NC, SW	-	SS	-	-	-	-	-
(10) Spoilage of products or production loses	NC,NE NW,SW	NC,SW	-	-	-	-	-	-	-	NC	-	-	-
(11) Poor quality of products	-	NE,NW	SW	SE	-	-	-	-	SW	-	-	-	-
(12) Poor economic growth	-	-	-	NC SE	NC, NE	-	-	SE	NC	NC	-	-	-
(13) Loss of fund invested	-	-	-	-	-	NE	-	SS	SW	SW	-	-	-
(14) Loss of life	-	-	-	-	SW	NE	-	-	-	-	-	SS	-
(15) Loss of property	-	-	-	-	SW	NE	-	-	-	-	-	SS	-
(16) Loss of confidence on economy	-	SS	-	SE	-	SS	-	-	-	-	-	-	-

(17) Excessive importation/ Dumping of fake/sub-Standard products	SE	NE	-	-	-	-	-	-	-	-	-	-	-
(18) Uncompetitiveness of product in the world market	-	-	SS	-	-	-	-	-	-	-	-	-	-
(19) High marketing cost	-	NE	-	-	-	-	-	NE	-	-	-	-	-
(20) High transport cost	-	SS	-	-	-	-	-	-	-	-	SE	-	-
(21) Fatigue	NE	-	-	-	-	-	-	-	-	-	-	-	-
(22) Insecurity/ violence	-	-	-	-	NE, NW	NE, NW	-	-	-	-	-	-	-
(23) Poverty and suffering	SS	SS	-	-	SS	-	-	-	SS	-	-	-	-
(24) Poor commercialization and distribution of goods	-	SE	-	-	-	-	-	-	SE	-	-	-	-
(25) Relegation of agriculture to the background	-	-	-	-	SW	-	-	-	-	-	-	-	-
(26) Poor urban and rural	-	-	-	-	-	SE	-	-	-	-	-	-	-

development													
(27) Misdirected priorities in investment	-	-	-	-	-	SE	-	-	-	-	-	-	-
(28) Capital flight	-	-	-	-	-	NW	-	-	-	-	-	-	-
(29) Sickness/poor health	-	-	-	-	-	- SE, SW	NE, SS	-	-	-	NC	-	-
(30) Destruction of natural production resources and loss of biodiversity	-	-	-	-	-	-	NE, NW SS,SE SW	-	-	-	-	-	-
(31) Difficulty in farming	-	-	-	-	-	-	NE	-	-	-	-	-	-
(32) Difficulty on acquiring land	-	-	-	-	-	-	- SW	NC, NE SS,SE					
(33) Conflicts and ethnic rivalry	-	-	-	-	-	-	-	SS	-	-	-	-	-

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Appendix 7.1: Reasons for Attractiveness of Enterprises to Foreign Investors by Zones

	Reasons	NC	NE	NW	SE	SS	SW	NIG ERIA
I.	**Input Production/Supply Enterprises**							
	High demand	X	X	X	X	X	X	5
	Availability of raw materials	X	X	X				
	High rate of returns		X		X	X		3
	Culturally adapted						X	1
	Limited Expertise						X	1
II.	**Staple Crops Production Enterprise**							
	Security of labor	X						1
	Land fragmentation	X						1
	Poor processing facilities	X						1
	High demand		X		X	X	X	4
	Available manpower		X					1
	Poor market access			X				1
	Corruption			X				1
	High rate of return				X	X		2
	Good land resources					X		1
	Culturally adapted						X	1
	Lack of mechanization						X	1
III.	**Industrial Crops Production Enterprises**							
	High demand	X		X	X	X		4
	Low level of investment		X					1
	Low yield		X			X		2
	Market availability			X	X	X	X	4
	Labor availability			X				
	High rate of return				X		X	2
	High export potentials			X				1
	Good land resources				X	X		2
IV.	**Livestock Production Enterprises**							
	Scarcity of land	X						1
	Poor market facilities	X						1
	Suitable environment		X		X	X		2
	Major economic activity	X			X			2
	High rate of returns			X	X	X	X	4
	Market availability			X	X		X	3
	Labor availability			X				1
	Availability of facilities						X	1
V.	**Fisheries Enterprises**							
	High rate of returns	X	X		X	X	X	5
	Poor market	X						1
	High demand		X	X	X	X		4
	Abundant water resources				X	X		2
VI.	**Forestry Enterprises**							
	High rate of returns	X			X	X	X	4
	Availability of (high demand) of market	X			X	X		3
	Availability of best product		X					1
	Poor market access			X				1
	Opportunities for export				X	X		2

VII.	**Commodity Processing**							
	High demand	X			X	X		3
	Availability of raw materials	X		X	X	X	X	5
	Availability of market	X		X				2
	Lack of local investors		X					1
	High export opportunity		X					1
	Availability of labor			X				1
	High returns				X	X	X	3
VIII.	**Agricultural Storage**							
	High demand	X					X	2
	Low awareness	X				X		
	Export in regional markets		X					
	Poor market access			X		X		
	High perishability of agricultural products				X	X		2
	High returns				X		X	2
	Poor infrastructure						X	1
IX.	**Agricultural Transport**							
	Inadequate spare parts	X						1
	Inadequate attention	X						1
	High local demand		X	X	X	X	X	5
	Poor market access			X				1
	High competition			X				1
	Poor infrastructure				X	X	X	3
	High returns				X	X	X	3
X.	**Commodity Marketing**							
	High rate of returns	X			X	X	X	4
	High level of awareness	X						1
	High local demand		X		X	X	X	4
	Poor market access			X				1
	High competition			X				1
XI.	**Agro-industry/Management**							
	Availability of raw materials	X	X	X	X	X	X	6
	High local demand		X	X	X			3
	Labor availability			X				1
	High returns					X		1
XII.	**Commodity Export**							
	Improved government policy on export	X						1
	Abundant res ources		X		X	X	X	4
	High rate of returns			X	X	X		3
	Large market			X			X	2
	Low tariff			X				1
XIII.	**Support Services**							
	Skilled manpower			X				1
	Low awareness				X	X		2
	More governmental intervention						X	2

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Source: Field Survey, February/March, 2003.

Appendix 7.2: Reasons for Attractiveness of Enterprises to Domestic Investors by Zones

	Reasons	NC	NE	NW	SE	SS	SW	NIGERIA
I.	**Input Production / Supply Enterprises**							
	High demand	X	X	X	X	X		5
	High capital requirement	X		X	X	X		4
	Availability of raw materials	X	X					2
	High rate of returns			X				1
	Limited number of operators						X	1
II.	**Staple Crops Production**							
	High demand	X	X	X	X	X	X	6
	Conducive agroclimatic conditions	X						1
	Availability of raw materials			X			X	2
	Availability of good land				X	X		2
	High rate of returns				X	X		2
III.	**Industrial Crops Production Enterprises**							
	High demand	X		X		X	X	4
	Availability of processing facilities	X			X	X	X	4
	High rate of returns		X	X	X	X	X	5
	Large industrial demand		X		X	X	X	4
	High rate of returns		X		X			2
	Conducive agroclimatic conditions			X				1
	Availability of good land					X	X	2
	Low business potentials					X		1
	High production potentials						X	1
IV.	**Livestock Production Enterprises**							
	Conducive agroclimatic conditions	X			X	X	X	4
	Easy of operation	X						1
	High demand		X	X	X	X	X	5
	High rate of returns		X		X	X		3
	Availability of raw materials			X				
V.	**Fisheries Enterprises**							
	High returns	X		X		X	X	4
	Lack of storage facilities	X						1
	High demand			X	X	X		3
	Abundant water resources		X		X	X		3
	High technical and capital		X			X		2

	requirements							
VI.	**Forestry Enterprises**							
	Abundant resource endowment	X	X					2
	High demand		X					1
	Low returns			X				1
	High production cost			X				1
	Land fragmentation				X	X		2
	Low awareness					X		1
	High rate of returns						X	1
	Available opportunities						X	1
VII.	**Agricultural Commodity Processing**							
	High demand	X	X	X	X	X		5
	Availability of raw materials	X	X	X		X	X	5
	High rate of returns			X	X		X	3
	Huge capital requirements				X	X		2
VIII.	**Agricultural Storage**							
	High rate of returns	X		X	X	X	X	4
	Poor storage facilities	X			X	X		3
	Poor local technology		X					1
	High demand		X		X		X	3
	Poor market			X				1
	Low level of awareness			X				1
	Poor infrastructure						X	1
IX.	**Agricultural Transport**							
	Poor infrastructure	X			X	X		3
	Security of spare parts	X						1
	High rate of returns		X	X	X	X	X	5
	High demands		X	X	X	X		4
	High rate of returns		X		X			2
	Capital intensive						X	1
X.	**Agricultural Commodity Marketing**							
	High rate of returns	X	X	X	X	X	X	6
	High demand	X	X	X	X	X		5
	Poor infrastructure						X	1
XI.	**Agro-industrial/Manufacturing**							
	Availability of raw materials	X	X	X	X	X	X	6
	High demand		X	X				2
	Labor availability			X				1
	High production cost			X				1
	High rate of returns				X	X		2
XII.	**Commodity Export**							
	Slight improvement in policy	X						1

	Abundant resources		X		X	X		3
	High rate of returns			X	X	X	X	4
	High demand			X			X	2
	Low tariff			X				1
XIII.	**Support Services**							
	Skill or manpower			X				1
	Less awareness				X	X		2
	More government intervention						X	1

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Source: Field Survey, February/March, 2003.

Appendix 7.3: Priority Primary Commodities for Investment Across Zones in Nigeria (Rank 1=highest)

								Ranks Assigned
	Primary Commodities	**NC**	**NE**	**NW**	**SE**	**SS**	**SW**	**NIGERIA**
I.	**Staple Crops**							
	Rice	7	1	3	2			3.25
	Maize	3	2	1	4			2.5
	Milet	5	3	4				4.0
	Cowpea	6	4	2				4.0
	Sorghum		5	5				5.0
	Cassava	2	6	6	1	1	2	3.0
	Yam	1	7	7	3	2	1	3.5
	Sweet potato				5			5.0
	Cocoyam				6			6.0
	Melon				7			7.0
	Plantain					4		4.0
	Guinea corn	4						4.0
II.	**Industrial Crops**							
	Groundnut	4	1	1				2.0
	Cotton		2					2.0
	Vegetables	5	3	5		3	4	4.0
	Tea/Coffee		5					5.0
	Oil palm	2	5		1	1	2	2.2
	Rubber				2	2	3	2.3
	Cocoa				3		1	2.0
	Cashew				4	4		4.0
	Orange				5			5.0
	Pineapple			3	6	5		4.6
	Ginger				7	6		6.5
	Pepper				7			7.0
	Benniseed	3		2				2.5
	Sesame			4				4.0
	Gum Arabic			4				4.0
	Garlic			6				6.0
	Tobacco			7				7.0
	Soyabeans	1		8				4.5
III.	**Livestock**							
	Poultry	1		4	2		2	2.25
	Piggery	2		3	3	1		2.25
	Cattle	3	1	1	4	3		2.4
	Sheep and Goat	4	2	2	1	2	1	2.0
	Rabbitry				5	4		4.5
IV.	**Fishery**							
	Fish catch	1	1	1		1	1	1.0
	Aquaculture	2	2		1	4	2	2.2
	Cray fish					2		2.0
	Shrimp					3		3.0
	Smoked fish			2				2.0
V.	**Forestry**							
	Timber	1			1	1	1	1.0
	Gum Arabic			1				1.0
	Cargo						2	2.0
VI.	**Others**							

	Apiary			1	1			1.0
	Sugar cane			2				2.0

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Source: Field Survey, February/March, 2003.

Appendix 7.4: Investment Priorities in Downstream Agricultural Activities

	Secondary Commodities	NC	NE	NW	SE	SS	SW	NIGERIA
I.	**Agro-industries**							
	Yam processing	1					1	1.0
	Cassava processing	2			3	1	2	2.0
	Vegetable oil processing	3	3	1	1			2.0
	Ginger processing			6				6.0
	Fruit processing			8	2	3	3	4.3
	Flour mill		4	4	4			4.0
	Tannery		2	3				2.5
	Textiles			2	8			5.0
	Breweries			5			4	5.0
	Gum Arabic processing			7	7			7.0
	Oil palm processing					2		2.0
	Cocoa processing					4		4.0
	Rubber processing				5	5		5.0
	Timber processing					6		6.0
	Baking				6			6.0
	Shoe manufacturing				7			7.0
	Starch company				9			9.0
	Tomato processing		1					1.0
	Cotton ginnery		5					5.0
	Sugar cane processing		6					6.0
	Tea and coffee		7					7.0
II.	**Commodity Storage**							
	Grain storage	1	1	1	1	1	1	1.0
	Cold storage				2	2	2	2.0
	Root and tuber storage	2			3		3	3.0
	Fruits storage				4			4.0
	Oil palm storage				5			5.0
	Vegetable storage				6			6.0
	Flour mill	2	1	1			1	1.3
	Hide and skin		2					2.0
	Meat curing		3					3.0
	Vegetable oil		4				5	4.5
	Livestock feed mill		5	3			4	4.0
	Tea and coffee		6					6.0
	Sugar and confectioneries		7	4				5.5
	Palm kernel processing				1			1.0
	Fruit juice processing				2		3	2.5
	Cocoa processing				3	2	2	2.5
	Plantain chipping				4			4.0
	Fish processing					1		1.0
	Gum Arabic			5				5.0
	Tomato processing	3		2				5.0
	Ginneries			6				6.0
	Ginger processing			7				7.0
	Root and tuber processing	1						1.0
	Soyabeans processing	4						4.0
	Agricultural Commodity Marketing and							

	Distribution							
	Root and tuber products marketing	1			1		1	1.0
	Soyabean marketing	2						2.0
	Rice marketing	3					3	3.0
	Grain marketing		2	1	2		2	1.8
	Vegetable marketing		3	2	2		4	3.0
	Processed livestock products		1					1.0
	Dairy products			3				3.0
	Poultry			4				4.0
	Agricultural Input Production							
	Fertilizer	2	1	1	1	1	1	1.2
	Improved seeds	1	2	2	3		2	2.0
	Farm implements	3	3	3	4	2	4	3.2
	Agro-chemicals				2		3	2.5
	Day oil chick/fingerlings production				5		5	5.0
	Animal feeds			4			6	5.0

Key: NC=Northcentral; NE=Northeast; NW=Northwest; SE=Southeast; SS=Southsouth; SW=Southwest

Source: Field Survey, February/March, 2003.