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ACRONYMS

ABU	Ahmadu Bello University
ACGSF	Agricultural Credit Guaranty Scheme Fund
ADB	African Development Bank
ADP	Agricultural Development Program
AIDU	Agro-Industrial Development Unit
ANC	Anti-Natal Clinic
ARV	Anti-Retroviral
CAP	Capacity Acquisition Program
CAPA	Catchment Area Planning and Action (BASICS II)
CBARDP	Community Based Agriculture and Rural Development Project
CBN	Central Bank of Nigeria
CBNRMPP	Community Based NRM Project
CBO	Community Based Organization
CCM	Central Control Mechanism
CDC	Center for Disease Control
CGIAR	Consultative Group on International Agricultural Research
CIDA	Canadian International Development Agency
CiSCGHAN	Civil Society Consultative Group on HIV/AIDS in Nigeria
CMD	Cassava Mosaic Disease
CMEWS	Crop Monitoring and Early Warning System
CMP	Cassava Multiplication Program
CSACEFA	Civil Society Action Coalition for Education for All
CSO	Civil Society Organizations
CWIQ	Core Welfare Indicators Questionnaire
DAIMINA	Developing Agri-input Markets in Nigeria
DfID	Department For International Development
DFRRI	Directorate of Food, Roads, and Rural Infrastructure
DHS	Demographic and Health Survey
DOTS	Directly Observed Treatment Short Course
EBF	Exclusive breastfeeding
ECOWAS	Economic Community Of West African States
EPP	Epidemic Projection Package
ERAP	Ekiti Rural Access Programme
ETF	Education Tax Fund
EU	European Union
FAMEG	Federal Agricultural Processing and Market Expansion Group
FAO	Food and Agriculture Organization of the United Nations
FAO/NSPSF	National Special Programme for Food Security
FAS	Foreign Agricultural Service

FBO	Faith Based Organization
FCA	Fadama Community Associations
FCT	Federal Capital Territory
FD	Fertilizer Department
FFE	Food for education
FGN	Federal Government of Nigeria
FHI	Family Health International
FIRRO	Federal Ministry of Infrastructure, Roads and Rural Organization
FMARD	Federal Ministry of Agriculture and Rural Development
FMOH	Federal Ministry of Health
FOS	Federal Office of Statistics
FPDD	Fertilizer Procurement and Distribution Division
FSFC	Federal Super-phosphate Company
FTF	Farmer-to-Farmer
FY	Fiscal year
GIS	Geographical information system
GON	Government of Nigeria
HEAP	HIV/AIDS Emergency Action Plan
HIV/AIDS	Human immunodeficiency virus/acquired immune deficiency syndrome
HKI-CDTI	Helen Keller Institute, Community-Directed Treatment for Ivermectin
IAR	Institute for Agricultural Research
ICRISAT	International Crops Research Institutes for Semi-Arid and the Tropics
ICS	Information and Communications Support for Agricultural Growth in Nigeria
IDA	Iron deficiency anemia
IDAS	International Donor Agencies
IDC	Industrial Development Centers
IDD	Iodine deficiency disorder
IEC	Information, Education and Communications
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Company
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IMCI	Integrated Management of Child Illness (WHO)
IP	Implementing partner
ITN	Insecticide Treated Nets
JEWEL	Jigawa Enhancement of Wetlands Livelihoods
KIT	Royal Tropical Institute
LACA	Local Action Committees on AIDS
LGA	Local Government Authority

MAP	Mandatory Attachment Program
MAP	Multi-Country AIDS Program for Africa
MARD	Federal Ministry of Agriculture and Rural Development
MCH	Maternal and child health
MICS	Multiple Indicator Cluster Survey (UNICEF, 1999)
MTCT	Mother to Child Transmission
NACA	National Action Committee on AIDS
NACB	Nigerian Agricultural and Cooperative Bank
NACRDB	National Agricultural Credit and Rural Development Bank
NAERLS	National Agricultural Extension and Research Liaison Services
NAFAN	National Farmers Association of Nigeria
NAFCON	National Fertilizer Company of Nigeria
NAIC	National Agricultural Insurance Corporation
NAPCA	National Agency for the Prevention and Control of AIDS
NAPEP	National Poverty Eradication Program
NASCP	National AIDS and STD Control Programme
NBI	Nigerian Bank for Industries
NCAM	National Centre for Agricultural Mechanization
NCFN	National Committee for Food and Nutrition
NCHS	National Center For Health Statistics
NCRI	National Cereals Research Institutes
NDE	National Directorate of Employment
NDHS	Nigeria Demographic and Health Survey
NFC	National Fertilizer Corporation
NFCC	National Fertilizer Coordination Committee
NFDO	National Fadama Development Office
NFDP	National Fadama Development Program
NFTC	National Fertilizer Technical Committee
NGO	Non-governmental organization
NISER	Nigerian Institute of Social and Economic Research
NMS	National Micronutrient Survey
NNPLWHA	National Network of Persons Living with HIV/AIDS
NPC	National Planning Commission
NPEP	National Poverty Eradication Program
NPHCDA	National Primary Health Care Development Agency
NPK	Nitrogen-Phosphorus-Potassium
NRCRI	National Root Crops Research Institute
NSPFS	National Special Programme for Food Security (FAO)
NSS	National Seed Service
NTBLCP	National Tuberculosis and Leprosy Control Programme
OVC	orphans and vulnerable children
OXFAM	Oxford Committee for Famine Relief

PABA	People Affected by AIDS
PCA	President's Council on AIDS
PCU	Project Coordinating Unit
PICS	Participatory Information Collection Survey (UNICEF, 1994)
PLWHA	Persons Living with HIV/AIDS
PRA	Participatory Rural Appraisal
PrOpCom	Promoting Pro-poor Opportunities through Commodity and Service Markets
PSRHH	Promotion of Sexual and Reproductive Health and HIV/AIDS Reduction Programme
PTDF	Petroleum Technology Development Fund
QPM	Quality Protein Maize
RBDA	River Basin Authority
RBM	Roll Back Malaria Program
RIDS	Rural Infrastructure Development
RTEP	Root and Tuber Expansion Program
RUSEP	Rural Sector Enhancement Programme
SACA	State Action Committees on AIDS
SAMEG	State Agro-Processing and Marketing Expansion Program
SFDO	State Fadama Development Office
SGR	Strategic Grain Reserves
SME	Small and Medium Sized Enterprises
SMOH	State Ministry of Health
SO	Strategic Objective
SOWESS	Social Welfare Services Scheme
SPFS	Special Project on Food Security
SSA	Sub-Saharan Africa
SSMU	State Seed Multiplication Units
STI	Sexually Transmitted Infections
SWAAN	Society of Women Against AIDS in Nigeria
TBA	Traditional birth attendant
TBL	Tuberculosis and Leprosy
UI	University of Ibadan
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNAIDS	United Nations Program on HIV/AIDS
USAID	United States Agency for International Development
VAD	Vitamin A deficiency
WB	World Bank

WHO	World Health Organization
WHTC	Withholding Tax on Contract
WOFAN	Women Farmers Advancement Network
YES	Youth Empowerment Scheme

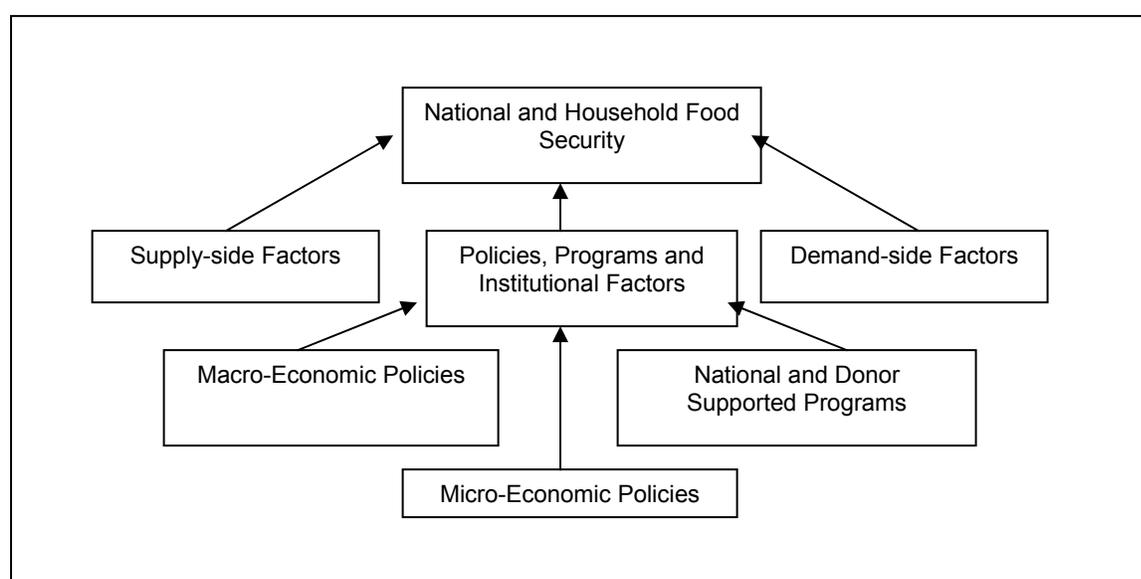
SECTION I

Economic/Agricultural Component

A. Objective

The major objective of the Economic/Agricultural component of the assessment is to analyze the current state of food security, including regional variations/disparities. In this Chapter, major factors that influence national and household food security are discussed. These include the policy environment, institutional setting, and supply and demand factors (Figure 1).

Figure 1. Factors Affecting National and Household Food Security



B. Background

Nigeria is a large country with an estimated area of 923,768 square kilometers and a population of about 120 million people. The country has a comparative advantage in the production of a variety of crops and livestock enterprises in different agroecological zones, which range from humid forest in the south to Sahelian savannah in the north. The soil types and rainfall distribution, to a large extent, determine the farming systems in the different agroecological zones.

In spite of the dominant role of petroleum in the economy of Nigeria, agriculture still remains the mainstay of the economy, providing food for the population, employment for over 70 percent of the population and raw materials for agro-industrial development. Before and shortly after the discovery of oil, agriculture dominated the Nigerian economy. The agricultural sector grew at a rate sufficient to generate over 50 percent of the foreign exchange earnings and a significant proportion of internal capital through export and domestic sales of agricultural commodities. It provided employment for over 90 percent of the population.

In the last two decades, however, the performance of the agricultural sector has faced serious challenges while the demand for food has steadily increased. The share of agriculture in the government's total expenditure declined rapidly and consistently from about 15 percent between 1981 and 1985 to only about 4 percent between 1996 and 2000. In quantitative terms, a recent assessment of the Nigerian agricultural policy (2003) revealed that the share of agriculture in the mean aggregate GDP declined marginally from 41 percent between 1986 and 1990 to 38 percent between 1991 and 1995, and increased marginally to 40 percent between 1996 and 2000. Sub-sectoral analysis showed that between 1996 and 2000 the crops sub-sector dominated the agricultural sector GDP, representing about 80 percent of agriculture GDP. This was followed by livestock and fisheries with 13 percent and 4 percent, respectively.

C. Policy Environment

C1. Macroeconomic Policies

Macroeconomic policies that impact agricultural production are fiscal, monetary, and trade policies.

C1a. Fiscal Policy

In Nigeria, fiscal policies have not stimulated growth in the economy. A recent macroeconomic assessment in Nigeria (2003) revealed high volatility of government revenues and expenditures. The volatility has led to fiscal deficits at all tiers of the government and has weakened institutional structure and capacity for efficient and transparent budgetary management. As a result, the economy has been recording slow growth, increased external and domestic debts estimated at over \$28 billion, and severe distortions in money markets. Given this scenario, any attempt to put the national economy back on the path of high and sustainable growth must focus on the inadequacies in fiscal policy and budgetary management, especially in the areas of capacity building, revenue diversification, and expenditure stabilization. Also, agriculture's share of the Federal Government budget needs to be increased significantly and the funding provided to the sector in a timely manner. The federal and state budgets for improving infrastructure in rural areas also need a major boost in order to stimulate development of the agriculture sector.

C1b. Monetary Policy

The Central Bank of Nigeria (CBN) has the responsibility for managing the monetary policy. The objectives of monetary policies include prudent management of the money supply and effective influence on interest rates and exchange rates in order to stimulate growth in the economy. Over the years, however, ineffective management of fiscal policy, inefficiency in the financial markets, corruption in the government, and lack of transparency in the banking system have combined to reduce the effectiveness of monetary policies (Table 1). [All tables are located at the end of this Section.]

The performance of monetary policies from 1999-2001 was poor and below targets in most cases. The high and unstable rate of growth in money supply fueled inflation; GDP growth rates were lower than what Nigeria needed to keep up with the 2.8 percent population growth rate and

at the same time lower the poverty rate, and high exchange rates set the terms of trade against domestic producers of goods and services (including agriculture). Most of the production inputs were imported and more expensive to producers than world input prices, leaving the smallholder farmers worse off. In addition, the high fluctuation in the levels of interest and exchange rates portrayed the Nigerian investment climate as unstable and risky, thereby further curtailing investment in agriculture.

Another major impact of the depreciating Naira is the large scale illegal cross border trade, between Nigeria and Niger, Chad, Cameroon and Benin Republic, in agricultural commodities and inputs, particularly food grains and fertilizers. The effect of this leakage is a reduction in domestic supply of grains for food and industrial use, and scarcity and high cost of fertilizers for crop production. These developments have a negative effect on national and household food security.

C1c. Trade Policy

In Nigeria, import duties have been variable and commodity specific and, together with occasional restrictions on the importation of certain food commodities, have often been used to protect and promote domestic agricultural production. The Nigerian Government has maintained an export ban on some commodities, such as, sorghum, maize, millet, roots and tubers, groundnut oil, palm oil, and poultry products, not only to ensure adequate supply to meet expanding domestic demand for both food and industrial uses. The levels of import duties, export tariffs and excise taxes applicable to various sectors of the economy are usually regulated annually through budgetary pronouncements, but in line with government's objective of promoting priority sectors.

Trade in Nigeria is, however, severely hampered by inefficiencies in the ports, including excessive port congestion and delays, complex custom clearing regulations, and lack of transparency among the port procedures. The added cost incurred in the ports discourages trade and results in less revenue for the government. Furthermore, when agricultural inputs, most of which are imported, or outputs to be exported are trapped in the port, farmers are unable to access these inputs in a timely manner.

C2. Microeconomic Policies

The new agricultural policy in Nigeria (2001) emphasizes policy objectives with the following key features:

- The evolution of strategies that will ensure self-sufficiency in food production through improvement in technical and economic efficiency.
- Reduction of risk and uncertainties through the invigoration of the existing agricultural insurance scheme to protect farmer's investment and enhance access to credit through indemnity against losses.
- A nationwide, unified and all inclusive extension delivery system under the Agricultural Development Programs (ADP).
- Encouragement of agro-processing to add value, promote rural industrial activities and entrepreneurship and link farmers with markets.

- Provision of rural infrastructure, rural banking, primary health care, and cottage industries, in order to improve the rural landscape, stimulate agriculture and rural development, and encourage youths to return to agriculture (Table 2).

Microeconomic policies in Nigeria have, however, not been effective in increasing producer access to agricultural inputs, expanding and improving infrastructure in agriculture, supporting higher investment in applied agricultural research and development, increasing resources for rural extension activities and technology transfer, facilitating greater access to agricultural credit, improving water resource management, or establishing effective land development and tenure reforms.

D. National Food Security

National food security addresses the availability of food to the population as a whole. A country is considered food secure on a national basis when at least 2100 kilocalories of energy, and 0.75 grams of protein per kg of body weight, are available per capita per day.¹ To measure national food security, total aggregate food supply and its grain equivalent² is estimated using all sources of supply of food, including domestic production, imports, and carryover from the previous year, post-harvest and marketing losses, non-food uses, and exports are accounted for on an annual basis. To get the kilocalories/capita/day available, the estimated grain equivalent is converted to kilocalories and divided by the population and by 365 days.³

In the case of Nigeria, domestic agricultural production of the major food crops reached 99 million mt in 2000, agricultural imports were 4.5 million mt (97 percent of which was rice, wheat, fish, and sugar), and carryover of food crops was estimated at about 1,000,000 mt (Table 3). Post-harvest and marketing losses and non-food uses were estimated at 32 million mt and 15 million mt, respectively.⁴ Exports of food commodities totaled about 15,000 mt. Approximately 2413 kilocalories/day of food were available per capita per day, assuming a population in 2000 of approximately 114 million people.⁵ In 1999, 2497 kilocalories/person/day were calculated to be available per capita per day. The World Development Report 2000 reported the food energy available in Nigeria to be 2609 kilocalories/capita/day in 2000.

Data on meat consumption since the 1990s is not available, however, the World Development Report 2000 stated the estimated grams of protein consumed per capita per day in Nigeria was 56 grams in 2000 and 50 grams in 1999. With a median age of 18 years in Nigeria and an average weight of an estimated 60 kg, the protein requirement per capita per day is about 45 grams.

These results indicate that the country had enough food available to provide the minimum required kilocalories per day and energy requirements for each person to maintain a healthy life.

¹ Nigeria: Macroeconomic Assessment and Agenda for Reforms, USAID/Nigeria Macroeconomic Assessment, 2003

² The grain equivalent factor for each food type varies; for example, for maize the factor is 1.0, for cassava it is 0.3, and for groundnuts, the factor is 1.5.

³ The grain equivalent (in mt/year) for each food crop/commodity or product is estimated based on the appropriate conversion factor for that food type. To obtain the available kilocalories/day per person, the grain equivalent is converted into grams per year, multiplied by 3.6 (to convert grams to kilocalories), and divided by the population.

⁴ Layemi, J.K., The Nigerian Food Equation: Towards A Dynamic Equilibrium

⁵ FOS, Annual Abstract of Statistics, 2001.

E. Supply Side Factors Influencing Food Security

E1. Agricultural Production and Productivity

E1a. National Agricultural Production

Agriculture GDP represents about 40 percent of the total GDP of Nigeria. Total arable land in Nigeria is 56.5 million hectares. Low-lying (*Fadama*) land is estimated to be 3.1 million hectares. From 1984-2000, total production and area cultivated of the major food crops increased at a rate of approximately 7.7 percent and 6.0 percent, respectively (See the Annex at the end of this Section.). During this time, the total production and area cultivated of the major food crops increased by 162 percent and 91 percent, respectively. However, most of the increase came during the period from 1984 to 1992, during which time, agricultural production responded favorably to structural adjustment programs.⁶

Since 1992, growth in total agricultural production and area cultivated has slowed to an average of only 3.5 percent and 2.7 percent, respectively, per year (Annex). This rate of annual growth in production is just above the population rate of growth (2.8 percent) and far below the 7 percent-8 percent needed for reducing poverty and household food insecurity.⁷ The greatest increase in production and area cultivated since 1992 has been with the pulses and vegetables⁸ (Table 4). The cereal crops have exhibited the lowest rate of growth in production and area cultivated. Since 1992, much of the increase in production of food crops has been the result of expanding the area cultivated.

However, the Crop Area and Yield Survey conducted by the Government ADPs of smallholder farmers indicated that, from 1996-2001, yields of cereals, roots/tubers and pulses increased an average of 3.7 percent, 1.9 percent, and 4.7 percent per year, respectively. There is no obvious explanation for such increases since fertilizer and improved seeds were not readily available during especially the period 1999-2001.

In terms of the share of total production by crop types between 1984-88 and 1996-2000, the average total production of roots and tubers increased from 55 percent to 68 percent, pulses increased from 11 percent to 17 percent, and cereals decreased from 37 percent to 24 percent (Table 5). The Area cultivated in cowpeas, rice, and yams increased by 6 percent, 5 percent, and 5 percent, respectively, while the area cultivated of millet and sorghum decreased by 9 percent each.

Livestock, representing the second largest sub-sector in agriculture, are produced principally in the Central, NW, and NE zones. Livestock production, though having increased by 3.7 percent per year from 1984-1998, due in part to the substantial land area devoted to pasture, has had its growth rate constrained due to shortages of feed and veterinary services (Annex).⁹

⁶ CBN, *The Changing Structure of the Nigerian Economy and Implications for Development*, 2000.

⁷ DFID, *PrOpCom – Design*, 2003.

⁸ Area cultivated was not available for vegetables.

⁹ FMA.

Domestic fish production, of which about 88 percent and 5 percent is derived from artisanal fisheries and aquaculture, has increased about 6 percent annually since 1995.¹⁰ Despite the increase in domestic fish production, about 55 percent of the total fish in the country is imported.

E1b. Agricultural Production and Productivity Across Zones

Subsistence agriculture accounts for 90 percent of agricultural output. Smallholder farmers, the major producers of all major food crops and livestock in Nigeria, employ traditional farming systems characterized by extensive use of land and the practice of shifting cultivation. Smallholder farmers intercrop cereals, root crops and tubers with legumes using the following patterns: (See map at the end of this section.)

In the North West, the North East, and the Central zones, average production of cereal (sorghum, millet, or maize) and legume (cowpea, groundnut) intercropping for smallholder farmers who use no fertilizer and no improved seeds is approximately 350 kg cereal and 100 kg legumes per year. In the NW and NE zones, with the addition of fertilizer (2 bags NPK, and 1 bag urea), improved seeds, and pesticide, farmers are able to produce about 1.25 mt/ha cereal and 1.5 mt/ha legume when 1/3 is planted to cereal and 2/3 to legume. In the southern part of the NW zone and in the Central zone, farmers are able to produce 2 crops of cowpeas and, when intercropped with maize, produce 1.25 mt maize/ha and 1.75 mt cowpeas/ha.¹¹ Rice is either produced as a mixture with other cereals or produced as a sole crop. As a sole crop, rice yields about 2.25 mt/ha when about six bags of fertilizer and agricultural chemicals are applied.

In the SW, the SE, and the Central zones, mixtures of root/cereal/vegetable are intercropped using yam, cassava, cocoyam, melon, and vegetables is common. When, for example, a mixture of yam/maize/cassava is produced, the average yield of yam, maize, and cassava is 8400, 250, and 5000 kg/ha (providing the smallholder farmer has used about 3 bags of fertilizer). Specific agroecological information by zone is given below.

Central Zone

The Central Zone is considered the most productive zone, has comparative advantage in the production of a variety of crops and livestock enterprises (Annex).¹² Farmers in the zone produce the most yam, rice, and groundnuts, while also producing large quantities of maize and cassava (Table 7). The soil type, rainfall pattern, growing season, and temperature profile in the Central zone are more conducive for achieving higher production and productivity than in the other zones. The average farm size in this zone is 2.5 hectares. The Central zone, spanning from the eastern border with Benin to the western border of the Cameroon, has the lowest population density (47 persons/sq. km).¹³ Despite the high agricultural potential in this zone, a zone containing 44 percent of the total arable land¹⁴ in the country, only about 26 percent of the arable land is under cultivation (Table 8). During the dry season, irrigated, low-lying, and river basin

¹⁰ FMA.

¹¹ B.B. Singh, IITA, personal communication

¹² DFID, PrOpCom Design Report, 2003.

¹³ FGN and FAO, SPFS-Project Document, 2001

¹⁴ Total arable land represents 75 percent of the total land in Nigeria

areas are used for crop production. Since the late 1990s when fertilizer use (nationwide) decreased to approximately 100,000 nutrient tons, crop productivity in this zone, as in all the other zones, has been hampered by the poor availability of inputs, especially, fertilizer and certified seeds.¹⁵

South East Zone

The South East agroecological zone, although receiving ample rainfall for producing crops most of the year, has fragile soils that require highly adaptive crops (such as cassava, yams, and, in some places, plantains) to grow. Oil exploration has had an adverse impact on some of these fragile soils and low-lying areas.

Smallholder farmers in the South East zone produce the most cassava and cocoyam of any zone, while also producing large quantities of yam. The average farm size is 1 hectare, with the average holding varying between 0.5 and 2.5 hectares. Rural farmers joined by low income wage earners account for 90 percent of the land under cassava cultivation. The zone has the highest population density (240 persons/sq.km.) among all zones. The zone has a rather small amount of arable land (10.3 percent) but a relatively high percentage of land area under cultivation (48 percent). Since cassava is the principal crop in this zone, the threat to food security of the cassava mosaic disease has been receiving a great deal of attention. In place and well funded is the cassava mosaic disease epidemic prevention program. The nearness of the mosaic disease across the border in the Cameroon has made it imperative that only mosaic-disease resistant cassava cuttings be used for cultivation in the South East zone. By following through on this important program, the cassava mosaic disease will not pose the threat to this well established and high potential crop and, more importantly, to the livelihoods and food security of the many smallholders that cultivate the crop. Average cassava productivity remains low (only about 10.8 mt/hectare) while the cost of production remains high (7743 naira/ton).¹⁶ The use of mechanization in processing and commercialization of this important crop in, especially, the SE and SW zones will be needed in order to utilize (both for food and for industrial purposes) the expected increase in the cassava produced and supplied. The President of Nigeria has emphasized an ambitious Cassava Program goal of producing cassava valued at 5 billion naira within the next five years.

Besides the emphasis on cassava, plantains are a key cash crop demanding a high premium price.¹⁷ Plantain and banana cultivation is concentrated in the states in southern Nigeria. For the production of plantains, once the initial investment is made for planting materials and establishing the plantain field, the cost in subsequent years is negligible. Plantains, more so than bananas, provide a good diversification crop as production and income from crop sales is continuous. In addition, oil palm cultivation continues to flourish in this and the SW zone.

South West Zone

The South West agroecological zone is similar to the SE zone in that it receives ample rainfall for producing crops most of the year and has fragile soils that require highly adaptive crops to

¹⁵ IFDC, Agricultural Input Markets in Nigeria: An Assessment, 2002

¹⁶ IITA Farm Manager speaking at the CMD Epidemic Prevention Program, Pt. Harcourt, June 2003

¹⁷ Dr. Jones Lemchi, IITA, Pt. Harcourt, personal communication

grow. The South West zone produces moderate quantities of cassava, maize, yam, and cocoyam. The average farm size is 1.2 hectares in the forested areas and 2.0 hectares in the savannah areas. The zone has a high urban to rural population ratio (1.5) and the smallest amount of arable land (7.3 percent). Poultry production is most common in this zone. Oil palm and cocoa are two major cash crops in the SW zone.

North West Zone

The NW agroecological zone and the NE zone have widely varying rainfall patterns from the drought-prone north (Sahel savannah), where early maturing crops (especially, sorghum, millet, and cowpeas) are needed, to higher rainfall areas in the south (Sudan savannah) where double cropping of legumes are possible intercropped with maize and/or other crops. The North West zone dominates in the production of millet, sorghum, cowpea, and livestock (along with the NE zone), while also producing large quantities of maize, groundnut, and rice. The average farm size is 3 hectares. The zone, though it has a moderately dense population (103 persons/sq.km.), has 25 percent of the arable land in the country and the highest percentage and amount of cultivated land (68 percent). There are about 900,000 hectares of low lying and river basin areas available for dry season crop cultivation, including irrigation.¹⁸ In the past decade, production and area cultivated of the traditional cereal crops, sorghum and millet has decreased by about 10 percent. In especially the northern states of the NW and NE zones, soils have become drought stressed resulting in gradual desertification and reduced soil fertility. Cultivation practices using improved and early maturing crops (cowpeas, groundnuts, sorghum, and millet) have been successfully taken up by some farmers in this zone. Early-maturing cowpeas, while adding to soil fertility and also helping reduce the populations of Striga (a parasite on cereal crops), intercropped strategically with sorghum, millet, or maize, provide a farming system that may give the zone a significant boost in productivity and improvement in food security. Even without fertilizer application, using improved seeds and the “Best Bet Plus” intercropping technique (cowpeas/cereal) has resulted in a 50 percent increase in yield over the traditional cropping method using local seeds.

The NW zone also produces a large percentage of the livestock (cattle, sheep, and goats) grown in Nigeria. The NW and the NE zones raise more livestock than the other three zones. The husbandry, marketing and processing of cattle plays an important role in the northern region of the Nigerian economy with more than 70 percent of rural households estimated to own some form of livestock. The cattle economy in the northern region is characterized by the circulatory herding done largely by the Fulani, the international import trade in livestock, centered in Maiduguri, Kano and Sokoto, and the raising of cattle by sedentary households in villages throughout the region. With the southern creep of desertification and recent drought years, livestock rearing has moved further south in the NW and NE than before.

North East Zone

Similar to the NW zone, the North East agroecological zone has a drought-prone, Sahel savannah in the north and a higher rainfall, Sudan savannah in the south. The zone, with an average farm size of 1.5 ha, produces large quantities of millet, sorghum, and cowpea (Table 7, Annex). The

¹⁸ National Fadama Development Project, Staff Appraisal Report, 1992.

zone, with a low population density (56 persons/sq. km), has 14 percent of the arable land in the country, 44 percent of which is being cultivated. Low-lying and river basin areas, totaling about 1.7 million hectares, are available for crop production in the dry season. The Chad Basin, a low-lying area, has been developed for irrigation, including irrigated wheat. The area is also home for nearly 100,000 fishermen who annually catch about 58,000 mt of fish sold mostly in Nigeria. Livestock, especially cattle and goats, is a very important enterprise in the NE zone.

E1c. Agricultural Productivity and Income Across Zones

The Nigerian Government considers increasing agricultural productivity as one of the major elements in improving food security. Unfortunately, several factors have lowered efficiency, agricultural production capacity, and product quality, and have placed a tremendous strain on what labor is available in the rural areas. These factors include: 1) inputs, particularly fertilizer and improved seeds, have not been readily available on time and in good quality since the late 1990s and, 2) lack of basic rural infrastructure (farm to market roads, transportation, potable water, electricity, etc.)

Agricultural productivity has stalled and any gains in total production in the zones have resulted mostly from expansion in area cultivated. The average smallholder farmer has harvested less than two metric tons of the major cereals (maize, sorghum, rice, and/or millet) per year and less than 50 percent of the potential yield for roots crops.¹⁹ For example:

In the NW zone, mixed cropping of cowpea/sorghum or millet using traditional methods (no fertilizer and local seeds) yields less than 100 kg of cowpea (valued at N40/kg) and 350 kg (valued at N25/kg) of sorghum or millet per hectare per crop year. Return to the farmer then amounts to about N 12,750/ha. Using improved seeds and pesticide, farmers could improve yields by 50 percent.²⁰ Using an improved farming system, with only 100 kg of NPK, 50 kg of urea, improved seeds, and agricultural chemicals, the average yield and net income of 55 farmers was 1 mt of cowpeas and 1 mt of sorghum or millet and N59,000/ha.

With low and continued stagnation in agricultural productivity across all zones, rural households (where food insecurity tends to be concentrated more so than in urban areas) will have to continue to rely on other sources of income in order to access the required levels of energy and protein for the household. This becomes an even higher priority for households with high dependency ratios, as found in all zones (Table 9). Income per household (for both rural and urban households, includes farm and non-farm cash income) is highest in the SE, Central, and SW zones (Table 9). The income per household does not include the value of the crop used for home consumption. However, even for these zones, the level of income is low and the rural households must rely on non-farm income to maintain their households. The Baseline Survey for the National Special Food Security Program found that only rural households in the Central zone indicated they had enough food to last from one harvest until the next. For rural households in the other zones, household members must find non-farm work, such as trading, agricultural processing, carpentry, artisan, etc., in order to supplement their farm production, their principal source of livelihood. Many producers in the NW zone are producing certified seeds (cereal and

¹⁹ DFID, PrOpCom Report, 2003.

²⁰ B.B. Singh, Director, IITA, Kano Station.

legume) for sale. The fact that most rural households are net purchasers of food products indicates that higher commodity prices alone are not sufficient to improve their welfare. Efforts to increase income from agricultural production must focus on increased productivity and also increased commercial opportunities for farmers to benefit from increased production.

The trend in income distribution since 1986 shows a widening income gap between rural and urban incomes. The widening gap is attributable to several structural changes in the economy.²¹ Average income of urban households is generally, higher, than income of rural households because there are, generally, many civil service jobs and more plentiful and diverse income generating activities (many in the informal sector) in the cities. No quantitative data, however, was available showing the difference (national or zonal) in income of urban and rural households. Many households also depend on remittances from relatives living and working abroad.

E1d. Expenditure Disparities

Expenditure disparities also exist between urban and rural households. The disparities are higher during the July-September period when rural households have their own produce to consume and more of their expenses are non-cash expenditures (Table 10). The higher percentage of expenditure on food by rural households during the lean months is a problem faced by most smallholder farmers (except many of those in the Central zone) who are essentially net consumers. National or zonal trends and actual amounts of household expenditures for rural and urban households were not available.

E1e. Input Prices, Costs of Production, and Credit

In the YR 2000 Farm Management Survey, the majority of the farmers that participated got their planting materials from their farms.²² Prices for planting materials in 2003 ranged from about N110/kg (improved) cowpeas to about N100/cassava bundle. Prices of inputs are high by world standards. Access to improved planting materials has only in the past few years been improving as many farmers are being contracted to produce and sell certified seeds. Fertilizer, though subsidized at about N2000/50 kg NPK, is still much higher than the world price (~N600/50 kg). Smallholder farmers have had difficulty obtaining the quantity of fertilizer they need on a timely basis. Although the government disperses 120,000 mt of fertilizer/year distributed somewhat evenly across all states, the amount is very little relative to the demand. In 1999/2000, the total supply of fertilizer nationwide decreased to about 200,000 mt, only about 18 percent of the potential need for fertilizer when applied at recommended rates.²³ Agricultural chemicals, available but expensive, are used by some farmers when they recognize the problem in time. Labor is also a major cost of production. Land preparation, planting/digging holes, applying fertilizer, seed dressing, weeding, harvesting and bagging require labor. Table 11 illustrates the proportionate quantity and cost of inputs to an average smallholder operation in 2002 farming 1 ha in a mixture of cassava/maize.

²¹ CBN, The Changing Structure of the Nigerian Economy and Implications for Development, 2000.

²² FMARD, FAMAS, 2002.

²³ Singh, H.B. and B. Ajadi, IFDC, Fertilizer Production and Marketing in Nigeria, 2002.

Labor accounts for about 65 percent of the total costs. For those smallholder farmers with only about 1 ha or less of land cultivated, hired labor is too expensive, so the household must provide all the labor. The SE and NE zones are the zones with the smallest average farm size, 1 ha and 1.5 ha, respectively. These households are also the most likely to be food insecure much of the year. Any household with a high dependency ratio, i.e., households with a high ratio of young children, elderly people, HIV/AIDS infected people, and chronically sick, find it especially difficult to complete the farm work that is needed. Often, the productivity of such households suffers when the dependency rises within the family.

In order to purchase these inputs, smallholder farmers need to be able to obtain production loans. Farmers typically have little awareness of where to go to get credit for their farming operations. Even when they are aware of formal credit sources, high interest rates and difficult terms for such loans discourage the farmers. The high interest rates (over 20 percent) on short-term loans are particularly unattractive in a macroeconomic environment where inflation rates remain less than 10 percent.

There are both formal and informal sources of credit available to some smallholder farmers. The formal sources include the community banks, commercial banks, the NACRDB, and NGOs. The Government funded Agricultural Credit Guarantee Scheme has dispersed very few loans to smallholders, partly because the collateral requirements are too difficult for the smallholder farmer to meet, and also because of disbursement delays. Only a few commercial banks in specific states have been providing smallholder farmers production loans. Some government and donor assisted projects (FMA/PCU-FAO SPFS, DAIMINA, and others) have assisted smallholder farmers with revolving credit. Some farmers are able to get loans from informal sources, such as middlemen. However, interest rates on such loans tend to be even higher and repayment terms more severe than those from formal sources.

E1f. Output Prices and Profitability

Productivity, input prices and output prices have a major impact on the profitability (gross margins²⁴) of the different crop mixtures used across zones. In the FMA/PCU's Farm Management and Advisory Services Handbook 2000/2001, the average gross margins of various crop mixtures and sole cropping was illustrated. The results indicate that, among the seven sole or mixtures of crops examined, the highest gross margins (naira/ha) for traditional smallholder farmers in 2000 was for maize/sorghum (N28,800/ha) and rice (N23,100/ha).²⁵

Rural market prices of the major crops increased nationally an average of 26 percent annually from 1993 to 2001.²⁶ This average annual rate of increase in commodity prices in rural markets closely followed that of the rural consumer price index of 25 percent during 1993-2001.²⁷ However, smallholder farmers are price takers and often do not get the actual commodity prices that are offered in the rural markets. Rural market prices, as measured by the rural food price index in each zone, vary considerably across zones. For example, the states with the highest and lowest prices for commodities in March 2001 are listed in Table 12.

²⁴ Gross margin is the net income before payment of family labor

²⁵ FMARD, FAMAS, 2002.

²⁶ FOS, Annual Abstract of Statistics, 2001

²⁷ CBN, Statistical Bulletin, 1999.

This wide ranging pricing information illustrates product prices are much lower in surplus areas and without a good marketing and transport system, smallholders find it difficult to benefit from the higher prices in areas that are deficit in those products. A major gap in Nigeria's agricultural support efforts is the absence of a market information system.²⁸

E1g. Nutritional Indicators Across Zones

To determine the food deficit and potential energy and protein shortages by zone, the reported production estimates by zone are used to obtain calories and protein per capita per zone.

Energy

The grain equivalent (in mt/year) for each food crop/commodity or product is estimated based on the appropriate conversion factor for that food type. To obtain the available kilocalories/day per person, the grain equivalent is converted into grams per year, multiplied by 3.6 (to convert grams to kilocalories), and divided by the population.

The results in Table 13 for the wet season production of crops in 2002 indicate that the producers in the Central zone produced at least 80 percent more of the major food crops (in kg/capita in grain equivalent) than producers in the NW and the NE, 280 percent more of the food crops than producers in the SE, and 411 percent more of the food crops than producers in the SW.

Protein

For obtaining primary protein sources in the zones, the production of livestock, cowpeas, and groundnuts was assessed by zone. Cattle, sheep, goats, and groundnuts were produced mostly in the Central and northern zones (Table 14). Poultry was principally produced in the SW and Central zones. The highest production of cowpeas was in the NW and NE zones. The Central and NW zones dominate the production of protein-rich sources of food, as measured by #livestock/capita/year (Table). The NE is next in terms of production of protein-rich sources of food, livestock, pulses, and fish (mostly from the Chad Basin). The SW zone is not producing enough protein-rich foods to reach the minimum protein requirements, although artisanal fishing has provided an additional source of protein. The SE zone is producing the lowest amount of livestock although artisanal fishing is an important source of protein.

Comparing the level of energy and protein supplied by each of the zones clearly shows the Central zone producing far above its energy and possibly above its protein requirements. To reach the minimum level of daily protein requirements, 0.75 gms per kg of body weight needs to be consumed. No measurement could be made to determine if the production of protein-rich food in any of the zones met or exceeded the minimum daily per capita protein requirement. The NW zone would also appear to be producing a surplus of energy and protein, but by not as wide a margin as with the Central zone. It is likely that the NE zone is producing sufficient energy foods but not producing enough protein-rich foods. Both the SE and the SW are deficit producers of

²⁸ RUSEP, Needs Assessment Study for Market-driven Agricultural Technology transfer and Commercialization in Nigeria, 2002.

energy and protein, although the artisanal fishing may be adding to the protein production in both zones.

In the NW and NE zones, raising cattle by households is making an important contribution to households' welfare. Animals represent a source of wealth and value, a source of nutrition (meat and milk), and are used in cultivating land. However, husbandry practices of cattle rearing and maintenance are poor, milk yields are low, and many animals are sold in very poor health, bordering on malnutrition. As a result, the potential contribution of livestock to the nutritional requirements and income generation of poor households is not being realized.²⁹

E2. Labor and Land Tenure

E2a. Labor

Labor is a critical input in the traditional, subsistence farming system employed by smallholder farmers in Nigeria. These farmers plant very small areas at a time, using crude implements and labor intensive practices. As a result, the demand for labor is generally very high at the time of planting, weeding, and harvesting.³⁰ Since the oil boom years, rapid urbanization has taken place, and farm labor shortages have become a chronic problem in the entire country, especially in the southern zones. The percentage of the workforce employed in agriculture has dropped from 59 percent in 1981-1985 to 45 percent in 1996-2000.³¹ Hired labor shortages have driven up the cost of labor in southern states, such as Rivers State, to N800-N1000/day, making such labor unaffordable to the average smallholder

Exacerbating the migration problem has been the poor agricultural productivity of smallholder farmers and the perception among young adults in farm families that the farm cannot support them and their livelihoods. Once the young adults in the family leave, many farm families are left with only aging parents and possibly the very young children who really need to be in school. Though the practice of shifting cultivation among subsistence farmers is still common, the ability of these families to handle the heavy labor requirements in such farming is being tested. For those families with high dependency ratios, including those families where the head of household is infected with HIV/AIDS, household labor shortages can lead to malnutrition and chronic food insecurity.

In the NE and NW zones, there is a different labor shortage. In rural Muslim families, the education level of the women is very low and, consequently, few improved technologies in agriculture ever reach these women. With these women and women throughout rural Nigeria so extensively involved in planting, harvesting, and processing of cereals and legume crops and in rearing livestock, it comes as no surprise to hear of tremendous strides many women's' groups have made once they have been assisted technically and/or provided access to improved inputs for achieving higher agricultural productivity. With the multiple food security tasks carried by the women farmers, the increased productivity and the consequent increase in income allows time and energy constrained women farmers to hire farm labor when necessary.

²⁹ DFID, PrOpCom, 2002.

³⁰ CBN, The Changing Structure of the Nigerian Economy and Implications for Development, 2000.

³¹ CBN, *ibid.*

To decrease the migration from rural to urban areas, young farm family members need to be integrated into agricultural technical training and assistance opportunities offered to the rural households through the ADPs and other projects or programs. The approach used at the Farmer Resource Centers (USAID-funded ICS project) in the SE zone may be appropriate to achieve this desired integration. These Centers serve as technology clearinghouses providing communications, and professional and social services to the surrounding rural communities.

E2b. Land Tenure

Before 1978, the land tenure system in Nigeria was classified as a feudal system in the north, in which land was held in trust by the traditional ruler, and family ownership in the south. At that time it was easier to obtain land in the north than in the south. In the south, the tenure system encouraged fragmentation of the land. To address this problem, the Nigerian Government promulgated the Land-Use Decree in 1978.³² However, population growth has led to a high level of fragmentation of land.³³ Consequently, despite the large expanse of arable land in Nigeria, acquiring a relatively large tract or tracts of land for farming remains an “arduous task owing to the existing tenurial arrangements”³⁴. There are, however, cases today where large tracts of land (over 100 hectares is considered by some as large scale) have been obtained for farming.

The cumbersome land acquisition process and the insecurity of title due to fraudulent practices, are some of the land tenure constraints to sustainable food security. Women are currently very active participants in food production but there are socio-cultural factors which prevent women from having title to land in many parts of the country. For most communities, ownership of farm land is acquired through paternal inheritance, thus women have historically had very limited access to and control over land resources.

E3. Storage and Processing

“A significant portion of the farmers’ harvests (in Nigeria) rot because of lack of storage and processing facilities.”³⁵ For some crops, such as cassava, which can be stored in-ground, significant deterioration takes place within only a few days after harvest, the losses (in terms of quality) start as soon as the product is harvested. Other crops, such as the cereal grains can be stored for many months without deteriorating. Simple, efficient, and cost-effective storage technologies for perishables, such as roots, tubers, fruits, and vegetables, have not been properly demonstrated in Nigeria as compared to the storage technologies for cereal grains and legumes. Consequently, postharvest food storage losses are very high, approximately 40 percent for perishables, compared to cereal grains and pulses at about 15 percent. The humid tropical environment in the SE and SW also makes it more complicated to store successfully any crop. In the arid northern part of Nigeria, storage of crops is much less problematic.

Many rural households have been measurably successful at chemically controlling storage pests while storing cereals in traditional storage facilities (mud rhombus, thatched rhombus, platform,

³² In 1980, it became the Land-Use Act

³³ IFPRI, IITA, and UI, Assessment of the Nigerian Agricultural Policy, 2003.

³⁴ CBN, The Changing Structure of the Nigerian Economy, 2000.

³⁵ RUSEP, Needs Assessment Study for Market-driven Agricultural Technology Transfer and Commercialization In Nigeria, 2002

and crib). These traditional storage facilities have certain deficiencies, including low elevated base making it easy access for rodents, wooden floors that termites could attack, weak supporting structures that are not moisture-proof, and inadequate loading and unloading facilities. The Crop Storage Unit of the FMA has developed metal storage bins to adequately meet the farmer's storage requirements. Also, IITA in Kano has developed a storage technique used by many smallholder farmers who produce and store cowpeas. The technique involves double or triple bagging (two see-through plastic bags and an outer 50 kg-jute bag) cowpeas that have been dried, cleaned, and Bruchids removed by heating the cowpeas under the sun. The bags are then tied air tight and the cowpeas have been stored successfully for as long four years.³⁶

Across agroecological zones, most farmers store only a portion of their crops for consumption, instead, selling part of their crop early to get cash to pay for their immediate financial obligations, including, in some instances, repaying the production loan to the middlemen. For smallholder farmers in the SE, NW, and the NE zones, the most recently harvested crop is completely gone within seven months.³⁷ This represents the difficult position the smallholder farmer is in. As much as the farmer would like to get a higher price for the crops by storing more of his crops or for a little longer, financial obligations leave the farmer no choice. Itinerant middlemen, on the other hand, have oftentimes the upper hand when dealing with such farmers desperate for cash.

In the Central zone, however, farmers produce and store sufficient food crops to last the entire crop year. Those farmers who have access to timely and reliable market information in Nigeria are often handsomely rewarded for storage. An example of that would be the Muslim women's association in Yakasai (near Kano). IITA was instrumental in introducing this group of women to the Best Bet Plus intercropping method with sorghum and cowpeas. In just one crop year, the women have learned about the advantages of storage. They have kept many tons of cowpeas in storage in anticipation of higher prices before the next harvest season. The price of cowpeas this crop year has already risen from N50/kg at the time of harvest in 2002 to over N100/kg in June 2003. With their extra profits from storage they will be able to attend to their families' educational, health and nutritional needs, critical elements in achieving food security.

There are many opportunities for expanding local markets through further processing and marketing efforts. However, in order to attract investment in further processing and marketing these products, government policies need to make the environment more enabling for private sector investment, adequate infrastructure needs to be put in place, and supply chain linkages made or strengthened.

Another current problem in agricultural processing is getting information on the processing technologies disseminated. For women, who do most of the farm gate processing, the traditional processing techniques can be time-consuming and inefficient. Although a wide range of small-scale processing machines have been developed at AIDU, IITA, FIRRO, NCAM, and other research and development institutions, only about 30 percent of the developed machines are commercially available and little information is available to the smallholders farmers about their usefulness and affordability. AIDU and the extension staff at the ADPs have been charged to

³⁶ B.B. Singh, IITA, personal communication.

³⁷ MFA/PCU and FAO, SPFS – Baseline Survey.

disseminate the information on these technologies. AIDU has set a goal of establishing five working processing centers to show producers how to use improved, gender sensitive, processing machines.

The fabrication of these machines is done by capable private fabricators, however, they lack the necessary raw materials to build exact replicates of the prototype. Private sector involvement in encouraging more adoption of improved agroprocessing technologies has not had an impact, but there is potential for primary processors to supply processed agricultural products to companies such as Nestle, Guinness, etc.

E4. Strategic Grain Reserve and Buffer Stocks

In 1987, the national storage program was implemented under the National Agricultural Policy. The program includes the following components:

- National Strategic Grain Reserve (SGR) scheme – To implement this scheme, the Federal Government constructed grain silos with a total capacity of about five percent of the annual cereal grain production. The SGR scheme was established to give the government a means of stabilizing grain prices through supply control. The grain silos have not been effectively or efficiently used and are a drain on the Federal budget
- Buffer Stock – Each State Government was to build grain storage facilities with the capacity to store about 10 percent of the states’ annual grain production. None of the State Governments ever built or purchased such storage facilities.
- On-farm storage – Although part of the national storage program, the Federal Government did little to stimulate the development of on-farm storage.

E5. Transportation and Distribution

An important linkage between production, processing, storage, and marketing is the transportation and distribution system. The only means of cargo transport in Nigeria is via the road system. The railway system is not functioning despite numerous efforts to rehabilitate the system. No significant cargo is transported via the rivers in Nigeria. Transport of domestic cargo along the coast is not significantly exploited.

In Nigeria, the highways connecting the larger cities are capable of handling large transport trucks. Feeder roads off the main highways are in poor shape and in need of significant repair. Farm to market roads are unpaved and pot-holed making transport of farm produce time-consuming, expensive, and grossly inadequate. Because of the poor rural roads, perishable products are at risk of spoiling or, at least, losing quality before they are sold in the desired marketplace. At this time, it makes economic sense for smallholder farmers of, especially, perishables, such as tubers and root crops, to process the crops into a dry form in order to cut their transport costs and marketing risk. It also makes sense for them to try to dry their couple tons of grains and pulses before transporting them to market.

Given the state of farm to market roads, it is just as difficult for these smallholder farmers to receive farm inputs, such as fertilizer. The “Best Bet Plus” improved cropping system that

recommends only three bags of fertilizer/hectare fits the various constraints (including transport) faced by smallholder farmers.³⁸

The distribution of farm produce and processed products is a major concern in a country as big as Nigeria with such a wide range of agroecological zones. Large volumes of grain are transported south while large volumes of root and tuber crops are transported north to meet the growing demand for these products. However, the flow of farm products from one zone to another has not been quantified and market information is not being collected regularly enough to analytically derive the quantities of these products being supplied to the markets.³⁹

The transport and distribution problems also relate to the input supply requirements of the smallholder farmer. Because of excessive port fees and port delays, high costs of transport from port to city warehouses, untimely deliveries, other undue handling charges, and even questionable quality of fertilizer, smallholder farmers are paying as much as three times the world price for fertilizer. It is possible, however, for some of these costs to be cut if direct suppliers of the fertilizer to farmers had direct access to the fertilizer from where it is imported or produced. This is especially important for agricultural input dealers in distant cities (from the port in Lagos) in the NE and NW zones.

E6. Imports

Average total imports of agricultural commodities into Nigeria increased by 7 percent between 1985-89 and 1995-99.⁴⁰ The trends in the three major imported commodities (fish, rice, and wheat), which represent an average of 83 percent of the total annual imports of agricultural commodities since 1985, are very different. Between 1985-89 and 1995-1999, frozen and dried fish imports have increased 41 percent, rice imports have decreased 57 percent, and wheat grain imports have increased 8 percent. Import duties on these commodities and others may change from one year to the next. As of 2002, the import duties on rice, wheat, and fish were 75 percent, 10 percent, and 5 percent, respectively.

There are opportunities for the agricultural sector to substitute a number of domestically produced products (if the products are price competitive) for products that are being imported. For instance, with cassava:

- Although further research is needed, it has been estimated that up to 15 percent (~400,000 mt) of the wheat flour being produced annually could be substituted with cassava flour⁴¹;
- About 250,000 mt of imported corn starch could be substituted with modified starch made from cassava for various industrial uses;
- MSG, ethanol, syrup, concentrates, and animal feeds could be produced to substitute for imports.

³⁸ B.B. Singh, IITA, personal communication

³⁹ The Agricultural College at the University of Zaria was regularly collecting price information until 1999.

⁴⁰ Nigerian Ports, PLC

⁴¹ Director, Goldchain International (cassava producer and marketing company), personal communication.

E7. Non-Food Uses

Non-food uses of agricultural outputs in Nigeria result in an 18.4 percent reduction in the aggregate supply of food products. Such non-food uses include industrial (manufacturing) non-food uses, seed use, milling wastes, animal feeds, etc. The estimated percentage that goes for non-food uses from various crops is, for example, 55 percent for wet and dry milling of maize, 24 percent for sorghum, 31 percent of pulses, 16 percent of yams, 9 percent of plantains and bananas, etc.⁴²

F. Demand Side Factors Influencing Food Security

F1. Population Factors

The projected population for 2002 was 121,276,000.⁴³ The population of Nigeria has been growing at a rate of about 2.83 percent since the 1991 census.⁴⁴ The rural population in 1991 constituted 62 percent of the total population. The NE, NW, and Central zones have a much higher rural population than the SE and the SW zones, according to the latest official census (Table 15). It has been estimated that the overall rural population has decreased to about 57 percent (Table 16). Urbanization, then, is occurring at a rate of more than 1 percent of the population per year. Increased urbanization results in, typically, the loss of working age adults. As a result, the dependency ratio in rural households is expected to increase. Such an increase may exacerbate the farm labor shortage in the SE and SW zones. It may also lead to less food secure rural households as there is less effort made to produce crops and livestock. Families that have a higher dependency ratio are also more vulnerable to malnutrition and the adverse effects of HIV/AIDS within the household.

F2. Income and Purchasing Power

The projected per capita income for 2002 was approximately N29,000 which was equal to about \$250/person or less than \$1/day/person.⁴⁵ According to the CBN, the GDP per person was estimated to be \$305 in 2000. In any case, the per capita income is less than \$1 per day. The average person in Nigeria, therefore, lives in poverty.

Since per capita income is so low, the purchasing power of the average Nigerian urban and rural households is limited. For urban households, whose cash income may be higher than those in rural households, about 60 percent of their income goes for food. For rural households, whose average cash income is lower than those in urban households, about 24 percent of their cash income is spent on food during the post-harvest months (July-Jan) and 56 percent is spent on food during the pre-harvest months (Feb-June) when farmers are net consumers in all agroecological zones except possibly the Central zone.

⁴² Olayemi, J.K., *The Nigerian Food Equation: Toward a Dynamic Equilibrium*, 1988.

⁴³ FOS, *Annual Abstract of Statistics*, 1999

⁴⁴ FOS, *Annual Abstract of Statistics*, 2001.

⁴⁵ According to the CBN, the GDP per person was estimated to be \$305 in 2000. In any case, the per capita income is less than \$1 per day.

F3. Tastes and Preferences

With the continued rural to urban migration, the tastes and preferences for urban populations (an increasing percentage of the total population) is changing. Convenience foods and easier to prepare foods are becoming more popular as lifestyles in urban settings become more hectic. This means there are marketing opportunities for more processed and prepared foods, including snack foods. Many farm commodities can be processed and packaged to accommodate these changes in tastes and preferences. Some of this processing has already begun and many farmers and farmer organizations have benefited from supplying the quality products demanded by processors. Many products made from various flours have been processed and packaged for sale in urban and semi-urban areas.

F4. Food Prices

The annual average consumer price index for food increased by 27 percent per year annually from 1994-1998.⁴⁶ These price changes closely followed the broader consumer price index. Annual food price indices are available on a state by state basis. There is a tremendous variation (as much as 40 percent) in these indices across states. The annual rate of change in the food price index across states is highly variable since food distribution and marketing channels in many parts of the country remain thin and relatively inefficient.

F5. Exports

The average value of total annual agricultural exports increased by 70 percent between 1985-89 and 1995-1999. Exports of cocoa beans, cashew nuts, and gum arabic, the three largest agricultural export commodities, have averaged 41 percent of total annual agricultural commodity exports since 1985. Cocoa bean exports have grown only about 10 percent between 1985-89 and 1995-99. Cashew nuts and gum arabic have grown in 1999 to 7 percent and 4 percent, respectively, of total agricultural exports.⁴⁷

The Government of Nigeria has banned the export of many of the staple crops produced domestically. However, illegal cross-border trade represents a large, unmeasured flow of staple products and other commodities out of Nigeria.

G. Disparities in Regional and Household Food Security

Disparities in access and utilization exist across zones and households. The disparities across zones in production, productivity, income, and nutrition are a result of various factors as given below:

The production disparities across zones can be partially explained by:

- Rainfall in the northern Sahel region of the NE and NW may only reach 200 mm per year, plus the rains are erratic. The amount and the pattern of rainfall improves the further south one goes. The longest growing season is in the south.

⁴⁶ FOS, Annual Abstract of Statistics, 1999.

⁴⁷ Ref: Nigerian Ports PLC

- The drought and the desertification of much of the northern Sahelian zone in the NW and NE has lowered the soil fertility and lowered production potential. Soil erosion in the SE zone has adversely affected the soil fertility and production.
- *The average percentage of arable land under cultivation* in Nigeria is about 44 percent. The NW zone cultivates the highest percentage and amount of its arable land (68 percent). Most of the increase in production in the past decade has come as a result of expanding the area under cultivation.
- The NW and NE zones have the most available *Fadama* land and land under irrigation.

The productivity disparities across zones are explained in part by:

- The small average farm size throughout the country, but particularly in the SE where the average farm size is only 1 hectare.
- The land tenure system has left agricultural land highly fragmented and makes it very difficult for large tracts of contiguous land to be obtained. In addition, women have little opportunity to acquire land through inheritance because of antiquated patrilineal land tenure policies, especially noted in the NW and NE zones
- Difficulties in accessing inputs are a common problem across the entire country. However, in the NW and NE, many smallholder farmers are producing certified (cereal and legume) seed for sale and the supply of improved seed has improved. In the SW and SE, obtaining cassava cuttings that are mosaic free is necessary now that the mosaic virus has become a threat to cassava producers. However, the supply of cassava cuttings is dependent on multiplication efforts being coordinated among the stakeholders.
- Access to credit is difficult across the entire country.
- The cost of production for the various crops is highly dependent on the cost of labor. About 65 percent of the cost of production is for labor. If a household must hire labor, labor costs in the NW and NE are cheaper than in the SW and SE. Labor shortages exist in the SW and SE as there has been a significant rate of rural to urban migration of the population.
- The incidence of HIV/AIDS which is about 5.8 percent in Nigeria. The incidence is highest in the SE zone, resulting in decreased availability of labor within the household, conversion to less labor-intensive crops, more work for the other household members to take care of the afflicted, and, consequently, less productivity.

The income disparities across zones are explained in part by:

- Farm size with the SE having the smallest farm size of 1 hectare. However, the cash income of the average household in the SE makes up for the small farm size. On the other hand, though the average farm size (3 hectares) is greatest in the NW, the cash income of the households in the NW is relatively low.
- Productivity in the Central zone is highest while the productivity in the SW and SE tends to be the lowest.
- Diversification in the Central zone is highest with cereals, roots/tubers, legumes, all types of livestock being produced. Diversification is least in the SW and SE.

- The number of months that the household has its own production for consumption. The NW, NE, and SE have only an estimated seven months of own production for consumption.
- Storage of cereals in the NW and NE is more reliable and efficient than storage of roots and tubers in, especially, the SW and SE. Even storage of cereals in the humid tropics in the SW and SE is more difficult than storing cereals in the dry NW and NE zones.

The nutrition disparities across zones are explained in part by:

- The average household size in the SW is only 4 while the average household size is over 6 in the NW and nearly 6 in the NE. Where households are largest one also finds the highest percentage of stunting and wasting in children under five
- The dependency ratio is highest in the Central zone. Despite the Central producing the highest amount of energy per capita per year in the zone, the high dependency ratio (104 percent) may partially account for the high incidence of food insecurity.
- Diversification of crops and livestock provides a household with additional sources of nutrition. The Central zone has the most diversified agriculture. The least diversification is found in the SE, which produces less of the common protein sources, such as livestock and legumes than other regions. As a result, the SE has a low protein production per capita per year⁴⁸ (large net deficit) in addition to low food energy production per capita per year;
- Cash income and nutrition indicators are lowest in the NW and NE, as measured by energy (kcal/cap/day) and protein (gm/cap/day)
- The incidence of HIV/AIDS is greatest in the SE and least in the NW.
- The education level of women in the NW and NE is low compared to the literacy rate in other zones. As the education level of women increases, the incidence of stunting and wasting of young children in the household, all else equal, decreases.

H. Current Programs/Projects with Potential Impact on Food Security

The Federal Government has initiated intervention programs to address the interrelated problems of poverty alleviation and food security. The major programs include the National Poverty Eradication Program (NAPEP), Cassava Mosaic Disease Epidemic Prevention Program, Root and Tuber Expansion Program (RTEP), the National *Fadama* Development Program (NFDP) and the National Special Program on Food Security (NSPFS). The content, duration, location, and summary objectives of some of these food security related projects in Nigeria are given in matrix form in the Annex.

Bilateral and international organizations, especially UN agencies, have also shown considerable interest in socio-economic and socio-political development of Nigeria through the implementation of various assistance programs and projects designed to reduce poverty and enhance food security. Some of the major agencies include: USAID, FAO, DFID, UNDP, World Bank, ADB and Sasakawa G. 2000 (Annex).

⁴⁸ However, the protein amount per person per year may be higher if fish from artisanal fishing by households were included

Conceptually, all the projects seem to focus on three interrelated pre-requisites of pro-poor growth and food security, namely:

- sustainable increase in farm and non-farm income through improved productivity and more efficient input and product markets
- improved food security, nutrition and health, and
- adoption of productivity and livelihood improvement options that equitably distribute the opportunities and benefits of pro-poor growth processes among target beneficiaries, i.e., men, women, youths and disadvantaged groups.

There is a need for widespread adoption of these innovations across all ecological zones if the investments in these projects are to yield appreciable food security dividends.

I. Feasibility of PL 480 Title II Interventions in Nigeria

USAID’s Food Aid and Food Security Policy Paper (1995) has been the principal guide since 1992 on general agency food aid policy. The paper states that “Title II resources will focus on improving household nutrition, especially in children and mothers, and on alleviating the causes of hunger, especially by increasing agricultural productivity.” Title II commodities may be provided as emergency aid, or to NGOs and World Food Program as development aid. Title II development commodities are most typically monetized to cover administrative and direct costs of NGO development interventions. Title II monetization was first introduced in 1986 with a relatively narrow focus using non-processed commodities (such as wheat and corn). However, the program’s uses have expanded and, in 2002, 47 percent of development and 37 percent of emergency Title II food aid was done using processed commodities (such as, crude vegetable oil).

The feasibility of PL 480 Title II interventions is conducted with many variables and conditions in mind. Nigeria does not have an emergency need (such as, famine, war) for Title II food aid. The country does not operate with a national food deficit, food is available and the nation is food secure on a national level. But the absence of a chronic food deficit is not sufficient in itself to render a monetization program inappropriate.⁴⁹

Nigeria has had household food security problems for many years as evidenced by a growing population of malnourished children that are stunted and wasted. In Nigeria, a rice monetization program was initiated by USDA in 2002. The program included the importation of 12,000 mt of milled rice. Unfortunately, the customs process and other delays resulted in the rice being left in demurrage for two months before it was released and distributed for monetization. Importing the rice was part of a rice integrated production project in Akwa-Ibom State. A US-based NGO handled the monetization.

In deciding whether USAID/Nigeria should consider PL 480 Title II intervention, an assessment of the impact on production in Nigeria when a food aid commodity is imported and monetized

⁴⁹ Tshirley, D. and J. Howard. “Title II Food Aid and Agricultural Development in Sub-Saharan Africa: Towards a Principled Argument for When, and When Not, to Monetize”. (2002).

needs to made. A list of products that could be considered for Title II intervention in Nigeria would include wheat, maize, rice, vegetable oil, powdered milk, etc.

A feasibility of PL 480 Title II intervention in Nigeria could include a comparison of pros and cons. The pros:

- Nigeria does have a growing percentage of food insecure households with, especially, young children and mothers who are showing the signs of malnutrition the most. An intervention such as Title II would relieve the suffering of these people, if the intervention was able to successfully target these most needy beneficiaries;
- There are commodities available that could be provided through a monetization program that are already part of the diet of the poor in Nigeria.
- By providing commodities that are already being imported, total supply in the country would be increased, prices would drop, and consumers would be better off.

The cons:

- There are no NGOs in Nigeria with the necessary experience that is needed to administer and manage a successful monetization program
- Nigeria imposes an import tariff on many commodities in order to protect domestic producers. Many non-processed commodities that could be part of the Title II intervention program would likely have a disincentive effect on domestic production due to increased supply.
- If processed commodities (such as, vegetable oil) were imported as part of the Title II food aid program, the increased supply of a substitutable edible oil may interrupt the flow of the major vegetable oils being marketed currently in Nigeria ; and
- Providing commodities that are already imported would compete with the private sector and make it very difficult for the private sector to function profitably in those subsectors.

Because Nigeria is nationally food secure and does not have an emergency need, any monetization program that imports processed or non-processed commodities into Nigeria would be for development aid purposes. One of the major reasons why Title II interventions is not recommended in Nigeria is because there are no NGOs or cooperating sponsors in Nigeria who have the necessary monetization experience it takes to administer and manage such a relatively complicated program successfully. The other major reason why such an intervention is not recommended is because with the importation of commodities produced in Nigeria there could be disincentive effects on producers in Nigeria. Such could be the case of rice were imported.

J. Options for Improving Food Security

Various options for improving food security include:

J1. An Enabling Policy Environment

- **Infrastructure.** Advocating for an increase in the federal, state, and local government's rural infrastructure budget and developing a plan for coordinating the current budgeted and increased level of local government road improvements with that of the state and federal road improvement programs
- **Agricultural Inputs.** Policy advocacy for full liberalization of the inorganic fertilizer market needs to continue
- **Market Information System -** Strengthening the government capacity for data collection and analysis in agriculture, nutrition, and HIV/AIDS. Extending support in the development of MIS to rural markets and villages in zones through price boards, mass media, and cell phones
- **Early Warning System.** Supporting the Federal Government in developing and implementing an Early Warning System approach to determining the most vulnerable households nationwide (including vulnerability in relation to seroprevalence) and for monitoring crop production and profitability
- **Land Inheritance.** Supporting advocacy programs that call for implementation of existing law or traditional custom on inheritance rights for women (widowed from HIV/AIDS related deaths) humanely.

J2. Enhancing Agricultural Productivity

- Through the RUSEP or RUSEP-like program and the assistance of DAIMINA and the ADPs, support the widespread expansion of the cowpea-based improved farming system for household food security, income generation, and improved nutrition in the NW, NE, and Central zones in Nigeria. The farming system has been employed successfully by many farmers supported by the IITA/Gatsby Project. Also, support the extension of integrated poultry, pig, and fish production technologies with existing farming systems in SW and SE zones using least cost feed rations and improved feeding practices.
- Support the development of cowpea (and groundnut)-based improved farming systems (with roots/tubers/maize) research for the SE and SW zones. Use this and other research support to help strengthen the weak link that currently exists between national and international research institutes in Nigeria.
- Support government extension, project, and association development efforts in the NW and NE zones for women and special groups (HIV/AIDS, orphans) to assist them with access to agricultural technologies and training, agricultural inputs, storage and processing methods, and marketing techniques

J3. Agribusiness and Agroindustrial Development

- Support an agribusiness development project, such as, RUSEP, to assist enterprises and associations involved in expanding the processing and industrialization of the cassava and maize subsectors, the aquaculture industry, and the privatization and development of the country's abattoirs. Successful industrial development models in poultry and flour-milling industries can serve as prototypes for assisting the private sector in developing an integrated industry in cassava flour and modified starch

production in the SE, maize-milling and industrial use processing in the Central zone, fish and shrimp culture, and livestock abattoirs and cold chain for meat in the NW and NE.

- As part of the abovementioned agribusiness development project, support capacity building among smallholder farmer marketing associations and facilitate linkages with large processors and manufacturers utilizing cassava and maize products with the objective of developing contract farming in selected zones.
- Support the establishment of marketing centers for targeted crops/livestock such as maize and rice in Niger in the Central zone, cowpeas and groundnuts in Kano and Bauchi in the NW and NE, plantains in Abia in the SE, sheep and goats in Katsina in the NW and Adamawa in the NE, and fish in Rivers in the SE and Oyo in the SW zones. The marketing center would be an extension of USAID's ongoing ICS project, already operating in many of these States.

Tables

Table 1: Monetary Policy Targets and Actual Performance (1999-2001)

Monetary Measurement	1999		2000		2001	
	Target	Actual	Target	Actual	Target	Actual
	%	%	%	%	%	%
Growth of M2	10	32	15	48	12	27
Growth of M1	4	18	10	62	4	28
Inflation Rate	9	7	9	7	7	19
Growth in GDP	3	3	3	4	5	4
Naira per US\$		98		110		114

Source: Adapted from USAID/Nigeria Macro-Economic Assessment Report (2003)

Table 2. Microeconomic Policies in Nigeria

Microeconomic Policy	Objectives of Policy	Implementing Institutions
Agriculture Input Policy		
Fertilizer Supply Policy	To facilitate a dependable and adequate supply of fertilizer from both imports and domestic production	FD(NFCC, NFTC, NFC), blending plants
Seed Supply Policy	To establish a national seed system which can ensure high quality seeds of improved varieties are available to farmers at the right time and place, in adequate quantity, and at affordable prices; to support the development, registration, release and multiplication of improved seeds	NSS, SSMU National Seed Committee, National Seed Certification Units, private seed firms
Agriculture Chemical Supply Policy	To promote increased production and use of agricultural chemicals through the encouragement of private sector participation in domestic production, imports, distribution and marketing	Agricultural Chemical Companies
Input Price and Subsidy Policy	To provide incentives for the adoption and efficient use of modern inputs such as fertilizers, seeds, agro-chemicals, irrigation water, machinery and equipment	FD, NSS, other Federal and State Agencies
Agriculture Credit Policy	To ensure an adequate supply at a low cost of credit to farmers and other agricultural sector operators	ACGSF, NACB, NACRDB, NBI, Community Banks and Peoples Banks
Agriculture Insurance Policy	To provide security to farmers against natural hazards in their agricultural production activities	NAIC
Infrastructure Dev Policy	To develop roads, transportation, power, communication, water, and health facilities effectively to facilitate all aspects of national economic growth	Federal, State, and LGA through development agencies
Research & Extension Policy	To develop improved crop varieties, breeds of livestock, and production technologies	Nat'l/int'l research institutes, ADPs
Land Policy	The Land Use Decree of 1978 gave and the Act continues to give considerable control to the Government over land allocation and land use	Federal Government
Water Development & Management	To develop and manage the country's water resources to promote intensive and year-round agricultural production	RBDA
Gender Policy	To promote economic empowerment of the rural women	Better Life for Rural Women, The Family Support Program, and the Family Economic Advancement Prog
Food Supply & Price Policy	To improve incentives for harvest storage, agro-processing, and marketing of food commodities	SGR, State Govts, ag-processing companies, farmers
Agriculture Cooperative Policy	To mobilize rural people for social and economic development through group formation and agricultural cooperatives	FMARD – Dept of Cooperatives

Table 3. Estimated Aggregate Food Supply

Item	1999	2000
Production (mt)	99,016,000	97,578,000
Imports (mt)	3,776,000	4,465,000
Carryover (mt)	1,000,000	1,000,000
Post-harvest Losses (mt)	-32,177,000	-31,914,000
Exports (mt)	-14,800	-15,000
Non-Food Uses (mt)	-15,503,000	-14,787,000
Grain Equivalent (mt)	28,171,000	27,989,000
Population	111,254,000	114,403,000
Per capita energy(kilocal/cap/day)	2497	2413

Table 4. Change in Annual Rate of Growth in Production and Area Cultivated

Food Crop	Average Annual Rate of Growth in Production from 1984-1992	Average Annual Rate of Growth of Area Cultivated from 1984-1992	Average Annual Rate of Growth in Production from 1992-2000	Average Annual Rate of Growth of Area Cultivated from 1992-2000
	%	%	%	%
Major Crops	12.5	9.3	3.5	2.7
Cereals	9.6	9.1	1.7	0.6
Roots/Tubers	15.3	14.6	3.9	5.6
Pulses	10.8	8.7	7.2	8.3
Plantains	5.4	3.0	4.4	5.0
Vegetables	106.8	NA	8.8	NA

Source: FMARD.

Table 5. Share of Average Total Production and Area Cultivated by Crop

Food Crop	Share of Average Total Production In 1984-1988	Share of Average Total Prod'n in 1996-2000	Share of Average Total Area Cultivated in 1984-1988	Share of Average Total Area Cultivated in 1996-2000
	%	%	%	%
Maize	8	6	11	13
Millet	11	6	28	19
Sorghum	15	6	31	22
Rice	2	4	2	7
Cassava	37	35	8	10
Yam	16	27	3	8
Cowpea	2	2	9	15
Plantain	3	2	1	1
Vegetable	3	4	NA	NA
Total percent	97	92	93	95

Source: FMARD

Table 6. Cropping Patterns in Agroecological Zones

Agroecological Zone	Farming System
North West and North East	Predominantly cereal (millet/sorghum (Sahel)/maize (Sudan) and legume (cowpea, groundnut) intercropping
Central	Cereal (millet/sorghum/maize) and legume (cowpea, groundnut, yam, cassava, and vegetables) intercropping; rice (sole, mixed cropping)
South West and South East	Root/cereal/vegetable intercrops with yam, cassava, melon, and vegetables grown in mixtures with one another, and/or along with maize; plantain added as cash crop

Source: NAERLS and FMA/PCU, Field Situation Assessment, 2002.

Table 7. Percentage of Crop Production In Different Zones, 3-Year Average (2000-2002)

Food Crop	Average Production of Food Crop 2000-2002 ('000 mt)	percent of crop produced in the SW Zone	percent of crop produced in the SE Zone	percent of crop produced in the C Zone	percent of crop produced in the NW Zone	percent of crop produced in the NE Zone
Maize	3878	21	12	28	27	12
Millet	3194	0	0	11	49	40
Sorghum	5065	1	0	25	40	34
Rice	2361	4	11	48	22	15
Cassava	23514	27	37	28	8	0
Yam	20741	16	28	46	9	0
Cowpea	1114	1	4	15	43	36
Groundnut	2058	2	2	48	33	15
Cocoyam	1449	37	56	6	1	0
Sweet Potato	566	18	16	53	13	0

Source: FMA, Field Assessment in 2002.

Table 8. Area Cultivated of Major Food Crops by Agroecological Zone

Agroecological Zone	Area Cultivated ('000s ha)
South West	2,400
South East	2,800
Central	6,600
North West	9,500
North East	3,500

Source: FMA and ABU, 2002

Table 9. Per Capita and Household Income^{50 51}, Months of Own Production by Zone (Projected, 2002)

Agroecological Zone	Average Household Size	No. Households ('000s)	Household Income (naira/yr)	Dependency Ratio in Rural Households* (percent)	# Months Household Consumes Own Production ⁵²
South West	3.98	7574	9150	97	9
South East	5.05	5213	9919	93	7
Central	5.40	3542	9683	104	12
North West	6.12	4481	6311	97	7
North East	5.68	3171	5310	99	7

Source: FOS (1999); FGN/PCU and FAO, SPFS Project Document (2001)

*Dependency ratio = (percent population 0-14 yrs of age + percent population over 65 years old)/ percent population 15-65 years old

Table 10. Household Expenditure by Item Group, 1992-93

Item Group	Urban	Urban	Rural	Rural
	July-Sept 1992	April-March 1993	July-Sept 1992	April-March 1993
	percent	percent	percent	percent
Food	62	67	37	56
Monetary Transaction	6	0	3	0
Non-cash expense	9	10	42	24
Other goods & services	23	23	19	19

Source: FOS, Annual Abstract of Statistics, 1999

⁵⁰ Not including consumption of own production

⁵¹ Inflation adjusted to 2002

⁵² FGN/PCU and FAO, SPFS Project Document (2001)

Table 11. Cost of Production for Cassava/Maize

Activity	Qty	Unit Cost (N)	Total Cost (N)
Costs			
Labor:	Man-Days		
Land Preparation	20	500	10,000
Planting/Digging Holes	30	500	15,000
Fertilizer Application	30	400	12,000
Seed Dressing	5	350	1,750
Weeding	40	500	20,000
Harvesting	30	500	15,000
Total Labor	155		73,750
Cassava (bundles)	60	400	24,000
Maize Seeds (kg)	25	50	1,250
Fertilizer (50 kg bags)	12	1200	14,400
Ag Chemicals	--		
Total costs			113,400
Revenue			
Cassava Tubers (mt)	10.21	6,200	63,302
Cassava Stems (bundles)	45	400	18,000
Maize (mt)	1.45	40,000	58,000
Total revenue			139,302
Gross margin			25,652

Source: FMARD, 2002.

Table 12. Commodity Prices Across States, March 2001

Commodity	State with Highest Price	Price (N/mt)	State with Lowest Price	Price (N/mt)
Maize	Cross River	4905	Bauchi	2497
Sorghum	Ondo	4239	Borno	1755
Millet	Lagos	4402	Bauchi	2272
Rice paddy	Anambra	6292	Gombe	2426
Cassava Roots	Lagos	4834	Gombe	434
Yam Tuber	Yobe	4775	Nassarawa	1897
Cowpea	Edo	6806	Bauchi	3307
Groundnut	Anambra	11700	Gombe	3785
Onion	Oyo	5566	Borno	1800
Tomato	Edo	16962	Gombe	2023
Beef	Edo	33125	Bauchi	12257
Goat Meat	Cross River	29906	Lagos	8333
Mutton	Akwa Ibom	18206	Bauchi	13103
Chicken	Cross River	42570	Lagos	6334
Fish (Fresh)	Edo	25828	Gombe	3184
Pork	Cross River	28141	Akwa Ibom	11137

Source: FMA/PCU, Market Prices of Selected Commodities, March, 2001

Table 13. Energy per Capita per Day from Food Crops Produced in the Zones (2002)⁵³

Food Crop	Grain Equivalent ('000 mt) ¹	Grain Equiv (kg/cap) produced in the SW Zone	Grain Equiv (kg/cap) produced in the SE Zone	Grain Equiv (kg/cap) produced in the C Zone	Grain Equiv (kg/cap) produced in the NW Zone	Grain Equiv (kg/cap) produced in the NE zone
Maize	3878	24.3	15.9	51.1	62.7	23.2
Millet	2970	0	0	15.4	48.1	59.3
Sorghum	4854	1.4	0	57.2	35.3	82.5
Rice	2361	2.8	8.9	53.3	17.2	17.7
Cassava	7054	50.4	79.1	82.6	16.6	0
Yam	5179	22.0	44.0	99.7	13.7	0
Cowpea	1069	0.3	1.5	7.5	15.2	19.2
Groundnut	3108	1.9	2.1	70.2	33.9	23.3
Cocoyam	348	3.4	5.9	0.9	0.1	0
Sweet Potato	170	0.8	0.8	3.8	0.6	0
Kg/cap/day		107	158	442	243	225
Kilocal/cap/day		1205	1776	4960	2733	2529

Grain equivalents vary by crop; for example, for maize the grain equivalent factor is 1.0, for cassava the factor is 0.3, and for groundnuts, the factor is 1.5.

Table 14. Estimated Number of Livestock Per Capita Per Year By Zone ('000s)

Livestock	SW	SE	C	NW	NE
Cattle	.03	0	.30	.23	.18
Sheep	.07	.02	.26	.29	.02
Goat	.14	.0	.38	.36	.23
Poultry	.41	.06	1.03	.12	.04

Source: FMARD

Table 15. Rural and Urban Population, 1991

Agroecological Zone	Population 1991	Population 1991 – Rural	% of zone total	Population 1991 – Urban	% of zone total
	(million)	(million)		(million)	
South West	22214	8842	40	13372	60
South East	19549	11483	59	6066	41
Central	14300	10546	74	3754	26
North West	20041	14117	70	5921	30
North East	13264	10652	80	2612	20

Source: FOS, Annual Abstract of Statistics, 1999.

⁵³ Includes crop production for the wet season only. *Fadama* production would need to be added to these production figures to get an annual production amount.

Table 16. Estimated Percentage of Rural and Urban Populations, 1972-2001

Population	1972-76	1977-81	1982-86	1987-91	1992-96	1997-2001
Rural	77%	74%	70%	66%	61%	57%
Urban	23%	26%	30%	34%	39%	43%

Source: DFID, 2003

Table 17. Disparities Across Zones, Causes, and Zones at an Advantage/Disadvantage

Disparity	Cause	Zone(s) with Advantage	Zone(s) at a Disadvantage
Production	Agroclimatic Soil Type Amount of Arable Land Amount of Cultivated Land Amount of Fadama and Irrigated Land	SW,SE, C C C NW NW,NE	NW, NE NW,NE,SE SW SW
Productivity	Farm Size Land Tenure Access to Inputs Access to Credit Cost of Production Incidence of HIV/AIDS and other serious diseases	NW SW,SE None None NW,NE NW	SE NW,NE SW,SE SE
Income	Farm Size Productivity Diversification No. Months of Own Consumption Storage and Processing Market Prices	NW C C C NW,NE None	SE SW,SE SW,SE SE,NW,NE SW,SE
Nutrition	Household Size Dependency Ratio Farming System Diversification Income HIV/AIDS Womens's Literacy Rate	SW SE C,NW,NE C SW,SE,C NW NW, NE	NW C SW,SE SW,SE NW,NE SE SW, SE

Annex

Annex: Donor-Supported Project Information Matrix

No	Projects	Time Frame	Agency	Zone-NC	Zone-NE	Zone-NW	Zone-SE	Zone-SS	Zone-SW	Components of Food Security Addressed
1	The Nigerian Rice Economy in a Competitive World: Constraints, Opportunities and Strategic Choices	2 years	USAID	x	X	X	X,		x	Productivity & Livelihood Improvement: through assessment of constraints and opportunities in rice sector. Potential contribution to productivity, efficient storage, processing and marketing, and ultimately, income.
2	Developing Agri-Input Markets in Nigeria (DAIMINA)	2 years	USAID		5	20			30	Productivity & Livelihood Improvement: through fertilizer policy and institutional reforms, efficient marketing of agric. inputs, human capital development for farmers and service providers, technology transfer and linkages.
3	Rural Sector Enhancement Program (RUSEP)	3 years	USAID		2	20	1		30	Productivity, Competitiveness & Livelihood Improvement: through market and demand driven technologies, improved MIS and linkages.
4	Delivery and Evaluation of Disease-Resistant Plantain and Banana Hybrids and Related Technologies to Small-Holder Farmers in Nigeria	3 years	USAID					3,10,28,12,6,10,32,16		Productivity & Livelihood Improvement through the introduction, evaluation and dissemination of new, high yielding, and disease resistant hybrids.
5	Information and Communications Support for Agricultural Growth in Nigeria (ICS)	2 years	USAID	26	19,2	20	1		30	Dissemination of information to farmers
6	Accelerated Dissemination of Improved Agricultural Technologies in Nigeria	2 years	USAID	x	X	X	X	X	X	Productivity & Livelihood Improvement

7	Farmer-to-Framer		USAID	X	X	X	X	X	x	Productivity & Livelihood Improvement: group mobilization, micro-finance and capacity building.
8	West Africa Small Grants Program		USAID	x	X	X	X	X	x	Value adding agro-processing technology
9	Nigeria Gum Arabic Development Program	1.25 years	USAID		5,8,35,17	20				Productivity, agro-processing and marketing
10	Technical Assistance I	2 years	USAID	25		19,18	1			Capacity building
11	Technical Assistance I1	2 years	USAID	25		18,20			30	Capacity building in group mobilization, biotechnology and nutrition.
12	PrOpCom (Promoting Pro poor Opportunities from commodity and service Markets) (Design stage)	6 years	DFID	7	17		14		13	Productivity & Livelihood Improvement: through viable agric. commodity and service markets
13	JEWEL (Jigawa Enhancement of Wetlands Livelihoods)	4 years	DFID		17					Water resource management, conflict resolution and environmental protection.
14	ERAP Ekiti Rural Access Programme	2 years & 7years	DFID						13	Livelihood Improvement: through building partnership in access road maintenance to facilitate access to markets.
15	HIV/AIDS Impact Assessment	9 months	DFID	7						HIV/AIDS
16	Policy Support Facility	2 years	DFID	x	x	X	x	X	X	Enhancement of policy environment.
17	IITA/Gatsby Project (GAT2260)	?	DFID			18,19				Productivity & Improvement in food security, nutrition and health: through improved crop-livestock farming system and natural resources conservation.
18	National Fadama Development Project	6 years	ADB	x	x	X				Productivity & Improvement in Income.
19	Community- based Agric. & Rural Development Project	7 years	ADB	26	2,15,5	18				Productivity & Improvement in Livelihood: Focus on women, youth and widows.
20	Natural Resource Management Project	?	ADB						27	Productivity & Livelihood Improvement: through natural resource management.
21	Rural Finance Project	?	ADB	?	?	?	?	?	?	Sustainable micro-finance delivery system.
22	TCP/NIR/2901(A): Strengthening of Horticultural, Tree and Cash Crops for higher Income Generation	2 years	FAO	x	x	X	x	X	X	Productivity & Livelihood Improvement: through improved planting materials, minimization of post-harvest losses and better export marketing strategies.

23	NIR/99/008: Support to Agricultural Policy Assessment	2 years	FAO	x	x	X	x	X	X	Enhancement of policy environment.
24	NIR/99/010 Support for Strengthening User Managed Small-scale Irrigation	2 years	FAO	23		33		3		Productivity & Livelihood Improvement: through capacity building in user-managed community level small scale irrigation schemes.
25	UTF/NIR/046 The Review of Public Irrigation Sub-sector	7 months	FAO	x	x	X	x	X	X	Productivity & Improvement in crop output: through better irrigation management of the 12 RBDA.
26	UTF/NIR/047 The National Special Programme for Food Security	4 years	FAO	x	x	X	x	X	X	Productivity and Food Security Improvement
27	TCP/RAF/0179: Strengthening and Coordination of Information Systems on Food Insecurity, Vulnerability and Food Trade in ECOWAS countries	1 year	FAO	x	x	X	x	X	x	Enhanced Food Security: through trade and improved market information system within the ECOWAS sub-region.
28	Documentation, propagation and dissemination of indigenous mushrooms and other plants with nutritional values to mitigate the effect of HIV/AIDS	5 years	UNDP				16	9	27	Youth Employment & Enhancement of Immune System against HIV/AIDS
29	Organic fertilizer production from municipal waste using defunct Cement plants	5 years	UNDP		15		11		27	Productivity Improvement:
30	Promotion/development and dissemination of appropriate technology in production, post harvest loss reduction	5 years	UNDP	?, 37	?	?	?	?	?	Productivity Improvement
31	Development of export villages for Certain crops such as cassava and ginger	5 years	UNDP	37	?	18	1	?	?	Income & Livelihood Improvement: through export promotion.

32	Micro-Finance administration	5 years	UNDP	x	x	X	x	X	X	Capacity Building in Credit Delivery
33	Agro forestry	5 years	UNDP	x	x	X	x	X	x	Productivity Improvement: through sustainable agriculture
34	Rural feeder roads rehabilitation	5 years	UNDP	x	x	X	x	X	X	Infrastructure & and Market Improvement
35	Fadama II (Second Fadama Development Project)	6 years	W. Bank	37,22,23,26,31	2,5,8,15,17,34	18,20,21	16		24,30,22	Productivity and Food Security Improvement: through <i>fadama</i> irrigation.
36	CBARDP (Community-based Agric. & Rural Dev. Project)	7 years	W. Bank		8,17,35	19,20,21,33,36				Livelihood Improvement: Focus on women and vulnerable groups.
37	RTEP (Roots and Tuber Expansion Project)	10 years	W. Bank	37,7,22,23,25,26,31	34	18	1,4,11,14,16	3,6,9,10,12,32	13,24,27,28,29,30	Productivity, Livelihood and Food Security Improvement: through root and tuber crops production, processing and marketing.
38	CBNRMP (Community-based NRM Program)	8 years	W. Bank				1	10,32		Livelihood Improvement: Focus on women and vulnerable groups.
39	Dissemination of improved technologies on food crops	?	Sasakawa Global 2000	36	17, 5, 15	20, 19, 18,21, 33				Productivity Improvement and Technology Transfer: through dissemination of a package of improved practices.
40	Cassava Mosaic Disease Elimination Program	Indefinite	FGN/ USAID/other donors				x	x		Productivity Improvement by providing mosaic disease free cassava cuttings, production and marketing technical assistance and training.
41	NAPEP (National Poverty Elimination Program)	Indefinite	FGN	x	x	x	x	x	X	Productivity Improvement and Livelihood Improvement by providing an institutional framework for the eradication of absolute poverty in Nigeria through programs that generate employment, increase agricultural productivity and output, improve income generating capacity and wealth creation, and provide sustainable development of rural infrastructure, social welfare services and natural resource development.

42	NFDP (National Fadama Development Program)	Indefinite	FGN/WB	x	x	x				Productivity Improvement and Livelihood Improvement through increasing the incomes of <i>fadama</i> users, by improving the environmental management of critical ecosystems and supply environmental services of global relevance, and by reducing the conflict between <i>fadama</i> user groups
43	NSPSF (National Special Program for Food Security)	Indefinite	FGN/FAO	x	x	x	x	x	X	Productivity Improvement and Livelihood Improvement through extending innovative low cost approaches, both technical and institutions

Key to the table:

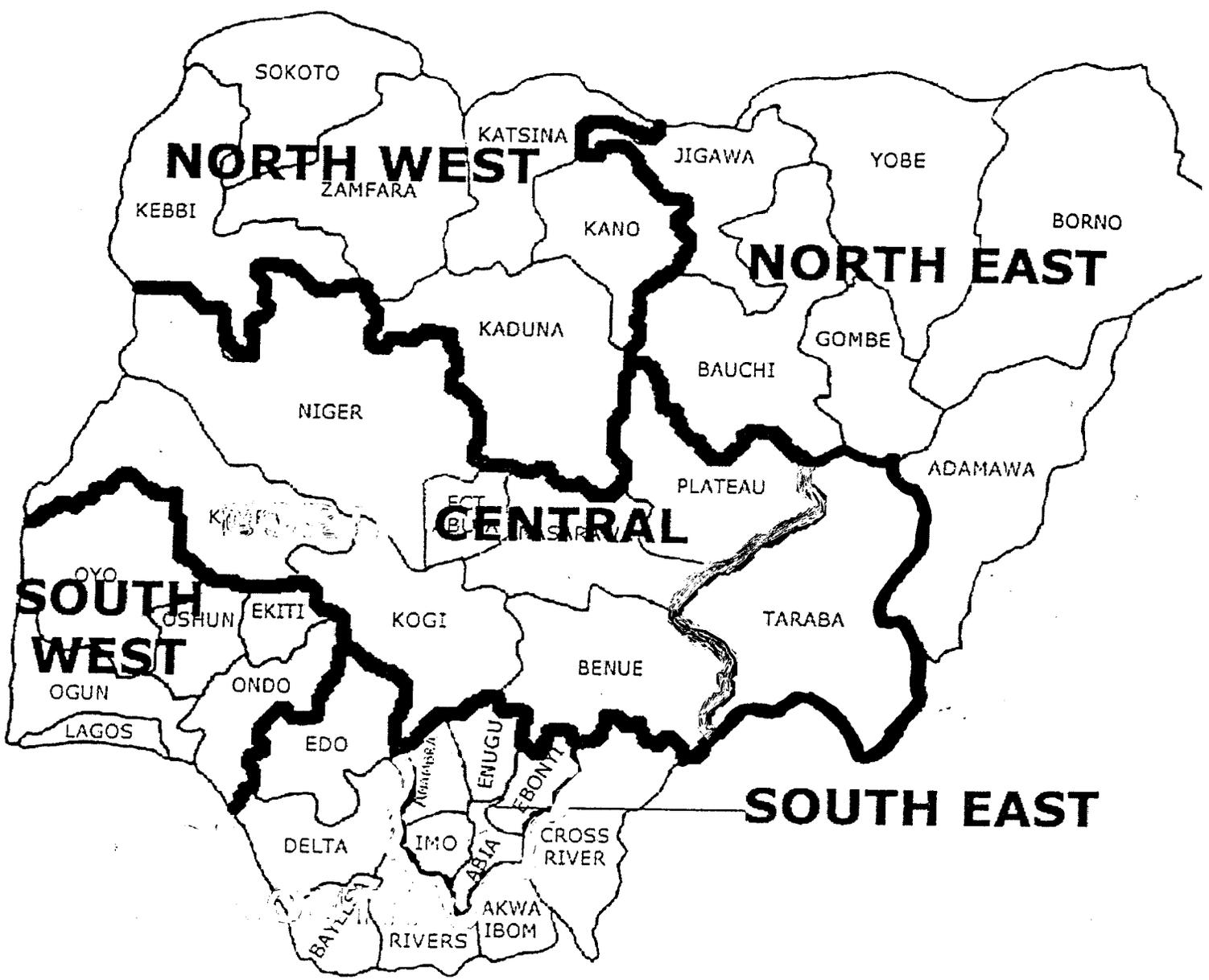
x—National coverage

?---Location yet to be decided

#	State	#	State	#	State	#	State
1	Abia	11	Ebonyi	21	Kebbi	31	Plateau
2	Adamawa	12	Edo	22	Kogi	32	Rivers
3	Akwa-Ibom	13	Ekiti	23	Kwara	33	Sokoto
4	Anambra	14	Enugu	24	Lagos	34	Taraba
5	Bauchi	15	Gombe	25	Nasarawa	35	Yobe
6	Bayelsa	16	Imo	26	Niger	36	Zamfara
7	Benue	17	Jigawa	27	Ogun	37	FCT
8	Borno	18	Kaduna	28	Ondo		
9	Cross-River	19	Kano	29	Osun		
10	Delta	20	Katsina	30	Oyo		

Map

MAP OF NIGERIA
BY STATE AND GEOPOLITICAL ZONE



SECTION II

Nutrition Component: the Political Economy of Malnutrition in Nigeria

Nutrition is a multisectoral social issue rooted in a country's political, economic, and cultural dynamics. Access to the resources for economic production and for human reproduction, such as education and health care, is the basis of good nutrition in any society. Lack of access to those resources is the basis of malnutrition. Nutrition thus is a cross-cutting social issue that is shaped by socioeconomic factors such as political ideology, income distribution, and social inequities—not simply by biology and access to food. It is important to recognize nutrition's broad context and the fact that nutritional status depends on more than access to food, or household food security. Nigeria's political development has resulted in inequitable access to political power and economic resources that, despite the country's abundant natural and human resources, has left much of its population food insecure and malnourished. Nutrition in Nigeria must be seen in the context of Nigeria's political economy, which reflects government priorities and investments. Thus far Nigeria's political economy has allowed malnutrition to become a widespread problem without a strategic response. Whether or not the political will exists to address malnutrition as the key social and development issue that it is remains a question.

“Dutch disease” and corrupt governance have distorted Nigeria's economy and its food security as well. Government investment in, and policies favoring oil production, have led to the neglect of other important sectors such as health and agriculture. Global market prices for oil essentially have dictated the national budget. One result of the government's focus on oil has been the neglect of the agricultural sector, which employs most of the population. Smaller increases in agricultural production growth than population growth have led to the “pauperization of the population,” as UNICEF describes the economic trajectory of Nigeria's largely agricultural population since the late eighties (UNICEF, 2001). This has decreased the availability of food in the country, which is one important facet of food security.

Seventy percent of the rural population and 58 percent of the urban population lived below the poverty line in 1996, and it is unlikely that this situation has improved (FOS, 1999). Nigeria's population is poor not only economically but also in terms of its health, nutrition, and educational status, its food security, and its political voice. The rural population is poorer and more marginalized than the urban population, although that may shift as the latter accounts for nearly half of the population and continues to grow rapidly. Rural residence is associated with higher rates of poverty, illiteracy, malnutrition, morbidity, and mortality than urban residence. Poverty affects all three aspects of food security: the availability of food, people's access to it, and their ability to utilize it. In Nigeria's largely agrarian society, lack of access to resources such as credit and inputs for agriculture has negative effects on production and income. This affects food availability and security at both the household and the national levels.

Low incomes obviously limit people's access to food. In 1996 about three-quarters of poor households' total real per capita expenditures were on food (FOS, 1999). In 1999 almost half of Nigerian children were chronically malnourished, indicating that these expenditures were

insufficient for a large proportion of the population. Households' major expenditures on food leave them with little money for other basic needs that affect nutritional status: health care, housing (clean water and sanitation), and education. The large expenditures also leave them without a cushion against economic shocks. A food-secure household spends about one-quarter of its income on food and has enough left for its other basic needs that contribute to food and nutritional security. Widespread poverty makes many Nigerian households unable to access the food, health care, and safe environments they need for that security. This perpetuates the cycle of poverty, food insecurity, and malnutrition.

Food security also is linked to how people can utilize food biologically, which means their health knowledge and practices as well as their health status. The utilization aspect makes food security broader than is generally recognized in Nigeria. Disease affects the biological utilization of food and can exacerbate poor nutritional status, which makes access to health care an essential element of good nutrition. The availability of health-care services — and people's ability to pay for it, to some extent — depends on government investment in the health sector. Clean water and good sanitation are two other key elements of utilization, and many Nigerians lack both. Women's education is consistently and positively associated with good health care and nutritional status in children, but forty percent of Nigerian women of reproductive age do not have any formal education (NDHS, 1999). The net result for many Nigerians, especially rural people, is disease burdens in combination with inadequate food intake that lead to malnutrition. Malnutrition in turn compromises physical and mental capacity, decreases productivity, and is a factor in the negative cycle of poverty and food insecurity, including their transmission to the next generation.

One-quarter of Nigeria's children are underweight — malnourished due to a combination of short- and long-term malnutrition and environmental factors — which indicates that their households are food-insecure. By extrapolation one-quarter of Nigeria's population suffers from food and nutritional insecurity. A malnourished population tends to be intellectually stunted, benefit less from education, and prone to illness and poor social behavior; in sum, it is less productive and more costly to the state than a well-nourished population. Food insecurity and malnutrition thus ultimately have a negative effect on Nigeria's human resources and its economy at the national level. The negative cycle exists: Nigeria's political economy has created significant food insecurity and malnutrition, and those problems will constrain the country's social and economic development.

A. Malnutrition and Micronutrient Deficiencies in Nigeria: Trends and Current Status

The major types of malnutrition are protein-energy malnutrition (PEM) and deficiencies in critical micronutrients such as vitamin A, iron, iodine, and zinc. The nutrition component of this report will focus mainly on PEM and micronutrient deficiencies, that are the main nutritional problems affecting children and women, and on children under five, because nutritional deficiencies have the most serious consequences for that age group. PEM may directly or indirectly account for approximately 20 percent of infant mortality (World Bank, 1994). PEM in infants results in lower mental capacity later in life; it also decreases school children's attention span and therefore their learning; reduces resistance to infectious diseases, including AIDS; increases the effects of parasitic infections, and reduces workers' productivity (World Bank, 1994).

The starting-point for assessing children's nutritional status is measuring their growth, using anthropometric indicators. The indicators also can serve as proxy measurements of the quality of life for the larger population, as children's growth performance reflects problems such as food insecurity, poor maternal and child care, lack of access to health services, and poor environmental conditions. There are three anthropometric indicators of growth: stunting, the failure to grow adequately in height in relation to age, that reflects past or chronic undernutrition; wasting, the failure to gain weight in relation to height, that reflects recent or acute undernutrition; and underweight (or global malnutrition), the failure to gain weight in relation to age, that reflects the combination of chronic and/or acute undernutrition and other environmental factors. Each of these indices provides different information about growth and body composition that can be used to assess nutritional status. A child who is below minus two standard deviations (-2SD) from the median of the U.S. National Center of Health Statistics (NCHS) reference population is considered stunted, wasted or underweight.

In addition to protein-energy malnutrition, there are three micronutrients important to public health: vitamin A, iron, and iodine. Vitamin A deficiency (VAD) is the leading cause of preventable visual impairment and blindness. It also significantly increases the risk of severe illness and death from common childhood infections, particularly diarrheal diseases and measles, and may be an important factor contributing to maternal mortality and poor pregnancy and lactation outcomes. Iron deficiency anemia (IDA) is a major cause of lasting brain damage and death in children, and limits adults' physical and mental capacity. Iodine deficiency disorders (IDD) impair physical, mental, and intellectual development. Inadequate iodine in the diet can cause mental retardation and, in extreme cases, cretinism. Zinc deficiency is also becoming recognized as a public health problem. Clinical syndromes associated with zinc deficiency include retarded growth, skin changes, mental lethargy, and IDA.

A1. Nutrition Data 1990-1999: Sources and Methodological Differences

Five major surveys of nutritional status in Nigeria provide longitudinal anthropometric data, but methodological differences prevent direct comparison of the data and therefore establishing clear trends. This report uses data from five national surveys conducted between 1990 and 1999:

- 1) 1990 Nigeria Demographic and Health Survey (NDHS)
- 2) 1993 National Micronutrient Survey (NMS)
- 3) 1994 Participatory Information Collection Survey (PICS)
- 4) 1999 Multiple Indicator Cluster Survey (MICS)
- 5) 1999 Nigeria Demographic and Health Survey (NDHS)

Three surveys were based on nationally representative samples but measured children of different age groups. The 1990 NDHS measured children under five, the 1993 NMS measured children 6-71 months (under six), and the 1999 NDHS measured children under three. Also, the 1999 NDHS data were reported in terms of five regions whereas the other surveys' data were reported in terms of Nigeria's four health zones. These differences preclude the direct comparison of the three surveys' anthropometric data, although some of the 1990 NDHS data were recalculated to allow comparison of that survey's three-year-olds with the 1999 NDHS. The fact that 54 percent of the 1999 NDHS anthropometric data were discarded due to measurement

errors, including 69 percent of the data from northern Nigeria, makes that survey's results questionable in terms of accurately representing the population. This also limits any interpretation of trends in nutritional status 1990-1999. Data from the 2003 NDHS and the Nigeria Food Consumption and Nutrition Survey (NFCNS) were not available for this report.

The 1994 PICS data were drawn from a purposive sample of UNICEF's "focus states," not a nationally representative sample, and therefore are not directly comparable with the other surveys. The PICS malnutrition figures tended to be outliers compared to those from the other surveys. The PICS micronutrient data was not included in this analysis for two reasons: 1) the analytical technique used to determine serum retinol was not sensitive, so a low prevalence level of 9 percent was obtained; and 2) iron deficiency anemia was determined by measuring hemoglobin in whole blood instead of *serum ferritin*, the internationally accepted indicator.

A2. Nigerian Children: Stunting, Wasting, and Underweight

The proportion of stunted Nigerian children has been 40-46 percent during 1990-99, as Table 1 shows (stunting and the other indicators discussed here are defined as the moderate plus the severe rates, or less than -2 SDs below the median). Preliminary figures from the NFCNS are in this range. The PICS figures tend to be higher and the MIC' consistently lower than those reported in the other surveys, probably due to methodological differences. Rural stunting rates are about 46 percent and consistently higher than the urban stunting rates of 35-42 percent (Table 1) [All tables are located at the end of this Section.], although those differences might not be statistically significant. The highest proportion of stunted children, over half, is in northern Nigeria; the proportion in the southern areas is 35-39 percent (Table 1). These regional proportions have not varied much since 1990, based on the two NDHSs and preliminary figures from the NFCNS. It is not possible to make a definite conclusion about change in children's stunting rates over time based on the available data. It is important to note that differences of a few percentage points in any of the indicators discussed here probably are not statistically significant.

Mother's education is consistently associated with better nutritional status in children, as Table 1 shows for stunting. Fifty-six percent of the children of mothers without any education are stunted, in comparison to 40 percent of children of mothers with any education (NDHS, 1999). This same association is reported in two other surveys although the percentages are different (Table 1).

The 1999 NDHS concludes that the prevalence of stunting generally increases with children's age, reaching 55 percent among one-year-olds. A child's sex, birth order, or the length of the preceding birth interval has little effect on stunting prevalence (NDHS, 1999). Chronic food insecurity and/or recurrent illness are reported to be the causes of Nigeria's high stunting rates. Overall, the surveys show that at least 40 percent of Nigerian preschool children are stunted or chronically undernourished.

The rate of wasting, or acute malnutrition, has fluctuated around 9-12 percent during 1990-99 (Table 2). The preliminary figures from the NFCNS are in this range; the MICS figures for wasting are consistently higher than those from the other surveys (Table 2). The NMS's high rate of 21 percent in 1993 may be due to methodological differences, or it could reflect an increase in

food insecurity due to the deterioration in household income between 1992 and 1996, as the FOS poverty profile reports. Rural wasting rates (10-13 percent) are slightly higher than urban rates (7-11 percent) (Table 2). The regional disparity between northern Nigeria and the south is evident, with a consistently greater proportion of wasted children reported in the north. The caveats on this often-reported regional disparity are that: 1) 69 percent of the 1999 NDHS data from the north was discarded, so its figures for the region may not be valid; 2) there is sufficient variation in the different surveys' percentages to raise questions about validity and comparability, due to methodological flaws in all the surveys; and 3) the differences in the regional figures may not be statistically significant.

Change in Nigeria's wasting rate over time cannot be clearly established due to the lack of consistent data, but the national rate of 12 percent from the 1999 NDHS is cause for concern. The 1999 NDHS concludes that wasting rates vary little in terms of background characteristics such as rural/urban residence and mother's education, but there is a regional disparity (Table 2). The figures from the other surveys generally support this conclusion.

Underweight is a global measurement that reflects the combined effects of chronic and acute malnutrition and environmental factors. The prevalence of underweight has ranged from 36-27 percent during 1990-99 (Table 3). The rate apparently has decreased somewhat in all sectors since 1990; the 2003 NFCNS and NDHS should provide more information on that. The generalities associated with stunting and wasting are found with underweight also: the prevalence rates are higher among children in rural and northern areas, and those whose mothers have no education (Table 3). The underweight prevalence rates are lower among children in urban and southern areas and those whose mothers have any education. Based on the latest available national data (MICS and NDHS, 1999), about 29 percent of Nigerian children are underweight (Table 3). Draft data from a 2003 WHO survey indicate that 26 percent of children under five are underweight (Table 4), which is close to the previous figure. The preliminary WHO data also indicate that underweight rates are highest in the northern regions, up to 40 percent in the North East, and lower in the south (Table 4).

Table 5 shows children's malnutrition rates in Nigeria in comparison to six other countries in the region. The data are from 1998-2000 and based on nationally representative samples (DHSs and MICSs). Nigeria has the largest proportion of stunted children in the region, 46 percent, compared with the rates of 40 percent in Niger and 35 percent in Cameroon (Table 5). Nigeria is fourth out of the seven countries in terms of its rates for both wasting and underweight. As UNICEF states more than once, it is shocking that these statistics are from a country with Nigeria's resources (UNICEF, 2001).

A3. Women's Nutritional Status

Maternal undernutrition is linked to infants' low birth weight, and to children's stunting and underweight. The national surveys provide very little information about nutritional status in women in general, or in pregnant and lactating women. The 1999 NDHS includes data on women's body mass index (BMI) and height as indicators of nutritional status (Table 6). For BMI, a cut-off point of less than 18.5 is used to define undernourishment (thinness) or chronic energy deficiency. Based on this measurement, 16 percent of Nigerian women were undernourished in 1999 (Table 6). There was little difference between rural (17 percent) and

urban (15 percent) women. The proportion of undernourished women was largest in the Northeast, the Southwest, and the Northwest, and smallest in the Southeast and the Central area (Table 6).

Short stature may be the result of stunting and associated with pelvic distortion that complicates child-bearing. According to the 1999 NDHS, 7 percent of Nigerian women were of short stature. The rates for rural and urban women were essentially the same for this indicator, and there was little regional variation except in the Northwest, that had the largest proportion of short women (Table 6). The 2003 NFCNS and DHS should provide more information on women's nutritional status.

A4. Meeting Protein and Energy Needs

The 1994 PICS survey provides some data on the proportion of protein and energy needs met and the types of energy foods consumed by children and women. These data are summarized in Tables 7 and 8. Table 7 shows that younger women (15-19 years) generally met a larger proportion of their energy and protein requirements than older women (20-45 years), regardless of the region. According to the PICS data, only the older women in the Southwest met their energy and protein needs; those in all the other regions did not. This probably was because the older women are bearing and caring for more children and working harder than the younger women, without commensurate food intake. The data also show that the percent of women's energy and protein needs met are considerably lower in the northern regions than in the south. For example, older women in the north met 70-82 percent of their protein needs whereas those in the south met 93-99 percent (Table 7).

The children's data show the same general patterns. Younger children (1-3 years) in all regions more than met their energy and protein requirements: even in the north their intake was 103-127 percent of need, with only one exception of 99 percent (Table 7). However, as with the women, the older children (4-6 years) did not meet their energy and protein needs, even in the southern areas.

Older children in the southern regions met only 90-95 percent of these needs, with one exception (Table 7). Older children in the northern areas were worse off: they met only about two-thirds of both their energy and protein needs (Table 7). Based on the PICS data, age and region of residence are two factors that affect women's and children's energy and protein intake.

The regional distribution of energy foods and vitamin A sources is shown in Table 8. The major energy foods are roots and tubers in the southern areas and cereals in the North West; no single food was identified as the major energy source in the North East (Table 8). Women's and children's consumption of animal protein was inadequate in all four areas, and no major source of plant protein was identified in the South East and the North West. Beniseed and groundnut were the major sources of plant protein in the South West and the North East, respectively (Table 8). Adequate palm oil consumption by children was reported in the North West but not in the North East, although the NMS reported VAD rates of 48-50 percent in those regions (NMS, 1993).

A5. Micronutrient Deficiencies

In addition to energy and protein, micronutrients are essential for the normal functioning of various human chemical and biological processes. Three key micronutrient deficiency disorders are common in many parts of Nigeria: VAD, IDA, and IDD. VAD is a major contributory factor to the high infant, child and maternal mortality in Nigeria. It is estimated to contribute to up to 25 percent to under-five mortality as well as affecting children's intelligence and productivity in general (UNICEF, no date). VAD can lead to night blindness, corneal diseases, and in extreme cases to blindness. IDA increases the probability of morbidity, mortality, and disability among young children and pregnant women; it causes an estimated 20 percent of maternal mortality in West Africa (World Bank, 1994). IDA also affects mental functioning in children and productivity in adults. IDD affects mental functioning: about 10 percent of people with goiter are mentally retarded and extreme IDD can cause cretinism (World Bank, 1994). It is a treatable deficiency: "IDD [iodine deficiency disorder] is undoubtedly the leading cause of preventable intellectual and neurological impairment in Nigeria" (World Bank, 1994).

The distribution of micronutrient deficiencies is linked to regional cropping patterns, as well as food beliefs and income, which determine dietary diversity. Palm oil, that is rich in vitamin A, is consumed mainly in the south where the tree is cultivated. Sorghum and millet are poor sources of iron but they are the staple food crops in Nigeria's dry northern areas. Roots and tubers generally are poor sources of micronutrients but they are the staple food crops that provide much of the energy requirements for the population in the south, particularly for the poor (UNICEF, no date).

Only the NMS (1993) provides information on the national distribution and prevalence of micronutrient deficiencies; the data from the 2003 NFCNS are not yet available. The NMS reported that one-third of Nigerian children were VAD, 12 percent had IDA, and 2 percent had IDD (Table 9). Children's VAD rates in the northern regions were twice as high as those in the south, up to 50 percent in the Northeast (Table 7). Children's IDA rates in the north also were twice as high as those in the south, up to 15 percent in the Northeast. The prevalence of IDD in children was essentially the same in all regions (2-3 percent) except in the South West, where it was 0.3 percent (Table 9). Based on standard international criteria, VAD certainly and IDA probably would have been classified as public health problems in 1992.

The NMS does not provide information on VAD in women. The prevalence of IDA among women was 9 percent nationally and 20 percent in the Northeast, versus 5-10 percent in the southern regions (Table 10). The prevalence of IDD among women was 3 percent nationally. Women's IDD rates were highest in the North West and the South West (5 percent), lower in the North East (0.7 percent), and zero in the South East (Table 10). Ten years ago the NMS data showed that IDA was a serious problem that should have been addressed due to its implications for child survival and pregnancy outcomes. The NFCNS should provide information on the current status of IDA, as well as IDD and VAD.

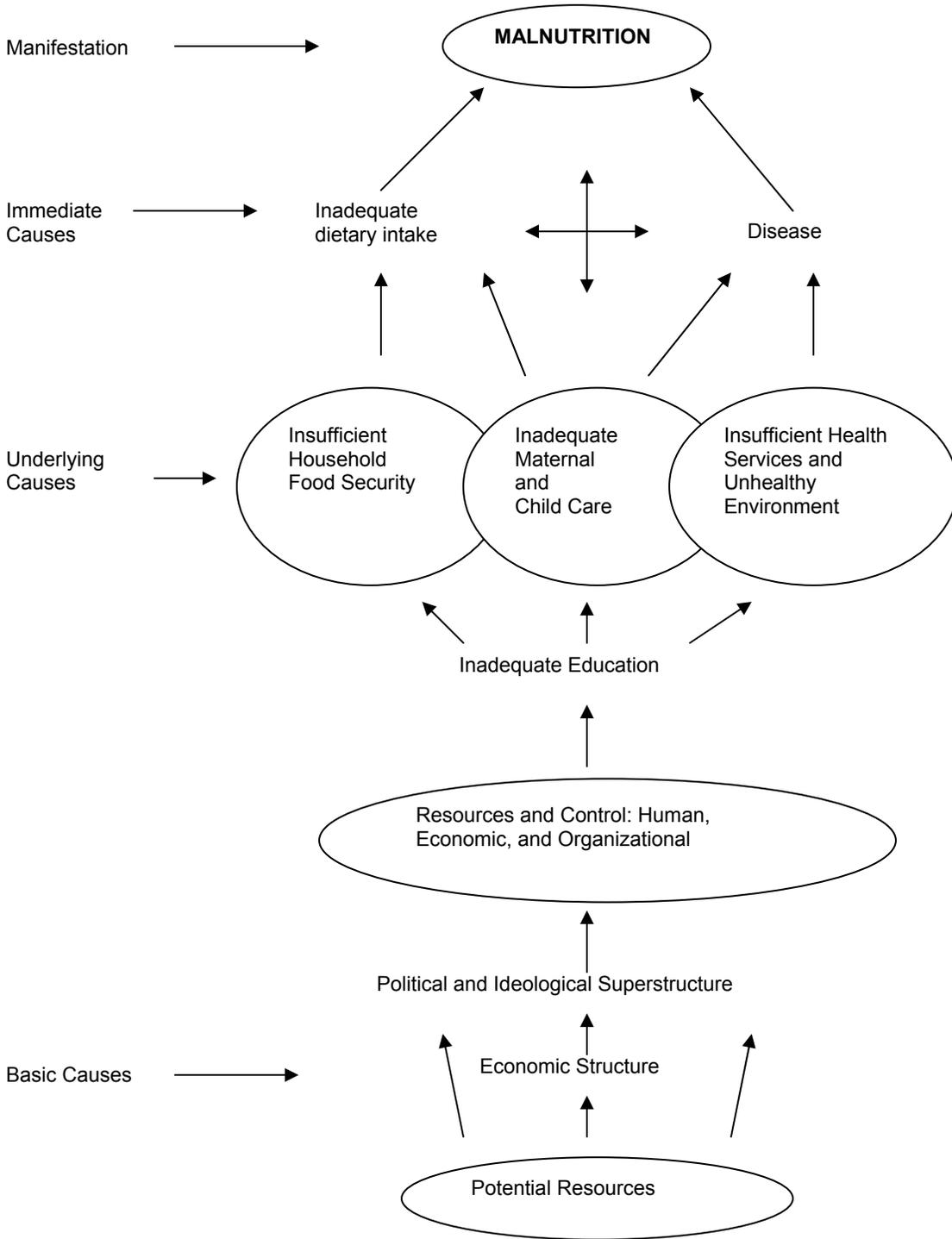
B. Factors in Malnutrition and Its Distribution

B1. Poverty

UNICEF’s conceptual framework of the causes of malnutrition, Figure 1 below, organizes the numerous factors at different levels that lead to malnutrition and shows the links between them. This framework is a common reference for work on malnutrition and is used here as an organizational framework.

Poverty, one result of Nigeria’s economic structure, is a basic cause of food insecurity and malnutrition. Poverty is a multi-faceted phenomenon, and its many facets contribute to malnutrition. It is associated with the lack of resources (physical and human capital) to produce adequate food or the income to buy it, as well as the lack of education, lack of health care, and living in poor environmental conditions that all contribute to malnutrition (Figure 1). The social and geographical distribution of poverty thus underlies the distribution of malnutrition in Nigeria. The latest available poverty-profile data of 1996 show that poverty most affects the rural population in general and farming households in particular. Nutritional indicators consistently show that the prevalence of all types of malnutrition is higher in the rural than the urban population. Poverty in the form of rural residence and agriculture as a livelihood thus is a major factor in the distribution of malnutrition in Nigeria. UNICEF notes that low immunization rates, lack of access to water and sanitation, and lack of access to reproductive health services are “inextricably intertwined with poverty,” more prevalent in rural areas, and ultimately contribute to malnutrition (UNICEF, 2001).

Figure 1. UNICEF’s Conceptual Framework of the Causes of Malnutrition



The size of Nigeria's poor population has increased steadily since 1980. Table 11 shows that in 1996 two-thirds of the population lived below the poverty line and that 29 percent were "core poor." An analysis of the 1990 NDHS data showed that children's malnutrition rates were highest in the poorest quintile of households and lowest in the richest quintile, which illustrates the relationship between poverty and malnutrition (UNICEF, 2001). For example, 16 percent of children in the two lowest income quintiles were underweight versus 5 percent in the richest income quintile (UNICEF, 2001).

More of the rural and agrarian than the urban population has been poor since 1980. By 1996, seventy percent of the rural population was poor versus 58 percent of the urban population (Table 12). Even if these figures have not increased over time, today Nigeria would have a large, poor population likely to be food-insecure and malnourished. The percent of poor households headed by a person working in agriculture and forestry increased from 54 percent in 1985 to 71 percent in 1996, which means that most farming households were poor in the late nineties. The poverty-profile information thus indicates that poverty is increasing in Nigeria's rural, agrarian households, which ultimately threatens nutritional status.

In 1996 poor households spent about three-quarters of their total expenditures on food (Table 13). A household should spend about 25 percent of its income on food in order to have income for other basic needs that contribute to good nutritional status and as protection against economic shocks (UNICEF, 2001). The large expenditure on food by poor families is an indication of food insecurity and vulnerability to malnutrition. There are no data that correlate this expenditure directly with malnutrition levels, but in 1999 almost half of Nigeria's children (46 percent) were stunted, which suggests that despite the major expenditures on food by poor families, their children suffered chronic malnutrition. Given the growth of poverty in Nigeria during the past decade, it is likely that today three-quarters of the country's rural households are poor, food insecure, and vulnerable to malnutrition.

Two factors that are strongly correlated with poverty are household size and the education of household heads. In 1999 the average household size was about five in both rural and urban areas (NDHS, 1999) and in 1996 three-quarters of households that size were poor (Table 14; FOS, 1999). In 1996 the highest proportion of poor households, about three-quarters, were headed by a person without education (Table 15). Three-quarters of rural men and women had no formal education in 1999 (NDHS, 1999), which probably was a contributory factor to their households' poverty and vulnerability to malnutrition. Lack of education is an important consideration because mother's education is consistently and positively associated with children's health and nutritional status, and with numerous other indicators. Nigeria's rural, agrarian households thus are the most likely to suffer from the poverty and lack of education that is associated with food insecurity and malnutrition.

B2. Household Food Security

Household food security can be defined as sustainable access to adequate food, through production or purchase, for all the household members to lead productive and healthy lives. Households need access to the resources that enable them to produce or purchase food, "the path to food," and their members must be able to utilize the food biologically, which is "the path from food to nutrition" (Frankenberger and McCaston, 1998). Nutritional security is the outcome of

the interaction between these two: food consumption and health status. Maternal and child care, access to health services, and a healthy environment are other major factors that affect health status, and thus nutrition (Figure 1). It is important to recognize that household access to productive resources and food is only part of the equation that determines nutritional status: access to the resources for good health is equally important. Household food insecurity therefore is one, but not the only, and not necessarily the most important, factor that contributes to malnutrition.

Linking household food security and nutrition begins at the conceptual level. The nutrition team's interviews showed that most people have quite a narrow view of "food security" and how Nigerian households can attain it, as part of improving their nutritional status. There is a strong focus on increasing the availability of food by increasing productivity, and a lack of recognition that access and utilization are equally important elements in nutrition. Off-farm income generation, rather than household agricultural production, rarely is reported as an option for achieving food and nutritional security. The fact that most farming households in Nigeria depend on generating income from off-farm activities in addition to agriculture generally is not articulated. The common conception evidently is that PEM is the result of a production problem, not a distribution problem, and that the combination of increasing food availability and providing nutrition education will largely resolve food insecurity and malnutrition. The assumption seems to be that increasing availability will improve access, although poverty is recognized as a constraint on access. The utilization issues that affect nutrition, such as health care and clean water, are rarely mentioned. This is a narrow conceptualization of the factors that lead to malnutrition and how to address them. A broader framework, such as UNICEF's (Figure 1), would help increase people's understanding of the array of factors that contribute to malnutrition, and its links to Nigeria's socioeconomic context.

The 2003 NFCNS provides some information about household food security in terms of characteristics such as region, rural/urban sector, and annual income. It reports that 74 percent of households in the moist savanna (the central agroecological zone) are severely food insecure, as are 60 percent of households in the dry savanna (northern zone) and 43 percent in the humid forest (southern zone) (Table 16). Nationally, 57 percent of households are severely food insecure and only 26 percent are food secure. Sixty-one percent of rural households are severely food insecure, as are 55 percent of households in medium and urban areas. Farming households are more food-insecure than others: 62 percent of households headed by farmers are severely food insecure and only 22 percent are "normal" (Table 16). Over half of the households headed by traders and artisans also are severely food insecure, and so are 48 percent of those headed by civil servants. These figures indicate that a variety of household types are food insecure, which is one factor that makes them vulnerable to malnutrition.

The NFCNS does not show an association between annual household income and food security, which is anomalous in terms of the conventional wisdom. Nor does it show much difference between households' food-insecurity status and their standards of living (sources of water and energy, sanitation). These two conclusions are questionable, because high incomes and living standards should not be associated with severe food insecurity in a majority of households.

B3. Rural/Urban Residence

Rural residence generally is associated with higher malnutrition rates than urban residence. This section summarizes rural/urban differences only in terms of PEM. Sectoral differences in the other factors that contribute to malnutrition are discussed below in terms of each factor.

Preliminary data from the NFCNS data indicate that micronutrient deficiencies vary across the rural/urban continuum and are not consistently worse in the rural sector in particular. However, the consensus in the reports on Nigeria is that the indicators for Nigeria's rural population consistently are worse than those for the urban population, which makes rural people more prone to malnutrition.

Nigeria's anthropometric data show that rural children's rates of stunting, wasting, and underweight consistently were higher than urban rates during 1990-1999 (Tables 1, 2, 3). PEM thus is a persistent problem in the rural population. It is not possible to identify trends in these three measures because the surveys used different sampling strategies so their data cannot be compared directly, and may contribute to the differences in their figures. Overall, however, the national surveys show that:

- Rural stunting has hovered at about 45 percent since 1990, versus about 35 percent in urban areas; neither has changed significantly during 1990-1999 (Table 1). This suggests that almost half of the rural population has consistently suffered from chronic malnourishment since 1990.
- There is little contrast in the rural/urban wasting rates. Rural wasting rates have been 10-13 percent since 1990 and urban wasting rates have been 7-11 percent (Table 2). These differences probably are not statistically significant.
- According to the two NDHSSs, rural wasting rates have declined since 1990 and in 1999 were essentially the same as the urban rate, 28 percent (Table 3).
- There is little difference between rural and urban women's nutritional status, based on height and thinness indices (Table 6).

B4. Health Status and Access to Health-Care Facilities

Childhood illness is a major factor in malnutrition; the others are inadequate food intake and poor feeding practices (UNICEF, 2001). There is a negative, synergistic relationship between malnutrition and disease that exacerbates both: malnutrition reduces resistance to disease, and disease contributes to poor nutritional status. For example, malaria contributes to anemia and diarrhea to the malabsorption of nutrients, so both illnesses affect nutritional status. The result of this vicious cycle is poor growth that leads to increased illness and death. The one-quarter of Nigerian children that are underweight are particularly vulnerable to the major causes of child death that are, in order, malaria, diarrhea, and acute respiratory infection (ARI) (UNICEF, 2001). According to UNICEF, "The data available on the prevalence of diarrhea, under-nutrition and under-five mortality show a strong interaction among all three."

The risk factors for childhood illness include lack of immunizations and antenatal care as well as malnutrition (NDHS, 1999). The percent of children under two who were fully vaccinated fell from 30 percent in 1990 to 17 percent in 1999, probably due to the shortage of vaccines in Nigeria during 1996-98 (NDHS, 1999). In 1999, almost half of rural children under two had had

no immunizations (Table 17). Sixty percent of the children without any immunizations had mothers with no education (Table 17), one of many indicators of the importance of women's education for child well-being. Low immunization rates in combination with the poor nutritional status prevalent among rural children makes them vulnerable to illness and the vicious cycle summarized above. Urban children and those with educated mothers had better immunization rates, although in 1999 only one-third of urban children were fully immunized.

Antenatal care contributes to maternal and child health and nutrition. About one-third of rural women did not receive any antenatal care in 1999, versus only 10 percent of urban women (NDHS, 1999). One-third of rural children therefore may have health and nutrition problems before birth. Women's education is associated with antenatal care: only 46 percent of women with no education got antenatal care, in comparison to 89 percent of those with a primary education who got care (NDHS, 1999).

Over half of Nigerian households live less than one kilometer from a health center, clinic, or hospital, and about three-quarters live within four kilometers of one such facility (Table 18). Rural/urban differences in the distance to health facilities is not in the NDHS, but the fact that one-third of rural communities has only seasonal roads is one factor that limits their access. Access does vary by region: 21 percent of the population in the North East, 11 percent in the North West, and 13 percent in the Central zones had no access to health services in 1999 (NDHS, 1999).

People's use of health facilities is affected by cost, the quality of care, and cultural values. The combination of fees, that have been charged since the late eighties, and a deteriorating economic environment has created an "insurmountable [barrier] for many Nigerians," and certainly for the rural poor (UNICEF, 2001). Health facilities' generally poor quality of care — poorly trained staff, lack of equipment, drugs, and hygiene — is worse in rural areas, which discourages utilization or compromises its effectiveness. Cultural values influence people's beliefs about healing and child care, which in turn affect their use of modern health care. Traditional beliefs in spirits as the cause of illness and traditional medicine as an option for treatment, and women's secondary social status and lack of education, all affect the use of health-care facilities, especially in the rural population.

The interrelationship of poverty, lack of education, traditional beliefs, and social marginalization makes rural people more vulnerable to illness and less able to treat it effectively. Health and nutritional status both suffer as a result. For example, 45 percent of rural children were taken to a health facility for care for ARIs and fever, versus two-thirds of urban children (NDHS, 1999). Dehydration from diarrhea is a major cause of death among young children in Nigeria, yet only 33 percent of rural children were taken to a health facility or provider for treatment, versus 51 percent of urban children (NDHS, 1999). Fifty-three percent of rural women knew about ORS packets for treating diarrhea versus 69 percent of urban women (NDHS, 1999). Only 29 percent of children of mothers with no education were taken for treatment for diarrhea, versus 45 percent of children of mothers with primary or secondary education. Rural knowledge and practices thus perpetuate the negative cycle of illness and malnourishment.

B5. Water and Sanitation

Disease is a factor in malnutrition, including diarrheal and water-borne diseases. Lack of clean water and sanitation facilities is associated with these diseases and thus contributes to malnutrition. Diarrheal diseases often are the result of contaminated water, can start the vicious cycle of nutrient malabsorption and malnutrition, and account for 20 percent of under-five mortality in Nigeria (UNICEF, 2001). Malnutrition therefore is a factor in deaths from diarrhea. Standing water due to poor sanitation is a breeding-ground for mosquitoes that cause malaria, which in turn contributes to anemia. Lack of sanitation facilities and poor hygiene practices (defecation near water sources and homes, lack of hand-washing) also spread disease and are linked to malnutrition.

The NDHS assumes that water from pipes, private wells, boreholes, and springs is uncontaminated. About half of the urban population but only one-third of the rural population has access to clean water from these sources (Table 19; NDHS, 1999). The rural population has two main types of sanitation facilities: none (32 percent) and traditional pit toilets (57 percent) (Table 19). The urban population's two main types are private flush toilets (21 percent) and traditional pit toilets (46 percent). Both sectors lack clean water and sanitation facilities, but the rural sector's lack makes it more vulnerable to disease and thus malnutrition.

B6. Maternal and Child Care

Maternal and child care includes women's health status, the time mothers spend with their children, breastfeeding practices, complementary feeding, and the cultural beliefs and practices that influence these behaviors. Nigerian women's "heavy burden of production and reproduction" and high maternal mortality rates limit their capacity to care for their children (PICS, 1994). Reproduction includes women's responsibilities for children's health, preparing meals, and providing a clean home. However, the dual demands of work and childcare leave women with less than four hours per day for childcare, which is insufficient (PICS, 1994). The lack of good alternatives for childcare — leaving young children in the care of other children, for example — has a negative effect on children's nutritional status (PICS, 1994).

Women's general lack of formal education, and their reliance on traditional cultural beliefs, affects their use of modern health-care services, and thus maternal and child health status. For example, food taboos are reported to limit pregnant women's and children's consumption of nutritious foods (PICS, 1994) and belief in the spirit causality of disease leads to the use of traditional medicine (UNICEF, 2001). Women's secondary social status limits their decision-making power — for example, whether to seek modern health care — which is another important factor in both their own and their children's nutritional status. One result of women's lack of education and secondary social status is poor maternal and child care that, according to the PICS, "is one of the underlying causes of undernutrition" (PICS, 1994).

The aspects of women's health that affect their children include their nutritional history, age at marriage and childbearing, antenatal care, and birth intervals. Undernourished girls may be short and have distorted pelvises, which may lead to low birthweight infants that are vulnerable to health problems. Birth intervals generally are intermediate in Nigeria for about three-quarters of women: the median is 31 months, and 24 months is considered a safe interval (NDHS, 1999).

This leaves about one-quarter of infants at higher risk of illness and death due to short birth intervals.

Infant and child feeding practices in Nigeria generally are not appropriate for good nutrition, according to the national nutrition surveys. Traditional beliefs delay breastfeeding after birth and prohibit giving infants colostrum. Tradition and/or women's economic responsibilities lead to low rates of exclusive breastfeeding (EBF) and the early introduction of complementary feeding (NDHS, 1999; PICS, 1994). All of these practices affect infant nutrition at a critical stage. EBF is linked to the health side of the nutrition equation: it promotes infants' immunity to disease and protects them from diseases such as diarrhea that are transmitted by dirty water. The rate of EBF increased from 2 percent to 20 percent during 1990-1999 for infants 0-3 months, but it is still low (NDHS, 1999). Although 96 percent of infants in Nigeria are breastfed, the median duration of EBF is less than one month and that of full breastfeeding (breastmilk and plain water) is just over two months (NDHS, 1999). The duration of breastfeeding is longest in the Northwest (22 months) and among women with no education (22 months) and shortest in the Southeast (16 months) and among women with a secondary education (16 months) (NDHS, 1999).

The urban rates of breastfeeding infants within an hour or a day of birth are higher than the rural rates (74 percent of urban mothers breastfeed within a day, versus 63 percent of rural mothers) (NDHS, 1999). This difference is attributed to the "Baby Friendly Hospital Initiative" that operates mainly in urban hospitals and urban women's greater access to health education about breastfeeding (NDHS, 1999). Women's education also affects breastfeeding: 71 percent of mothers with primary and secondary educations breastfed their infants within one day of birth, versus 58 percent of mothers with no education (NDHS, 1999). However, infants are breastfed longer in rural than urban areas: 77 percent of rural infants are breastfed at 12-15 months, versus 59 percent of urban infants (MICS, 1999). Overall, the issue in Nigeria is to promote EBF in order to give children a better nutritional start in life.

The timing and type of complementary foods given to infants can have "a profound effect on their health and nutrition" (NDHS, 1999). The consensus is that complementary feeding begins too early (before 6-9 months) in Nigeria (NDHS, 1999; PICS, 1994; UNICEF, 2001). This exposes infants to infection and lowers their immunity to disease, which affect nutritional status. Giving food such as water and glucose before breastfeeding is a common practice that compromises infant nutrition; 85 percent of mothers did so in 1994 (PICS, 1994). Forty-four percent of infants 4-6 months old are fed cereal and 38 percent are given liquids other than breastmilk (NDHS, 1999). Supplementary foods are mainly unenriched carbohydrates (PICS, 1994). These feeding practices are a major factor in poor infant nutrition and point to the need for education for women.

C. Government-Supported Nutrition Programming

Several government agencies support nutrition programs, but their activities are seriously limited by lack of funds. As a result most of the programs do not generate information on food security or nutrition. The program staff reported that the momentum for data-collection in the nineties died as a result of state budget cuts late in the decade. The FGN agencies consistently referred the consultants to UNICEF for anthropometric data and nutrition-information and uniformly reported that, due to lack of funds, they rely on the national surveys for national- and regional-

level data (NDHS, PICS, MICS, NFCNS). For example, FAO's SPFS will use the NFCNS as its baseline and qualitative self-reports from participants rather than anthropometric or nutritional data to assess its impact. None of the three international NGOs contacted (Catholic Relief Services, Action Aid, Africare) have food security or nutrition programs; OXFAM could not be reached. A local NGO, Food Basket, works in food security but the director was unable to meet with the nutrition consultants or share documents so there is little information on its activities. The information on government-supported nutrition programming is summarized in Table 20.

The nutrition consultants' search for information on the regional distribution of PEM and micronutrient deficiencies from sources other than the national surveys was unsuccessful. Travel to Lagos, Port Harcourt, and Enugu as well as meetings in Abuja with the UNICEF staff from Kaduna did not produce any site-specific information to complement the national surveys or help map the regional distribution of malnutrition or micronutrient deficiency. Four short tables of incidental information were the net result of the consultants' information-search: one from WHO's 2003 Integrated Management of Child Illness Unit survey (draft), one from the 1999 Core Welfare Indicators Survey, and two taken from a bachelor's thesis done at the University of Nigeria at Nsukka in Enugu state. The professors in the Department of Food Science and Technology at the university said that more than twelve theses with information on micronutrients and nutrition should be finished later this year; the seven-month academic strike that ended in May delayed their completion. The lack of local-level information on nutrition and anthropometrics is a well-known problem that creates an information-gap for numerous sectors. This underlines the need to build FGN capacity for systematic data collection and centralization.

Table 21 shows all the agencies and people contacted in the search for nutrition-information, and the information they provided.

D. The Feasibility of the Global Food for Education Initiative in Nigeria

The Global Food for Education Initiative was a pilot program implemented in fiscal years (FY) 2001 and 2002 that is expected to end in FY 2002. The new McGovern-Dole International Food for Education and Child Nutrition Program replaces the pilot initiative. It is authorized by the Farm Security and Rural Investment Act of 2002 and administered by the Foreign Agricultural Service (FAS). The McGovern-Dole program aims to help promote education, child development, and food security for poor children by providing donations of U.S. agricultural commodities and financial and technical assistance. Its key objectives are "to reduce hunger and improve literacy and primary education, especially for girls." The program will provide school meals, teacher-training, and related support in order to help increase school enrollment and academic performance. Nutrition programs for pregnant/lactating women and for infants and preschool children will improve children's health and learning capacity before they begin school. The program will operate mainly through school feeding programs and maternal and child nutrition projects in low-income countries. It will support countries that have "made commitments to support and further enhance the quality of their education and nutrition sector" (FY03 FFE program, electronic version).

"The FFE program will focus on countries that meet the poverty criteria established by the World Bank. The national government of the recipient country must be fully committed to achieving the goals of the World Declaration on Education for All and should be taking steps to

raise nutritional standard and improve the quality and availability of education” (Fact Sheet: McGovern-Dole FFE, Web page). In addition to government commitment to education, the recipient’s FFE program should have “the full support of local communities to sustain the school feeding program” and to reduce the government’s cash outlay for school meals (FY03 FFE program, electronic version).

In 2003 the program’s commodity and transportation costs will support 10-15 projects with donations of about 250,000 metric tons of U.S. commodities. “In addition to donating and shipping agricultural commodities, USDA may, at its discretion, pay transportation, storage, and handling costs within the recipient country, as well as [the] administrative expenses of the participating organizations, where such expenses enhance program effectiveness” (Fact Sheet: McGovern-Dole FFE, Web page). The school feeding and nutrition projects will be implemented by nonprofit charitable organizations, cooperatives, and international agencies.

Proposals are based on criteria that include: “1) the implementing organization’s experience in school feeding; 2) additional, non-food for education (FFE) resources that will be available to implement multi-year, sustainable projects based on assessed needs; 3) targeting of low-income areas with low school attendance or enrollment rates, especially for girls; 4) coordination of supplementary feeding with nutrition programs; and 5) involvement of local institutions and communities” (Fact Sheet: McGovern-Dole FFE, Web page). “USDA will also give preference to projects that seek other donors or demonstrate the ability to a) integrate other education, health, and nutrition interventions, and b) ensure availability of support to meet minimal school inputs (e.g. supplies, infrastructure, teacher development, improved curriculum)” (FY03 FFE program, electronic version). Multi-year proposals will be considered in FY03 and FY04.

The program has funds for “improving program effectiveness” using cash from the Commodity Credit Corporation. Monetization is permissible if it is fully justified. “Program effectiveness” consists of two main non-food implementation areas: “1) program administration, including monitoring, evaluation and consultants for nutrition and education, and 2) health and education materials, including books, student/teacher supplies, training materials, and prophylactic medications (deworming, vitamin A, iron)” (FY03 FFE program, electronic version).

Additional information about the McGovern-Dole FFE program is available on the FAS Web site at: www.fas.usda.gov/excredits/FoodAid/FFE/FFE.html. The contacts for the FAS program staff are: telephone, 202-720-4221; FAX, 202-720-690-0251; email, PPDED@fas.usda.gov?subject=McGovern-Dole Food for Education Program.

The person at the U.S. Consulate in Lagos with information about the McGovern-Dole program could not be reached during the assessment. The FAS in Washington D.C. could not provide information to supplement that available on the Web, so information about the type and amount of commodities and financial and technical assistance potentially available for Nigeria are limited to that given above. The options below are based solely on information from the Web.

The McGovern-Dole program fits in the Mission’s health and education SO, given the program’s objectives and resources. It could be used to support the SO’s education activities and as a means for the Mission to increase its collaboration with the FGN’s school feeding programs. Dr.

Amaeshi, the Director of the Department of Community Development and Population Activities in the FMOH, reported that the department's Nutrition Service is planning a school-feeding program and would welcome collaboration with USAID. Regional differences in education and nutrition needs due to Nigeria's ethnic and environmental diversity fit in the FFE program's requirement to target areas that need support to improve children's nutritional status and education. Nigeria's northern areas that are nutritionally and educationally disadvantaged would be a logical starting-point.

The options to use the McGovern-Dole program are:

- School feeding programs for preschool and primary school children, with the objectives of increasing enrollment, attendance, and performance. A school feeding program implemented under the previous pilot FFE program (the Global FFE Initiative) was used to provide a range of basic services including deworming, dental hygiene, health and nutrition education, water disinfection, and school gardens.
- Rations for families who have preschool- and primary school-age girls. A weekly ration could be used to compensate the families' loss of labor, which can be a factor that keeps girls out of school, and thus support girls' attendance. This type of food-for-education intervention has been used successfully in low-income countries and can be continued to promote girls' attendance in secondary school.
- Rations for HIV/AIDS-affected households that have school-age children. These households typically do not have enough labor to be food or economically secure, so their children are hungry or working to compensate for the loss of adult labor, or both. Rations to replace at least part of the household's labor-loss due to HIV/AIDS would enable these children to attend school.
- Rations for women in conjunction with basic literacy and/or health and nutrition education classes. Health and nutrition classes specifically for pregnant and lactating women also would be a FFE option. Cooking classes, that use program commodities could be part of both such classes.
- Payment in kind for teachers is an option with this FFE program. It could be used to support teacher training and curriculum development in health and nutrition.
- Payment in kind to the community is an option for building/improving educational infrastructure: kitchens, additional classrooms, water facilities, latrines.

E. The Policy Context

E1. The National Food and Nutrition Policy

A National Committee on Food and Nutrition (NCFN) was set up in Federal Ministry of Science and Technology in October 1990, and charged with the mandate to develop the National Food and Nutrition Policy. The policy was drafted in 1995 with the following objectives:

- Improve food security at the household and aggregate levels to guarantee that families have access to adequate (in quantity and quality) and safe food to meet nutritional requirements for a healthy and active life.
- Enhance care-giving capacity within households with respect to child feeding and childcare practices, as well as addressing the care and well-being of mothers.
- Improve the provision of human services, such as health care, environmental sanitation, education, and community development.
- Improve capacity within the country to address food and nutrition problems.
- Increase the understanding of malnutrition problems in Nigeria at all levels of society, especially regarding its causes and potential solutions.

The policy was accepted in 1998 and officially launched in November 2002. With the adoption of the policy in 1998 and donor support, the NCFN developed a national program of action to operationalize the policy. The program included establishing committees on food and nutrition at both state and local government levels to coordinate nutrition-related actions. In some states the establishment of these committees is helping to build the consensus for the proper conceptualization of the nature and magnitude of the malnutrition problem in Nigeria, in order to support institutionalized and coordinated data collection and adequate resource commitment.

The NCFN is in the process of developing another national plan of action for implementing the National Food and Nutrition Policy that will be based on the results of the 2003 Nigeria Food Consumption and Nutrition Survey. The action plan will assess what concrete steps need to be taken to ensure that the targets in the policy are met. Hopefully the adoption of the food and nutrition policy and the development of the institutional arrangements for its implementation will give nutrition a higher profile than it has had in the past.

E2. The National Committee on Food and Nutrition and the Coordination of Nutrition Programs

The genesis of NCFN was in 1989 when it was first proposed at the second National Workshop on Food and Nutrition Policy. The committee later was established as an inter-ministerial body domiciled in the Federal Ministry of Science and Technology and then, after 1993, in the Federal Ministry of Health. In 1995 the NCFN was relocated to the National Planning Commission (NPC) because nutrition is a multi-sectoral issue. It was assumed that the NPC would be a neutral body to coordinate nutrition and, given its central role in government planning and budgeting, that it could muster the financial resources for nutrition activities. Unfortunately, the NPC had neither the budget nor the expertise in nutrition to effectively assist the NCFN to coordinate nutrition activities. In fact, virtually all the programmatic costs for nutrition programs in Nigeria have been borne by donors and not by the government, which is an indication of the NPC's lack of capacity.

When interviewees were asked what the next step should be for the NCFN, one response was that it should be relocated to the Presidency, like NACA for HIV/AIDS, and that USAID should support this move. Government involvement in nutrition, including the engagement of the presidential and ministerial levels, was seen as critical by many interviewees. This was reported as necessary to put nutrition on the national agenda, which is necessary to mobilize the attention, funding, and action required for progress.

E3. Success Stories: What Has Been Achieved

The National Food and Nutrition Policy. The National Policy on Food and Nutrition was drafted in 1995, adopted by the FGN in 1998 and finally launched in November 2002. The policy will serve as “a framework to guide the identification and development of intervention programs aimed at addressing the problems of food and nutrition across different sectors and levels of the Nigerian Society” The policy needs revision to include the issues of HIV/AIDS and human rights.

Development of the Nigeria PROFILES. PROFILES, a computer-based nutritional policy analysis and advocacy tool, was developed based on existing nutrition data. It can be used to make an effective case for attention and resources to be allocated to combat malnutrition. It will be updated with data from the 2003 NFCNS.

Universal Salt Iodization. The introduction and implementation of a policy for universal salt iodization has proven effective in overcoming IDD. The success of the policy can be gauged by the fact that in 1995 ninety-seven percent of all the food-grade salt manufactured in Nigeria reportedly was iodized and by 1999 ninety-eight percent of all Nigerian households were using iodized salt.

Vitamin A Fortification of Flour, Sugar, and Vegetable Oil. The FGN’s published standards for flour (wheat and maize), sugar, and vegetable oil include specifications for vitamin A fortification levels. These foodstuffs were selected on the basis of their importance in the national food market and the population’s food consumption patterns. The proposed standards were signed into law, making it mandatory for manufacturers to fortify these foods. NAFDAC and the Standards Organization of Nigeria are monitoring the implementation of the law and compliance.

The National Committee on Food and Nutrition (NCFN). The National Committee on Food and Nutrition (NCFN) was established to coordinate nutrition activities across the sectors, and to mobilize resources for nutrition. It has been dormant during the last few years but now has been resuscitated and become active again.

F. Options for Improving Food Security and Nutrition

The following options to improve nutritional and food security are based on interviews with Nigerians in a range of government and donor agencies, and on the nutrition consultants’ perspective. The consistent response to the question of how to improve food and nutrition security was: “increase agricultural productivity.” Both expatriates and Nigerians reported that increasing agricultural productivity will largely resolve the problems of the availability of and

access to food in Nigeria. Interviewees did not address the utilization aspect of food security and the potentially negative effects of HIV/AIDS on Nigeria's labor supply, although the latter is critical for increasing agricultural productivity. This is a very narrow view of food security and how to improve it. The options below are aimed at the broader range of factors that affect nutritional status that USAID's program could address.

Strengthen the National Committee for Food and Nutrition. The consensus is that the NCFN is being revived and is the key government institution to strengthen, despite its problematical history. It is a mirror of what is happening with nutrition in Nigeria, as one respondent said. The committee's newly appointed nutritionist will need support for advocacy, as the NPC's lack of expertise in nutrition has been an obstacle to the NCFN. The NCFN needs strengthening and support to provide strong leadership for improved nutrition in Nigeria. Strengthening includes training on nutrition, as well as vehicles, computers, and support for a communication system.

Relocate the NCFN under the Presidency. The NCFN should be under the Presidency, as NACA is for HIV/AIDS, and USAID should support the move. FGN involvement in nutrition is critical; the presidential and ministerial levels must be engaged. This involvement includes recognition of the negative relationship between nutrition and HIV/AIDS that affects the availability and productivity of labor, and therefore affects agricultural production and food supplies. Relocating the NCFN under the Presidency is necessary to get nutrition and its critical issues on the national agenda, which is necessary to mobilize the attention, funding, and action required for progress. The National Planning Commission where the NCFN presently is located has neither the budget nor the expertise in nutrition to effectively assist the NCFN coordinate nutrition activities.

Coordinate policy-making. Improve government understanding of the spiral effects of policy and the need for coordinating policy in order to avoid unforeseen, negative effects on food security. The obvious issue in Nigeria is the spiral effect of policies for oil that drive the national economy and ultimately affect all three components of food security—availability, access, and utilization.

Nutrition and HIV/AIDS. Nutrition and HIV/AIDS are two parts of a single problem that must be addressed as part of improving Nigeria's food security. The HIV/AIDS epidemic in southern Africa has shown that the maps of HIV prevalence and malnutrition overlap, and that both are driven by poverty, inequality, and conflict. The distribution of malnutrition and HIV/AIDS most likely overlaps in Nigeria also. HIV/AIDS-affected households are vulnerable to food insecurity due to their loss of labor and the costs of caring for their infected members. People with HIV/AIDS are vulnerable to opportunistic diseases and to malnutrition that in turn exacerbate HIV/AIDS in a continuing, vicious cycle. HIV/AIDS-affected households need support to access production technologies and economic options to help them maintain their food security, and HIV/AIDS-affected people need access to the food and medications necessary to help them remain well-nourished and productive as long as possible.

Build capacity for government data collection. The need to strengthen government capacity for the systematic collection, analysis, and distribution of nutrition and health data is critical. The process virtually ended in 1999 due to state budget deficits, so that currently little if any data are available on nutritional status except the major national surveys. The data-collection system should include a geographical information-based system (GIS) to collect data on environmental

factors (e.g. rainfall), agricultural production, and HIV/AIDS seroprevalence in order to map regional vulnerability to food insecurity. This information would inform policy-making and contribute to establishing a food insecurity early-warning system. Data are essential to monitor and assess the impact of agricultural and nutrition programs. The state needs a standardized, systematic data-collection system that moves nutrition information from the local to a central level, and distributes it to stakeholders. This will require training personnel and providing computers. Capacity building should be done through the FGN and its civil servants with the objective of strengthening existing government institutions, and not creating parallel donor systems.

Monitor child growth by bringing the nutrition surveillance system up to scale. The national nutrition surveillance system currently works in a minority of Nigeria's LGAs to provide growth-monitoring data. Providing support to expand this system would improve the national data-base on child growth and nutrition, which is useful information for several sectors. A standardized methodology should be used throughout the country so that the data can be aggregated for analysis at different levels. At the community level this would provide feedback information to women and health-care personnel about the effectiveness of or the need for local health/nutrition programs; the aggregate information would serve the same purpose at the state and higher levels.

Increase demand for nutrition services. One of the health/education SO's activities will be to increase communities' demand for health and education services and their capacity to advocate on these issues, including the development of advocacy tools. Raising awareness about the importance of nutrition education and services, such as growth monitoring and micronutrient supplementation, could be part of this activity.

Educate women. The consensus is that educating women about key issues that affect child nutrition (breastfeeding, child-care practices, complementary feeding, dietary diversity) is essential for addressing widespread child malnutrition in Nigeria. The education could include teaching women about the links between nutrition and disease (diarrhea, HIV/AIDS). The options to do this include:

- Use the "positive deviance," community-level approach to address child nutrition (identify households whose child-care practices deviate from community norms, are culturally acceptable and affordable, and result in better child nutritional status than the norm). The approach includes "nutrition rehabilitation and education hearths" in which women learn about food preparation and health. BASICS II is proposing to integrate positive deviance into its CAPA approach.
- Design and provide a standard package of information and health-care services related to child nutrition as part of USAID's family-planning program for women. The package could include information on HIV/AIDS and HIV/AIDS-positive mothers' options for breastfeeding and child health care. Nutrition education could be incorporated into the family-planning program, as well as essential services (growth monitoring, immunizations, deworming, vitamin A supplementation). USAID should design this standard package in collaboration with the FMOH and promote its use in local health-care facilities, in order to broaden the work toward improving nutritional

security. This will require training health-care personnel to use the package. Systematic data collection to monitor child nutritional status over time should be part of a concomitant USAID effort.

Nutrition education for children. A nutrition-education component could be designed and included in USAID's basic education program for children, which currently operates in Lagos, Kano, and Nasarawa states. School gardens would be an option for practical education about dietary diversity and vitamin A foods.

School feeding programs. The FMOH's Department of Community Development and Population Activities is planning a school-feeding program and looking for partners to support it. USAID could provide non-commodity support for the program, and provide nutrition-education for women and children in the communities where it operates. One option to promote girls' attendance in school (that has been used elsewhere in Africa and found effective) is to give their families a food ration to replace the labor they lose by having the girls in school. Rations also may be useful to keep children from HIV/AIDS-affected households in school.

Community-based child growth monitoring: the Honduras "Integrated Attention to Children" Model. Honduras historically has been a low-income country with a malnourished population. More than ten years ago it implemented a community-based child-growth monitoring system that has been successful at maintaining good nutritional status in children under two. The system monitors children's weight in order to detect growth faltering as an early warning sign of malnutrition at the individual level, and to detect when it becomes a problem at the community level. Educating mothers about how to use the resources they have for children's good nutritional status is a major component of the system; the emphasis is on using available resources, rather than on purchasing or being given external resources. The overall finding is that accurate monitoring, mother's appropriate use of available resources, and prompt responses to a community-level problems has contributed to maintaining good nutritional status in young children in rural communities.

The system is based on training community health workers to collect accurate growth data and to transmit it to the community mayors when negative changes require a response. The latter transmit the information to the municipal mayors, who work with NGOs and government agencies to organize a response. The Honduran government's long-term investment of time and resources is reported as the key to making this system a success. This system could be adapted to Nigeria, based on government commitment to a pilot program.

Supplements and fortification. The current efforts to provide vitamin A supplements and the options of fortifying flour, sugar, and oil should be supported. One option in fortification is to promote the participation of small and medium enterprises that would make fortified flour readily available in rural areas. The sustainability of universal salt iodization should be maintained by ensuring the commitment of the salt producers and government agencies to implementing the policy. Iron and folic acid supplementation to all women and children at risk should be supported. Fortifying salt with iron, like iodization, is a possibility in the future that is under research outside Nigeria.

Off-farm income generation. Small-scale income-diversification opportunities would have a positive effect on household economic and food security. The economic growth/agriculture SO includes adding value to agricultural products and creating opportunities for women for income-generation by improving post-harvest processing. These are good options for simultaneously improving food security by improving access, and supporting the off-farm activities that already are an important component of the rural household economy, particularly for women. Another option would be to provide technical assistance to diversify or develop additional off-farm activities that fit into rural households' economic systems. This would provide a counterpoint to the universal focus on increasing agricultural productivity as the key to food security, as generating income from off-farm activities is another route to improving food security.

Increase agricultural productivity. Increase agricultural productivity, including the production of roots and tubers through IITA's program. This includes diversifying crop production to support dietary diversity, as well as improving storage and processing techniques, marketing networks, and roads. Low-cost labor-saving technologies for HIV/AIDS-affected households will be necessary as Nigeria's affected population increases.

It is important to recognize that HIV/AIDS in Nigeria will be a constraint on increasing agricultural productivity, because it will decrease the availability and productivity of rural labor and thus decrease food production and the availability of foodstuffs. The long-term availability of surplus labor in Nigeria can no longer be assumed, due to HIV/AIDS. Nigeria is likely to encounter the problems due to labor constraints from its HIV/AIDS epidemic that already have been documented in southern Africa, including a drop in labor productivity, decreases in total agricultural output and yields, a shift to less labor-intensive crops, and compromised post-production food processing and storage. The universal aim to increase agricultural productivity in order to improve food security must take HIV/AIDS into account.

Tables

Table 1. Nigeria, 1990 to 1999: Trends and the Current Status of Stunting in Children¹

(rounded percents; Nigeria Demographic and Health Survey (NDHS), 1990; National Micronutrient Survey (NMS), 1993; Participatory Information Collection Survey (PICS), 1994; Multiple Indicator Cluster Survey (MICS), 1999; Nigeria Demographic and Health Survey, 1999)

Survey	All children	Residence		REGION				Mother's education		
		Urban	Rural	NE	NW	SE	SW	None	Primary	Secondary
1990 NDHS (children < 5 years)	43	35	46	52	50	37	36			
1993 NMS (children from 6 months to < 6 years)	40	35		50	51	22	28			
1994 PICS (FGN/UNICEF) (children < 5 years)	52			53	51	51	49	60	34	6 (SECONDARY +)
1999 MICS (children < 5 years)	32	23	38	46	39	29	22	39	29	19 (SECONDARY +)
1999 NDHS (children < 3 years)	46	42	47	North East: 55 North West: 57 South East: 35 South West: 39 Central: 53				56	40	39

¹Stunting is defined as low height for age; the figures here are for moderate plus severe stunting.

Table 2. Nigeria, 1990 to 1999: Trends and the Current Status of Wasting in Children¹

(rounded percents; Nigeria Demographic and Health Survey, 1990; National Micronutrient Survey, 1993; Participatory Information Collection Survey, 1994; Multiple Indicator Cluster Survey, 1999; Nigeria Demographic and Health Survey, 1999)

Survey	All children	Residence		REGIONS				None	Primary	Secondary
		Urban	Rural	NE	NW	SE	SW			
1990 NDHS (children < 5 years)	9	7	10	11	12	8	6			
1993 NMS (children from 6 months to < 6 years)	21			19	20	24	19			
1994 PICS (FGN/UNICEF) (children < 5 years)	11			14	10	9	12	61	32	7 (secondary +)
1999 MICS (children < 5 years)	16	14	16	16	18	12	14	17	14	12 (secondary +)
1999 NDHS (children < 3 years)	12	11	13	North East: 16 North West: 23 South East: 8 South West: 12 Central: 10				15	13	9

¹Wasting is defined as low weight for height; the figures here are for moderate plus severe stunting.

Table 3. Nigeria, 1990 to 1999: Trends and the Current Status of Underweight in Children¹

(rounded percents; Nigeria Demographic and Health Survey, 1990; National Micronutrient Survey, 1993; Participatory Information Collection Survey, 1994; Multiple Indicator Cluster Survey, 1999; Nigeria Demographic and Health Survey, 1999)

Survey	All children	Residence		REGIONS				Mother's education		
		Urban	Rural	NE	NW	SE	SW	None	Primary	Secondary
1990 NDHS (children < 5 years)	36	26	39	45	44	30	27			
1993 NMS (children from 6 months to < 6 years)	39			?	56	25	?			
1994 PICS (FGN/UNICEF) (children < 5 years)	28			31	26	24	32	61	32	7 (secondary +)
1999 MICS (children < 5 years)	30	20	35	40	35	24	21	35	26	17 (secondary +)
1999 NDHS (children < 3 years)	27	27	28	North East: 38 North West: 45 South East: 18 South West: 25 Central: 24				36	24	20

¹Underweight is defined as low weight for age, and reflects both chronic and acute malnutrition. The figures here are for moderate plus severe stunting.

Table 4. Nigeria, 2003: Underweight Children from Six Geopolitical Zones¹

(rounded percents; WHO, Integrated Management of Child Illness Unit survey, draft, 2003)

Zone	Children's age categories				Total in zone
	< 12 months	12-23 months	24-35 months	36-59 months	
North Central: Chanchaga	22	24	28	24	25
South West: Ife	13	23	24	24	20
North East: Jere	39	39	34	46	40
North West: Kano	33	56	27	36	38
South East: Owerri	7	16	38	29	23
South-South: Uyo	11	24	17	19	18
Total	18	26	28	30	26

¹Children under five years from one site in each geopolitical zone were weighed; underweight is based on the weight-for-age measurement.

Table 5. Children's Malnutrition Rates: Nigeria in Comparison with the Region

(UNICEF, electronic version)

Country	Underweight ¹	Stunted	Wasted	Year	Children's ages (months)	Data source ²
Nigeria	27	46	12	1999	0-35	DHS 1999
Benin	29	25	14	1996	0-35	DHS 1996
Cameroun	21	35	5	1998	0-59	DHS 1998
Chad	28	28	12	2000	0-59	MICS 2000
Ghana	25	26	10	1998	0-59	DHS 1998
Niger	40	40	14	2000	0-59	MICS 2000
Senegal	18	19	8	2000	0-59	MICS 2000

¹Percent of children moderately plus severely underweight, stunted, and wasted.²DHS: Demographic and Health Survey; MICS: Multiple Indicators Cluster Survey.**Table 6. Nigeria, 1999: Women's Nutritional Status**

(rounded percents; NDHS, 1999)

Characteristic	Height < 145 cm ¹	BMI < 18.5 ²
All women	7	16
Urban	6	15
Rural	7	17
Region	7	25
North East		
North West	11	18
South East	6	7
South West	5	20
Central	4	8
Mother's education		
None	9	20
Primary	5	14
Secondary	4	12

¹The cutoff for defining short (stunted) stature is height of < 145 cm.²The cutoff for defining undernourishment (chronic energy deficiency) is a Body Mass Index of (BMI) of <18.5.

Table 7. Percent of Recommended Daily Energy and Protein Allowances

Met by Women and Children in 1993
(PICS, 1994)

Group	Percent of energy needs met				Percent of protein needs met			
	SE	SW	NW	NE	SE	SW	NE	NW
Women 15-19 years	90	103	72	68	110	117	92	82
Women 20-45 years	61	109	74	68	93	99	82	70
Children 1-3 years	112	136	127	104	117	114	103	99
Children 4-6 years	90	109	63	80	95	91	67	76

Table 8. Energy Foods Consumed in Adequate Quantities

by Mothers and Children in 1993¹
(PICS, 1994)

Zone	Mothers	Children
South East	Foofoo (unspecified type), yam, and yam flour in season. Adequate palm oil consumption. Vitamin a sources: mango and pepper. Roots and tubers are the main energy source.	Yam in season. Adequate palm oil consumption.
South West	Lafun and yam in season. Palm oil and beniseed. Vitamin a sources: tomato and pepper. Roots and tubers are the main energy source.	Yam in season. Adequate beniseed and palm oil consumption.
North West	Maize and sorghum. Adequate palm oil consumption. Vitamin A sources: okra, pepper, mango. Cereals are the main energy source.	Maize and sorghum. Adequate palm oil consumption.
North East	Inadequate energy intake. No single food type identified as main energy source. Important foods are palm oil, pepper, tomato, onion. Vitamin a sources: tomato, pepper, and mango.	Groundnut and palm oil.
Animal protein: the adequate consumption of meat, fish, eggs, or other animal sources of protein was not found in any zone, in either mothers or children.		
Plant protein: adequate consumption of beniseed by mothers and children in the south west and adequate consumption of groundnut by children in the north east. No major source of plant protein was found in the south east and the north west.		

¹ "adequate" was defined as 60 percent or more of the population consuming the food four or more times per week.

Table 9. Nigeria, 1993: Micronutrient Deficiencies in Children

(rounded percents; NMS, 1993)

Survey	Zones												All children		
	South East			South West			North West			North East					
	VAD ¹	IDA ²	IDD ³	VAD	IDA	IDD	VAD	IDA	IDD	VAD	IDA	IDD	VAD	IDA	IDD
1993 NMS	15	6	2	24	6	0.3	48	13	2	50	15	3	33	12	2

¹VAD: vitamin A deficiency, measured by serum retinol levels. The nms defined vad as <20 micrograms/deciliter.²IDA: iron deficiency anemia, measured by serum ferritin levels. The nms defined ida in children 6-71 months as < 18 micrograms/deciliter.³IDD: iodine deficiency disorder. The nms measured idd in children 6-71 months using serum thyroid stimulating hormone levels and defined deficiency as >5 micromoles/liter.**Table 10. Nigeria, 1993: Micronutrient Deficiencies in Women**

(rounded percents; NMS, 1993)

Survey	Zones												All women		
	South East			South West			North West			North East					
	VAD	IDA	IDD	VAD	IDA	IDD									
1993 NMS		10	0		5	5		4	5		20	0.7		9	3

¹The NMS measured IDA in women using serum ferritin levels and defined deficiency as < 18 micrograms/deciliter.²The NMS defined IDD in women in terms of the visible goitre rate (also known as total goitre rate).**Table 11. Increase in Nigeria's Poor Population, 1980-1996 (percents)**

(FOS, 1999)

Year	Non-poor	Moderately poor ¹	Core poor ²	Poverty level	Population in poverty (millions)
1980	73	21	6	28	17.7
1985	54	34	12	46	34.7
1992	57	29	14	43	39.2
1996	34	36	29	66	67.1

¹The moderate poverty line is equivalent to two-thirds of the mean per capita expenditure on food and nonfood (11,293 Naira in 1996).²The core poor poverty line is equivalent to one-third of the mean per capita expenditure (5,646 Naira in 1996).

Table 12. Poverty by Urban/Rural Sector

(rounded percents; FOS, 1999)

Year	Nonpoor		Moderately poor		Core poor	
	Urban	Rural	Urban	Rural	Urban	Rural
1980	83	72	14	22	3	7
1985	62	49	30	37	8	15
1992	63	54	27	30	11	16
1996	42	31	33	38	25	32

Table 13. Household Expenditures on Food and Nonfood by Poverty Level in 1996

(rounded percents; FOS, 1999)

Expenditure	Nonpoor	Moderately poor	Core Poor	Nigeria
Total food	58	73	76	64
Total nonfood	42	27	24	36
Total household expenditure in Naira	6,309	3,258	1,854	4,350

Table 14. Percent of Households in Poverty by Household Size

(rounded percents; FOS, 1999)

Household size	1980	1992	1996
1	0.2	3	13
2-4	9	20	52
5-9	30	45	75
10-20	51	66	89
20+	81	93	94
Nigeria	27	43	66

Table 15. Percent of Poor Households by Educational Level of Household Head

(rounded percents; FOS, 1999)

Educational level of household head	1980	1992	1996
No education	30	46	73
Primary	21	43	54
Secondary	8	30	52
Post-secondary	24	26	49
Nigeria	27	43	66

Table 16. Percent of Food-Insecure Households by Region, Sector, Major Occupation of Household Head, and Level of Income

(NFCNS, 2003)

Characteristic	Level of Food Insecurity		
	Severe	Mild	Normal
Agroecological zone:			
Dry savanna (North)	60	18	22
Moist savanna (central)	74	15	10
Humid forest (South)	43	19	38
Sector¹:			
Rural	61	17	22
Medium	54	18	28
Urban	55	19	26
National	57	17	26
Major occupation of household head:			
Farmer	62	16	22
Trader	52	19	28
Artisan	53	17	30
Civil servant	48	21	30
Annual income:			
Low (< 35,000 Naira)	54	18	28
Medium (36-55,000)	59	16	25
High (> 55,000)	54	19	27

¹Standard FOS definitions: a rural settlement has 25,000 or fewer inhabitants; a medium settlement has 26-99,000 inhabitants; an urban settlement has 100,000+ inhabitants.

Table 17. Children Under Two Years: Immunizations by Urban/Rural Residence and Mother's Education

(rounded percents; NDHS, 1999)

Characteristic	All immunizations ¹	No immunizations
Residence		
Urban	32	20
Rural	11	45
Mother's education		
None	6	60
Primary	18	24
Secondary	33	10
All children under two	17	38

¹"All" immunizations: BCG, DPT 1-3, polio1-3, and measles.

Table 18. Distance to Different Types of Health Facilities

(percent of households; NDHS, 1999)

Distance (kilometers)	Health center	Clinic	Hospital	Any of the 3 facilities	Private doctor	Pharmacy
<1	38	35	18	53	31	44
1-4	23	16	17	20	15	17
5-9	7	3	10	8	5	6
10-14	7	2	8	4	4	4
15-29	5	4	15	3	7	3
30+	2	2	13	2	4	3
No facility	17	37	18	9	34	24

Table 19. Urban/Rural Water and Sanitation Facilities

(NDHS, 1999)

Characteristic	Urban	Rural	Total
Electricity			
Yes	84	28	45
No	15	71	54
Source of drinking water			
Pipe in residence/yard/plot	24	4	10
Public tap	26	10	14
Well in residence/yard/plot	17	15	16
Public well	10	20	17
Borehole	12	9	10
Spring	1	4	3
River/stream	3	32	23
Tanker vendor	2	1	1
Sanitation facility			
Own flush toilet	21	3	8
Shared flush toilet	10	1	4
Traditional pit toilet	46	57	54
VIP latrine	9	5	6
No facility, bush, field, river	12	32	26

Table 20. Government-Supported Nutrition Programming

Institution	Program	Responsibilities
National Planning Commission	National Committee on Food and Nutrition	National coordination of all nutrition activities; responsible for coordinating the preparation of the National Action Plan on Nutrition, based on the National Policy on Food and Nutrition.
Lagos State Ministry of Health	Nutrition Unit	Growth monitoring in local health centers in Lagos state; operate nutrition clinics to identify malnourished children and counsel parents.
Lagos State Ministry of Health	State Committee on Food and Nutrition	Coordinate nutrition activities in Lagos state, including those above.
National Primary Health Care Development Agency	Department of Nutrition	Implement FMOH nutrition programs and collect nutrition surveillance data.
Federal Ministry of Health	Dept. of Community Development and Population Activities, Nutrition Division	Malnutrition from the community health perspective; micronutrients, particularly iodine, vitamin A, iron; combine supplementation with immunization.
Federal Ministry of Health	National Health Management Information System	Collect and analyze nutrition-surveillance data from all the states and LGAs.
Federal Ministry of Agriculture and Rural Development	Projects Coordinating Unit	Implements the FAO Special Programme on Food Security, including the collection of nutrition data.
Federal Ministry of Science and Technology	Federal Institute of Industrial Research, Oshodi, Lagos state	Research on weaning diets.
State Ministries of Agriculture	Agriculture Development Project (ADP)	Collect state-wide nutrition data.
Federal Ministry of Education and State Ministries of Education	Nutrition Education Department	Design nutrition education curriculum for primary and secondary schools.
Rivers State University, Port Harcourt, Rivers State	Food Science and Technology Department	Train students in food science and nutrition, including the collection of anthropometric data for student theses.
University of Nigeria, Nsukka, Enugu State (federal university)	Home Science and Nutrition Department	Train students in nutrition and dietetics, including the collection of nutritional and anthropometric data for student theses.
University of Ibadan, Ibadan, Oyo State	Department of Human Nutrition	Train students in nutrition, including the collection of nutrition data for student theses and for donor agencies
University of Agriculture, Abeokuta, Ogun State	Nutrition	Train students in nutrition and dietetics, including the collection of nutritional and anthropometric data for student theses.
Obafemi Awolowo University, Ile-Ife, Osun State	Department of Community Health	Collect nutrition and anthropometric data for research.
Food Basket (NGO)	Nutrition in agriculture	Work with agricultural projects; collect anthropometric data; conduct training in nutrition.

Table 21. Agencies Contacted for Nutrition Information

Agency	Contact	Information available
Federal Ministry of Health, Dept. of Public Health	Dr. Edugie Abebe <i>Director</i>	None
The Presidency	Dr. Ango Abdullahi <i>Special Advisor for Food Security</i>	None
UNICEF-Bauchi	Dr. Isa Achoba <i>Nutrition Officer</i>	Omatola and Ampah, "Baseline Assessment of Nutrition and Poverty Status of Selected LGAs in Northeastern Nigeria (Zone D)," 1999.
USAID	Liane Adams <i>Child Survival Advisor</i>	Nigeria Food Consumption and Nutrition Survey 2001.
BASICS II-Nigeria, Lagos	Andrew N. Agle, <i>Country Director</i> ; Dr. F.T. Aminu, <i>Senior Program Officer-Nutrition</i> ; Dr. O Ashiru, <i>Team Leader</i>	<ul style="list-style-type: none"> • 2002 Integrated Child Health Cluster Survey: information on project impact on breastfeeding in project areas; minimal information on complementary feeding and vitamin A. • One table of anthropometric data from Lagos state from the "Core Welfare Indicators Survey (CWIQ)," Lagos State, Main Report, 1999.
Federal Ministry of Agriculture and Rural Development, Projects Coordinating Unit, Women in Agriculture	Mrs. V.C. Agu National Coordinator	None
Food Basket (NGO)	Prof. I.O. Akinyele <i>Director</i>	None
National Primary Health Care Development Agency	Prof. Okey Akpala <i>Director of Planning, Research, and Statistics</i>	None
State Ministry of Health, Lagos	Dr. L.O. Alli <i>State AIDS Prevention</i>	None
UNICEF-Lagos	Dr. I.S. Alo <i>Project Officer, Micronutrients Deficiency Control</i>	None
Federal Ministry of Health, Dept. of Community Development and Population Activities	Dr. M.S. Amaeshi <i>Director</i>	None
Federal Ministry of Health, Nutrition Division, Lagos	Mrs. K.O. Demehim Principal Nutrition Officer	None
Rivers State University of Science and Technology, Dept. of Food Science and Technology	Dr. Alexandra Hart <i>Lecturer/Consultant Nutritionist</i>	None
UNICEF-Enugu	Dr. S. Igbedioh <i>Assistant Project Officer, Nutrition</i>	"A Field Office Report of SECC [Survival and Early Child Care] Programme in 2002" (six pages). Information from Zone A on: immunization coverage, vitamin A fortification and supplementation, and staff and participant capacity-building for malaria control.
Federal Ministry of Agriculture and Rural Development, Projects Coordinating Unit	Dr. S.A. Ingawa <i>Director/Head of Unit (PCU)</i>	None
State Ministry of Health, Lagos	Mrs. F.A. Iwajomo <i>Head: Nutrition Unit</i>	None

Table 21. Agencies Contacted for Nutrition Information, continued

National Primary Health Care Development Agency, Health System Development	Mrs. T.I. Koleoso-Adelekan <i>Director</i>	None
Federal Ministry of Health, National Health Management Information System	Dr. M.M. Lecky <i>Deputy Director of Research and Statistics</i>	None
WHO, Integrated Management of Child Illness Unit, Lagos	Dr. P. Mongi <i>Medical Officer</i>	One table of anthropometric data on underweight from the draft 2003 Integrated Management of Child Illness survey.
Federal Ministry of Agriculture and Rural Development, Dept. of Rural Development	Ms. C. Nnonyelu <i>Deputy Director</i>	None
State Ministry of Health, Port Harcourt, Rivers State	Mrs. C.O. Nweke <i>Director, Nutrition Unit</i>	None
University of Nigeria, Department of Home Science and Nutrition, Nsukka, Enugu State	Dr. E.K. Ngwu <i>Head of Department</i>	None
Federal Department of Agriculture and Rural Development, Enugu State	Mrs. F.O. Nnabugwu <i>Chief Agricultural Officer</i>	None
Federal Ministry of Health, Roll Back Malaria Section	Dr. Nwokolo	None
University of Nigeria, Department of Home Science and Nutrition, Nsukka, Rivers State	Dr. E.C. Okeke <i>Professor</i>	<ul style="list-style-type: none"> Nwosu, C.A., "Factors affecting nutritional status of pre-school children in Nsukka in the year 2000 (a Case Study in Obukpa), 2001. Bachelor of Science research project, Department of Home Science and Nutrition, University of Nigeria, Nsukka. Okeke E.C., D.O. Nnanyelugo and C. Awa, "Towards improved salt iodization in Enugu state," 1997.
University of Ibadan, College of Medicine, Institute of Child Health	Prof. O.O. Omotade <i>Professor of Pediatrics</i>	None, but Dr. Omotade said that he could collect some information on malnutrition and malaria.
National Planning Commission, National Committee for Food and Nutrition	Dr. D. Omotola <i>Secretary of the NCFN</i>	Author of the 1999 "Baseline Assessment of Nutrition and Poverty Status of Selected LGAs in Northeastern Nigeria (Zone D)" report but could not provide a copy.
UNICEF-Abuja, Nutrition and Early Child Care	Mr. F. Oyenzili Mr. R.O. Osiyemi, <i>Assistant Project Officer</i>	<ul style="list-style-type: none"> PICS 1994. MICS 1999. "Update on vitamin A deficiency (VAD) control in Nigeria." "Impact evaluation of efforts to eliminate iodine deficiency disorders in Nigeria," 2002 "Adequate nutrition for the development of the Nigerian child," no date.
FAO, National Special Programme for Food Security (NSPFS)	Guy Sneyers <i>Senior Field Project Support Officer</i>	None
World Bank	Esther Usman Walabai <i>Senior Agriculturalist</i>	None

SECTION III

HIV/AIDS Component

The structure of this Section follows a simple logic. To understand the present and future impact of HIV/AIDS, TB, and malaria on food security in Nigeria it is essential to begin with an overview of the underlying relationships between HIV/AIDS and food security and consider how insights into the Nigerian situation may be gained by looking at some of the experiences elsewhere in Africa. We then provide a short summary of recent trends, current prevalence, and forecasts of these diseases in Nigeria, as far as data allow.

Before going on to examine their impact on the Nigerian household, however, it is also important to appreciate how these diseases overlap, interact and affect each other in ways which tend to accelerate the development of AIDS and of the impact of this process on household economic activity, especially in rural areas. Only then may we turn in detail to the Nigerian situation, but in doing so we must be aware of the institutional context, and therefore we review existing (as at mid-2003) official policy regarding control and prevention of HIV/AIDS, TB and malaria, and its associated institutional structures. Having set the scene in this way we address the key issues of the Terms of Reference in which the impact of HIV/AIDS on household food security in Nigeria is examined in more substantive detail, subject, however, to the very serious limitations on availability of relevant data. In the penultimate section we look carefully at one particular short-term solution, that of direct food distribution to persons living with HIV/AIDS (PLWHA), while in the final part we consider other possible areas of intervention with the object of ensuring sustained food security for PLWHA and their affected households.

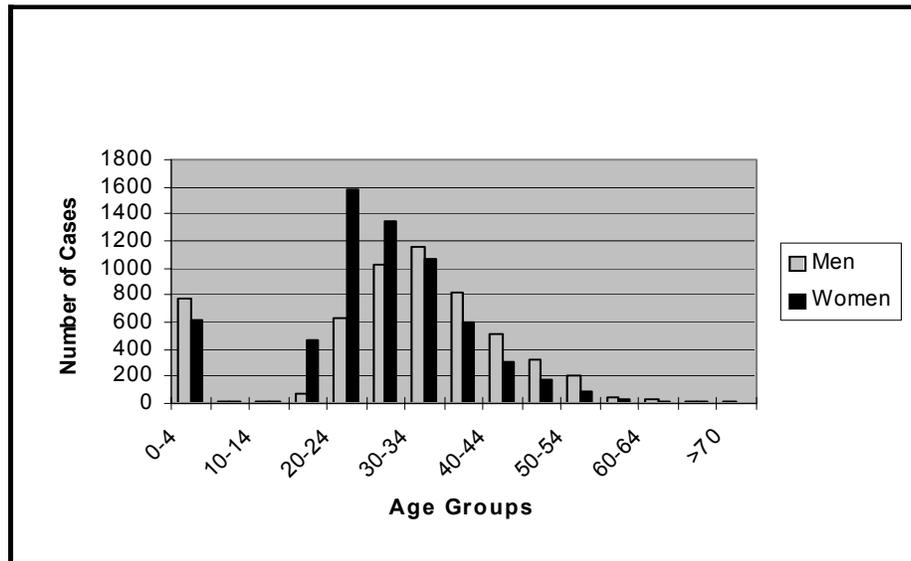
A. Overview: HIV/AIDS and Food Security

Nigeria is in the grip of a growing HIV/AIDS epidemic, with a reported national adult infection rate of 5.8 percent in 2001. This infection rate is similar to that of several east and southern African countries about 10 years ago: Kenya 5.6 percent in 1991, Cameroon 6.4 percent in 1995 and Malawi 5.5 percent in 1992. Over 3 million Nigerian adults between the ages of 15 and 49 have already been infected with HIV and most of them will no doubt fall ill and die. Given that this has the most marked effects in the most productive age group, these levels of infection have grave implications for food security in Nigeria.

At this early stage of the report we should be clear about four specific pieces of information that indicate why HIV/AIDS has implications more serious than many other diseases.

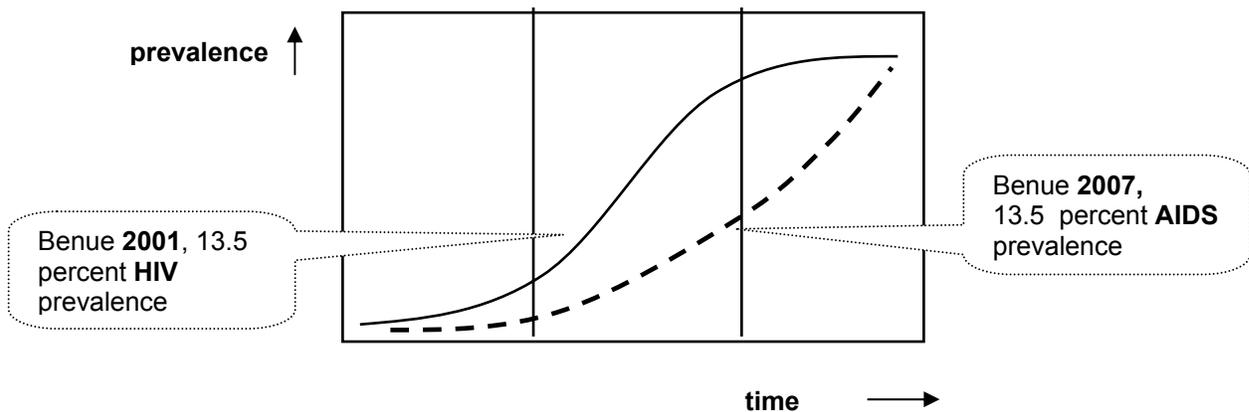
- 1) In Africa it is almost exclusively heterosexually transmitted. The other main transmission route is mother to child transmission either *in utero* or through breast-feeding. This pattern of transmission is clear from Figure 1, which shows the concentration of infections in the age groups which are most likely to be more sexually active.

Figure 1 Age and Gender Distribution of AIDS cases in an African Population



2) Most reports on the epidemic focus on prevalence of infection because diagnosis, reporting and recording of AIDS cases is problematic. It must be understood that the figures so reported thus give a picture of the future inasmuch as the effects of the epidemic are concerned. We can take the case of Benue State, the state with probably the current highest level of infection in Nigeria at 13.5 per cent of the adult population. Figure 2 shows us that the 2001 seroprevalence level will translate into illness and death by around 2007. It is then that the full effects of this medium level of epidemic will be seen in the food system.

Figure 2 The Transition from Seroprevalence to AIDS in Benue State



However, this is not the end of the story. The epidemic is unlikely to stabilize at 13.5 per cent in Benue, or in Nigeria. The South African epidemic moved from less than 1 per cent to 25 per cent in 20 years. Prevention interventions have limited effectiveness and

are particularly limited in the absence of top level political support, social and political stability and reduced social inequality¹. This means unusual levels of morbidity and mortality in rural areas — some of which are already seen in Benue² — with their consequent impact on food security.

3) Demographics: it has been apparent since the early 1980s that theoretically this epidemic would affect population size. Its effects on population structure was not so clear but became apparent with the first field based study of HIV/AIDS impact in an African rural area in 1989³. That this will happen in other parts of Africa is now debated and the most recent research indicates that the so-called “chimney effect” on population structure may be happening but does not necessarily occur in all countries. The reasons for the possible differences between countries are not yet clear.⁴ Figure 3 shows the actual (derived from census data) effects of HIV/AIDS on population structures in Uganda at about the same levels of seroprevalence as now seen in Benue, while Figure 4. illustrates the modeled effects of HIV/AIDS on national demographics in Botswana within the next decade and should provide food for thought in relation to Nigeria’s future.

¹ Barnett, T. and Whiteside, A., *AIDS in the 21st Century: disease and globalization*, Palgrave Macmillan, London and New York, 2002; also work by Low-Beer and Stoneburner in Uganda which details the mechanisms and evidence for this conclusion.

² Marti van Liere, Thea Hilhorst and Corrie de Koning, *The Impact of HIV/AIDS in Benue: implications for rural livelihoods*, Amsterdam, Royal Tropical Institute (KIT) 2003, draft report available to the present authors with thanks to the KIT team.

³ Barnett, T. and Blaikie, P.M., Report entitled: *Community Coping Mechanisms in Circumstances of Exceptional Demographic Change*, London, Overseas Development Administration, 1989, 2 Vols; also, Barnett, T. and Blaikie, P.M., ***AIDS in Africa: its present and future impact***, London and New York, Wiley and Guilford Press, 1992.

⁴ Stanecki, K., May paper for US Bureau of Census at Durban Conference on Demographic and Epidemiological Aspects of the HIV/AIDS Epidemic.

Figure 3. Demographic Change in Uganda - Census Data 1992

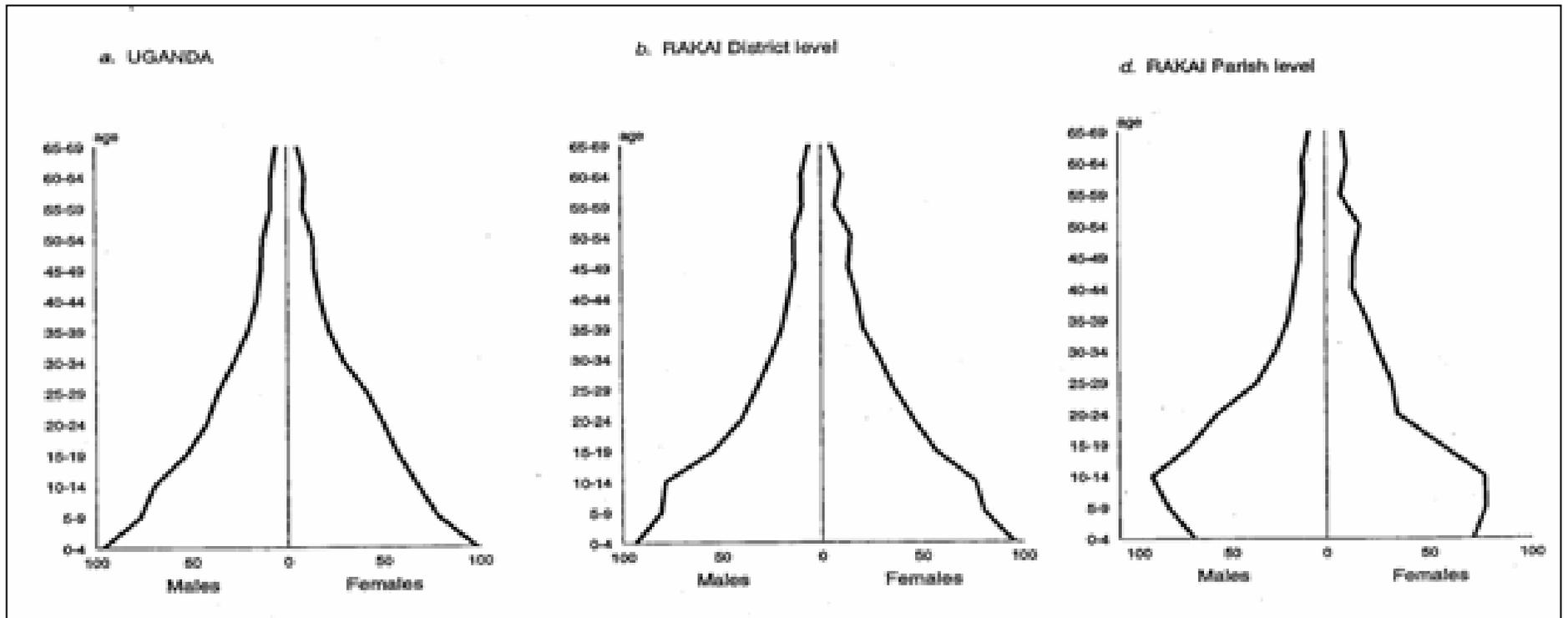
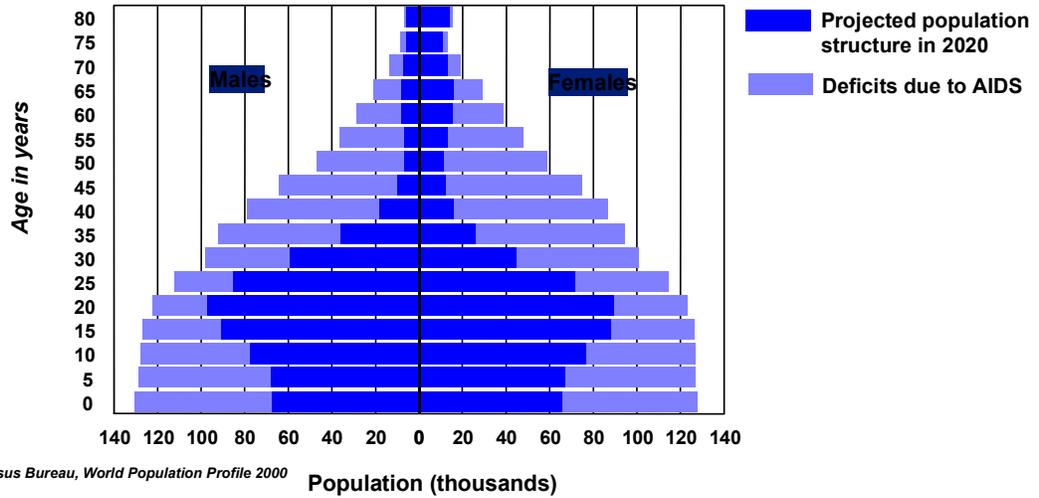
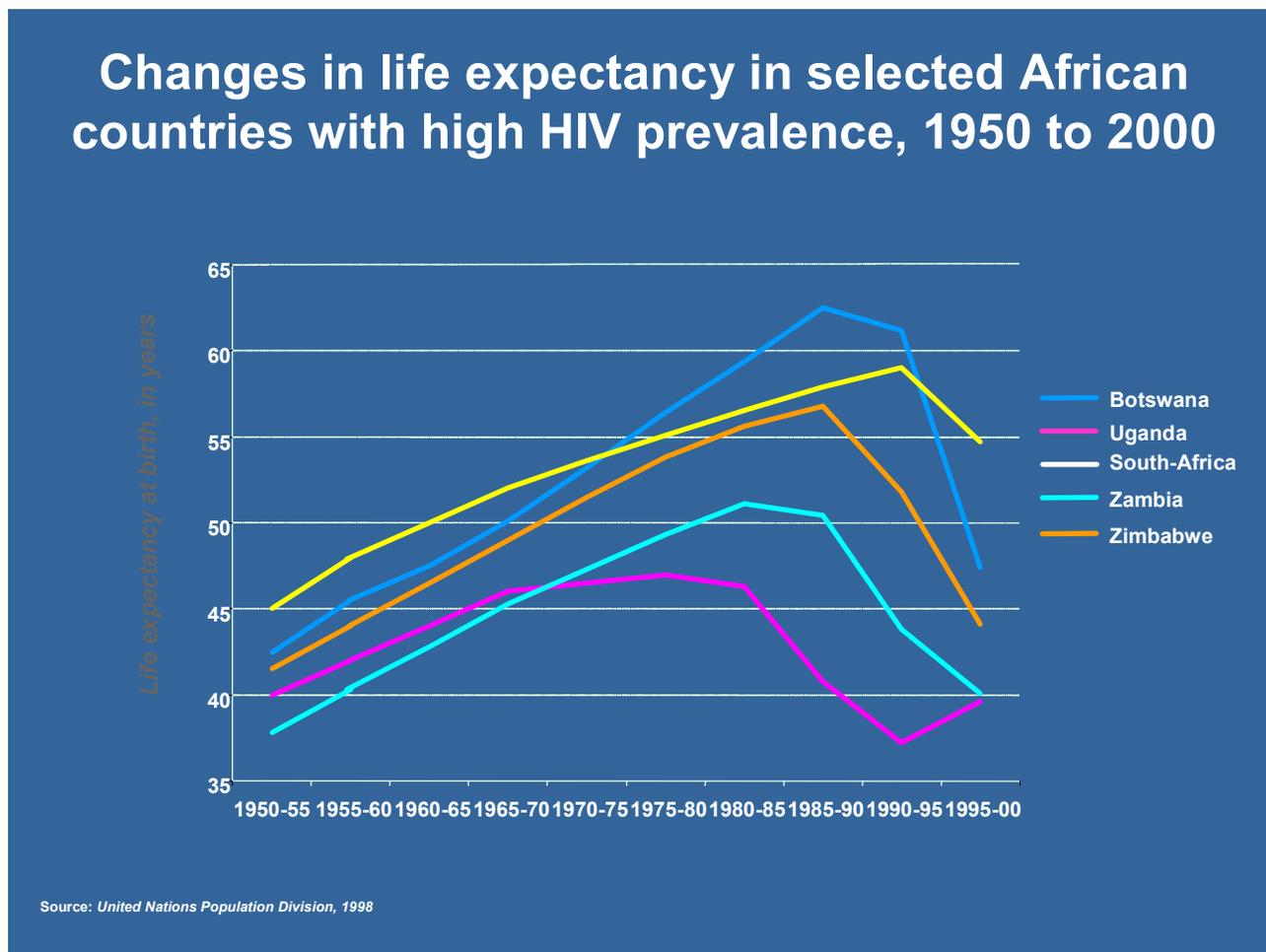


Figure 4. **Projected population structure with and without the AIDS epidemic, Botswana, 2020**



4) Loss of Life Expectancy: Figure 5 shows the effects of HIV/AIDS on life expectancy in a number of African countries. What this means in practise is that people's decision horizons are likely to become truncated resulting in a mixture of short term risk taking and short term risk avoidance. The former may have implications for the epidemic if it encourages young adults into sexual experimentation because they believe (correctly) that they have little hope for the future as they are likely to be infected. The latter has implications for food security as it discourages investment and passing of information and knowledge about farming from generation to generation. Together, these two aspects of lost life expectancy mean that the net result for food security is adverse in the extreme.

Figure 5. HIV/AIDS Related Loss of Life Expectancy in Some African Countries

A1. Implications for Food Security

The implications of this situation is that the policy and intervention paradigm must alter to take account of dramatic changes which are now in place but the effects of which will endure for many decades to come. Figure 6 shows a particular representation of the modalities required for sustainable food security as perceived in the EU⁵. The circle of round white circles in the diagram shows some of the factors that might and do impact upon food security. However, what we must understand is that HIV/AIDS is represented as one among these circles. In fact HIV/AIDS must be seen as a factor endogenous to all of them. Thus, for example:

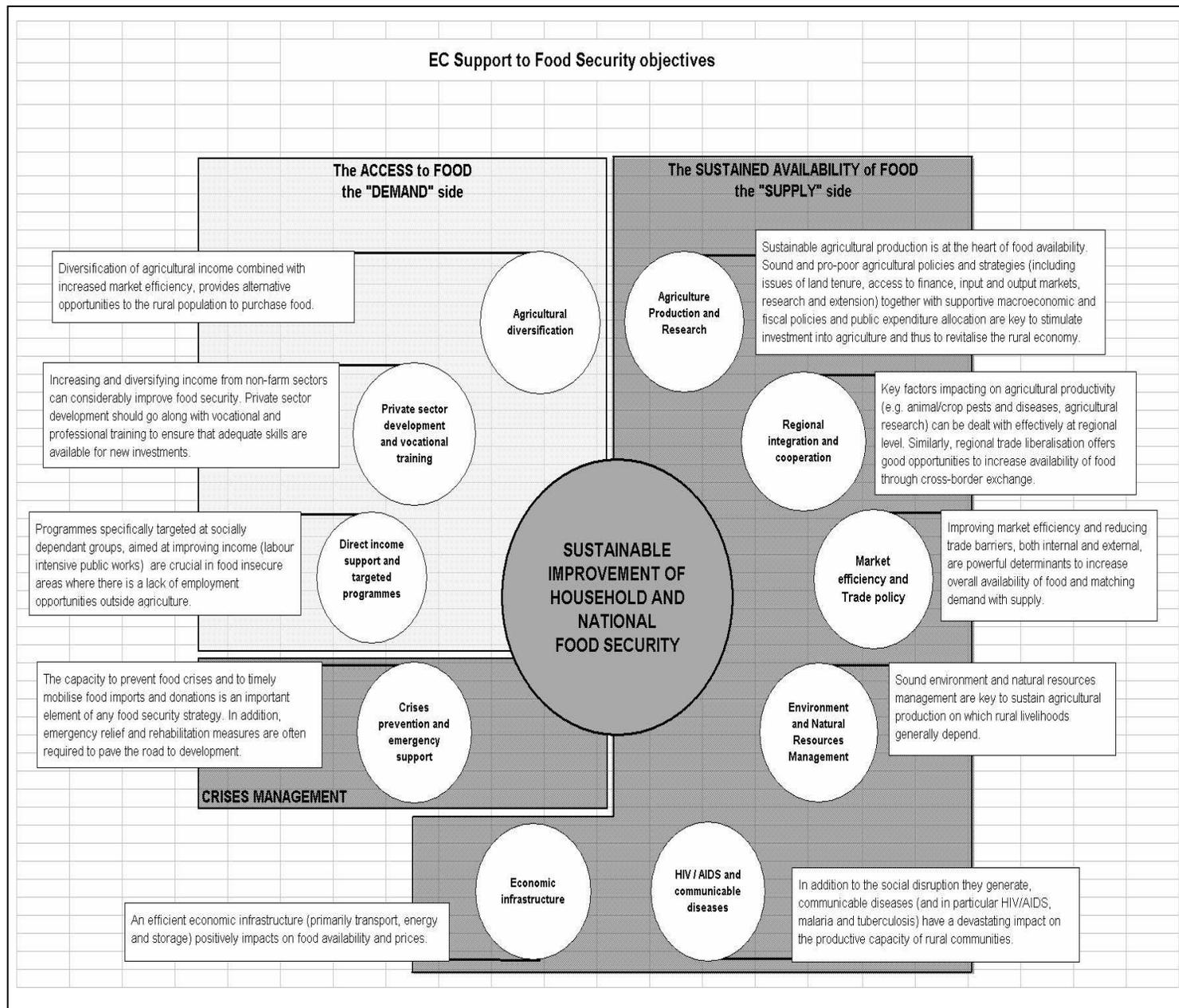
- Agricultural diversification becomes problematic under conditions of reduced labor availability, quality and skills

⁵ Blower, Uwe, Food Security at the Heart of Poverty Reduction Strategies, European Commission, Brussels, 25 February 2003, p.11.

- Private sector development and vocational training becomes problematic as instructors, students and trainees are affected by illness and death and skill levels and returns to training and education are reduced
- Direct income support and targeted programs have to occupy themselves more with social support than with “development”
- Crisis prevention and emergency support becomes longer term as the epidemic and its impacts occur over a time period of around 30-50 years in the absence of ARV interventions
- Economic infrastructure is affected at all levels and in most sectors
- Environmental and natural resource management becomes difficult as rural infrastructure is affected by lower labor availability, less skilled labor and reduction of already scarce local resources
- Market efficiency and trade policy: market operations are affected by loss of key players such as indigenous credit providers and loss of key market participants from rural households
- Agricultural production and research: seriously affected at all levels as rural households have to accommodate labor loss through illness and death, and research institutions lose key staff.

Sustainable improvements in household and national food security become very hard to maintain in an HIV/AIDS endemic environment.

Figure 6. Modalities Required for Sustainable Food Security



A2. Responses to This Situation

There are now effective clinical interventions that can prevent or slow down this progression. These involve use of anti-retroviral (ARV) therapies that are expensive and require clinical and laboratory support. These therapies do however save lives and by extending productive lives they will undoubtedly have an important role to play in any food security strategy⁶. By providing hope for those infected, they must also be seen as an important additional component in any realistic prevention program.

The national rate actually masks some significant regional variations (0.5–21 percent). In the 1999 and 2001 national antenatal HIV seroprevalence survey, Benue State recorded the highest state infection rates: 16.8 percent (1999) and 13.5 percent (2001). The high HIV rates in Benue will no doubt adversely affect individual lives as well as state development.

A3. HIV/AIDS in Nigeria: Present Situation and Forecasts

Information on the national prevalence of HIV/Aids in Nigeria depends almost exclusively upon a series of sentinel surveillance studies, the last of which was held between 13 August 2001 and 11 October 2001. Data from that survey showed a median rate of infection of 5.8 percent for adults aged 15-49. This was an increase of only 0.2 percentage points since the previous survey in 1999, and which taken at face value indicated a slowing down of the rate of growth of the epidemic since 1991 when the rate was 1.8 percent, 1994 when it was 3.8 percent and 1996 when it was 3.5 percent. Extreme care should, however, be taken in drawing such a conclusion, as we shall discuss below. It is important to note the presence of wide variations across the country, both in terms of prevalence and apparent direction of change between 1999 and 2001, as shown in Table 1. [All tables are located at the end of this Section.]

Further breakdown by the 36 states shows an even wider range: from 1.8 percent prevalence in Jigawa and 2.8 percent in Sokoto, both in the North West, to 10.7 percent in Akwa Ibom in the South East (Niger Delta area) and 13.5 percent in Benue at the eastern end of North Central. There is clearly a considerable amount of additional study and analysis required in order to be able to account for such differences in place and time. However, this may not be a good use of resources. The epidemic is now generalized (defined as above 5 per cent of the adult population) in many places, and rates of internal migration and social inequality are high, all factors which tell us that while prevention will have a continuing role, we are now confronted by the problem of dealing with the social and economic impact of the epidemic in general and in particular with regard to food security issues.

To some extent the national behavioral survey expected to be published in July 2003 will help in coming to an understanding of the causes of zonal and state variations. The following are likely to be relevant:

- Differences in accessibility of clinics and therefore attendance. The National Nutrition Survey in 1999 showed that over 20 percent of households in the North East

⁶ The latest thinking with regard to provision of ARVs in resource poor environments is to be found in Moatti, Barnett, Souteyrand et al (eds), *Economics of AIDS and Access to HIV/AIDS care in developing countries: issues and challenges*, Agence Nationale pour Recherche sur le Sida (ANRS), Paris, July 2003.

- had no access to a health facility compared with only 3.1 percent without access in the South West while only 45.2 percent were within one kilometer of a health facility in the North West compared with 73.3 percent in Central region.
- Cultural factors may also be at work. Across the country as a whole it is estimated that around 30 percent of pregnant women do not attend any ante-natal clinic, with the percentage higher in the Muslim north. This may not be entirely due to accessibility of clinics. Other factors would include differences in literacy rates, access to information or to condoms and certain socio-cultural practices.
 - Marked differences in rates of infection in areas where male circumcision is practiced as compared with those where it is absent. It is known that male circumcision dramatically reduces transmission from women to men and possibly also from men to women.
 - Different rates of urbanization by state. Intuitively, one may surmise that more urbanized communities would have higher rates of seroprevalence, mainly because of greater opportunities for social interaction combined with a breakdown of many traditional cultural norms, but the opposite is the case in Nigeria. Thus, differences in rural-urban composition between states could account for some of the observed differences in HIV prevalence.
 - More randomized differences in the efficiency with which the surveillance exercises have been implemented and conducted. The Technical Report of the 2001 survey lists a number of practical problems which would have affected the accuracy of the results to varying degrees.
 - Demographic factors in which some parts of the country, particularly in the south west around Lagos and the south east where oil extraction and associated service industries have attracted migrant labor would be expected to show different patterns from more sedentary or pastoralist rural areas. States which contain major arterial transport routes and their distribution points will also tend to have higher prevalence rates.
 - Many of the poor may not attend public ante-natal clinics (ANC) because of affordability⁷, while many high risk women may be put off by perceived ANC practices or policies in different areas.

The Survey also revealed that the highest rates of seroprevalence were amongst those aged 15-29 with rates varying between 6.0 percent and 6.5 percent. Compared with the results of the previous Survey, held in 1999, there appeared to have been a drop in the percentage of those infected in the age range 20-24 but a substantial increase, from 3.9 percent to 6.1 percent in those aged 15-19. Without a considerable amount of additional information it is impossible to know the degree to which such changes over a three year period are due to real effects or to sampling and measurement errors. In generalizing to the adult population at large it was assumed that the rate of HIV+ infection would be the same for men and women, but forecasts were for a slight increase in the proportion of women infected in about five or ten years time. The pattern of infection also varied when broken down by urban and rural based clinics, where in the South West, North East and South East zones the rate was higher for rural areas than urban.

⁷ FMOH *A Technical Report on the 2001 National HIV/Syphilis Sentinel Survey*, National AIDS/STDs Control Programme, December 2001

A4. HIV and AIDS

As far as the implications of rising rates of seroprevalence on household income, expenditure and production, the National AIDS and SD Control Program engaged the Policy Project (jointly administered by the Futures Group) to make high and low forecasts of the likely future trend of HIV prevalence. For this purpose the data from 1999 and 2001 only were used to derive a best fitting curve by means of the EPP and Spectrum models developed by the Futures Group. The earlier surveys (1991, 1993, 1996) were discarded from this exercise on account of their very limited coverage of the country and certain technical differences between them and later surveys. It has not been possible to obtain the assumptions which lie behind the forecasts but the predictions were that in a high case scenario Nigeria's HIV prevalence may reach as high as 9.4 percent in 2012 before it begins to stabilize, and in the low case scenario it would be expected to level off at about 6.9 percent by 2007. Putting aside reservations about basing forecasts on only two known points on a time scale, it is also not clear what factors, other than changes in behavior following increased education and awareness about HIV/AIDS, are expected to cause the turn around in each scenario. Given that many observers believe the 2001 rate of 5.8 percent to be an underestimate, together with anecdotal evidence of considerably higher levels amongst hospital patients, even the higher rate scenario may be regarded as optimistic.

Our own discussions with CBOs in Jos, moreover, drew the opinion that two to three households in ten were directly affected by HIV/AIDS and two to three patients in ten who visited clinics attendants were thought to be HIV+. Experience from the DFID funded study of Benue state indicates that rates in rural areas and effects in rural areas are already quite high and quite marked. There really is no reason why the epidemic should stabilize at these relatively low levels. Experience from elsewhere in Africa, particularly South Africa with its much wealthier population, greater political stability, better social provision and higher levels of income, shows that very high rates indeed are possible. Similarly, Botswana, which is one of the richest countries in Africa, has rates approaching 40 per cent in the general adult population and as high as 80 per cent in ante natal clinic attendees in some areas within the last five years. There is every reason to counsel Nigerians against complacency based on projections such as those described above.

These conclusions also follow the analysis suggested by Barnett and Whiteside⁸ in which the rate of expansion of HIV infection in a given population is a function of the degree of social cohesion in that society and the average level of income. The fastest rates of growth of infection are then predicted to occur where high incomes coincide with weakening social cohesion (e.g. Botswana), followed by low income societies and low social cohesion. The latter may be characteristic of Nigeria where, despite community and family values remaining strong in many parts of the country, in other parts the political, economic and civil instability of the recent past has considerably eroded former structures of social cohesion⁹. With low average incomes across the country, associated with considerable population mobility, the scene is set for continued rapid expansion of a sexually transmitted virus such as HIV.

⁸ A. Barnett and Whiteside, A. *HIV/AIDS in the 21st Century: Disease and Globalisation*, Palgrave Macmillan, 2002

⁹ Odumusu, O.F., "Overview of HIV/AIDS situation in Nigeria," in Ajakaiye, D.O. & Odumusu, O.F., *Socio-Economic Burden of HIV/AIDS Epidemic in Nigeria*, NISER, 2002.

Yet, even if the official forecasts are taken at face value the implications are stark. Because of the time taken for individuals infected with HIV to develop full blown AIDS the number in this condition will continue to rise at least until 2015 when some 875,000 people will be directly affected. The cumulative total number of AIDS deaths by that time could be as high as 9.4 million Nigerian individuals. Under the high growth rate scenario they would leave behind them some 5.3 million orphans and be responsible for 45.7 percent of hospital bed occupation. These figures will emerge somewhat differentially by sex as the current trend is for women to be infected at younger ages than men (and for women to develop AIDS sooner). The relationship between current rates of seroprevalance and future levels of AIDS in the population was highlighted in Figure 2 which illustrates the trend in Benue State which has one of the highest rates of HIV+ prevalence. Thus, if 13.5 percent of the population is HIV positive in 2001 then inevitably, unless some form of ARV is made more widely available, the same proportion of the population will decline into a combination of chronic opportunistic illness and premature death by 2011. Figure 2 makes the important observation that we are dealing with more than one wave of HIV impact; in fact we are dealing with four. These are:

- the wave of infection — now well established
- the wave of illness, particularly TB — now making its first appearances but very pronounced in Benue where the local doctor at one of the hospitals in Makurdi estimated that 90 per cent of beds were occupied by AIDS patients¹⁰
- the wave of death
- and the wave of social, economic and emotional impact.

Together these processes last around 50 years. Whether such an outcome does follow will depend on government and community responses, both preventative and ameliorative, that are proposed and implemented. These are discussed later in this report.

A5. Tuberculosis

There have been no national surveys on the incidence of TB in Nigeria. For SSA as a whole an annual risk of infection of 1.5-2.5 percent is usually assumed. If the lower boundary of this range is taken to provide a minimal benchmark for Nigeria, then according to FMOH estimates the number of TB cases appearing on a yearly basis would be 180,000, of which some 40-50 percent would be smear positive. The FMOH also estimates that the fatality rate in 1996 and 1997 was about 7 percent. The growing number of cases where TB is allied with HIV/AIDS is likely to have raised this in the meantime¹¹. Thus the degree of TB opportunistically associated with HIV/AIDS has risen from 2.8 percent in 1991 steadily to 17 percent in 2000.

In terms of numbers affected by TB Nigeria ranks fourth in the world with an annual infection rate estimated for 2000 by WHO of 305/100,000 for all forms of TB and 132/100,000 for smear positive cases. New cases notified in 2001 were roughly 10 percent of this total, leading the FGN to deduce that a detection rate of only 10-15 percent prevails. Trends of case notification are shown in Table 2.

¹⁰ Personal communication to Tony Barnett, May 2002

¹¹ FMOH, National Tuberculosis and Leprosy Control Programme, *DOTS Expansion Strategic Plan 2002-5*, Abuja 2001

There is quite wide variation in detection rates across zones, ranging between 5/100,000 and 118/100,000, reflecting differences in recording, defining, accessibility of clinics, and also the pattern of incidence of HIV infection to which there is close correlation. Latest sentinel surveys show that 19.1 percent of TB cases are now co-infected with HIV, confirming the well-known observation that HIV is the most powerful known risk factor for reactivation of latent TB infection to active disease¹². The strong link with HIV/AIDS is discussed further below. The Government's main strategy for tackling TB is through application of the DOTS (Directly Observed Treatment Short course) program, under the umbrella of the National TB and Leprosy Control Program, which, with donor support, is operating at present in twenty one of the thirty six states (discussed later in the Policy and Institutional Setting section of this report).

A6. Malaria

Malaria is highly endemic in Nigeria with a prevalence rate of 919/100,000. According to the Ministry of Health it is of “a uniform epidemiological type characterized by high and stable transmission in all parts of the country”¹³. The major variation across the different zones lies in seasonality factors, whereby in the coastal rain forest regions the disease is endemic throughout the year in contrast to the far north where it is dormant during the prolonged dry period characteristic of that area, only to become highly active during the periodic rains. Other geographic and climatic variability across the country make little difference to its prevalence and perniciousness. Transmission of malaria is higher in rural areas, where it is classed as holo-endemic, than in urban areas where it is meso-endemic.

Official figures of notified cases of malaria tend to be somewhat erratic yet still succeed in indicating a rapidly rising trend since 1991. The pattern of reported deaths is even more uneven, as shown in Table 3, probably reflecting reporting limitations, but still showing an average for the second half of the 1990s more than double that for the first half.

The 2001 Nigerian Food Consumption and Nutrition Survey also found that 71.7 percent of children had at least one episode of malaria a year, with 47.8 percent experiencing over two episodes per annum. The highest rate was found in the humid forest agroecological zone and the lowest in moist savannah, while it also tended to be higher in rural areas¹⁴. Mothers too are highly vulnerable and a situation analysis for the Global Fund found 48.2 percent of pregnant women surveyed to have malaria and a further 22.3 percent had malaria along with other diseases. Given such high prevalence it is not surprising that when other factors such as chronic malnutrition, poverty and ignorance are so widely present malaria accounts for 25 percent of infant mortality, 30 percent of childhood mortality and either alone or in combination with other diseases contributes to over 75 percent of illness episodes in children under age five. It is estimated that 50 percent of the population has at least one malaria episode a year and while many successfully live with this it still ranks among the top three causes of all deaths in Nigeria, being associated, for instance, with around 11 percent of maternal deaths.

¹² Global Fund to Fight AIDS, TB, and Malaria, Funding Proposal Section III; WHO /CDS/TB/2002.296

¹³ FMOH, *Burden of Malaria in Nigeria* (offprint) 2001

¹⁴ FGN *National Food Consumption and Nutrition Survey 2001* (provisional report)

The most effective non-drug preventative is in the use of ITN (Insecticide Treated Nets) but the current extent of their use is unclear, with one source putting it at less than 1 percent of the population¹⁵ and another at 13.2 percent of survey respondents¹⁶. The most common prevention method is use of insecticides. Drugs are dispensed in clinics across the country as part of the Roll Back Malaria program (discussed in more detail below in the section on Policy and Institutional Setting) but there have been problems in availability and with inappropriate dosage. In a study for the RBM Program it was found that 85 percent of health facilities in rural areas had had recent periods when they had no anti-malaria drugs in stock, and that 43 percent of chloroquin syrups were found to be unsatisfactory because of low concentration¹⁷.

Considerable problems exist not only in respect to cost and availability of preventative measures but also in raising awareness of how the infection is acquired. Over half the adult population, for instance, do not associate mosquitoes with the transmission of malaria, with many believing it can be caused by getting wet in rain or by witchcraft (especially in accounting for fever and convulsions). Such factors probably account in part for the fact that just over 50 percent of mothers obtained their drugs from 'patent medicine vendors' who are often also the first port of call in rural areas. A very high proportion of the drugs dispensed have been found to be ineffective.

A7. Nutrition

The principal sources of general information are the National Demographic Household Survey undertaken in 1999 and the Nigeria Food Consumption and Nutrition Survey 2001 (Preliminary Report). The former showed that for all children under three 45.5 percent had a height for age deficiency of more than two standard deviations below the median of the NCHS/CDC/WHO International Reference Population. Interestingly for boys the figure was higher, at 48.4 percent, compared with 42.4 percent for girls.¹⁸ It is difficult to get comparative figures over time but in the Poverty Profile for Nigeria published in 1999 the percentage of children suffering from stunting varied from 43.1 percent in 1990 to 52.3 percent in 1993 and 37.8 in 1995, according to different sources, but age of children being compared and definition of 'stunting' were not provided in that report.¹⁹

For mothers who had given birth in the three years preceding the survey (but excluding those currently pregnant or who had delivered a baby within two months preceding the survey) the Body Mass Index (ratio of weight in kg to square of height in meters) was used. This indicated an average of 16.1 per cent below the generally accepted standard of 18.5 which is taken as the threshold below which acute malnutrition is deemed to be present. Each of these measures provide an insight into the long-term intake of essential volumes and range of nutrient, and is the outward sign of chronic malnutrition. The pattern across the country is not even, however, as shown in

¹⁵ Global Fund to Fight AIDS, TB and Malaria, Nigeria Funding Proposal Section III, 2002

¹⁶ FGN *National Food Consumption and Nutrition Survey 2001* (provisional report)

¹⁷ FMOH, *Strategic Plan for Rolling Back Malaria in Nigeria 2001-2005*

¹⁸ FGN, *National Demographic Household Survey, 1999*, Table 9.5:p130.

¹⁹ FGN, *Poverty Profile for Nigeria 1980-1996*, April 1999.

Table 4, though neither is it easily explainable.

Broadly speaking one may say that the highest rates of malnutrition tend to be found in the northern zones, though not exclusively and the lowest in the southeast, though clearly there are bound to be wide variations within these zones themselves, depending upon seasonality of cropping patterns, rainfall, entitlements, and rural-urban composition. Overall, the indicators for children tend to be negatively correlated with mothers' level of education, ranging from 56.2 percent below -2SD for those with no education to 37.6 percent for those having a higher education, the latter being surprisingly high. As regards the BMI of mothers the level of education appears to make little difference; indeed BMI below 18.5 is slightly higher for mothers with a higher education. Such oddities are perhaps more indicative of the limitations of this type of index than of the actual state of affairs. In all cases, however, rural rates of indicated malnutrition were higher than urban rates, thus throwing up an interesting parallel with the pattern of HIV/AIDS prevalence discussed above.

The Nigeria Food Consumption Survey of 2001 presented its results in a slightly different way and direct comparisons are not easy, but for children under-5 the national percentage of those technically stunted (below -2SD of the international median) was 42.0 percent.²⁰ This is slightly lower than in the previous report and may indicate either an increase in nutritional standards between the dates of the two surveys or the fact that the second one measured under fives while the former took under 3 year olds. There will also be sampling error in each case which could possibly bring the results potentially closer. In the second survey, regional variations were based upon three principal agroecological zones rather than the geo-political zones of NSEW. For these the highest stunting rate, at almost 60 percent, was found in the northern dry savannah zone and the lowest, under 30 percent, in the humid forests of the south, thus confirming our observation that the highest rates of malnutrition tend to be in the north. The pattern is similar for the Body Mass Index for women of childbearing age, which showed 16.4 percent of women in the dry savannah zone to be below the index threshold of 18.5, in contrast to the figure of 9.9 percent and 9.0 percent for those in moist savannah and humid forest respectively. The national average below 18.5 of 11.6 percent in this survey is considerably below the figure of 16.1 percent observed in the 1999 Demographic Household Survey, implying an improvement, but the latter included only those mothers who had given birth in the last three years and excluded pregnant and very recent mothers and is therefore more indicative of the nutritional status of currently productive women. Interestingly, the greatest percentage of women suffering from Grade III Chronic Energy Deficiency (value below 16.0) was in the moist savannah zone.

We should note here that: a) even without HIV/AIDS, malnourished children will have damaged immune systems, making them more easily infected with HIV when they reach sexual debut; and b) of these children already malnourished, the percentage is bound to rise as the AIDS epidemic produces more orphans. If we assume that 10 per cent of children born are AIDS orphaned then we must conclude that the degree of stunting and wasting will increase and that an adverse but relatively stable situation will become worse. Poorly nourished women will also have less immunity to infection and if it is correct that 25 per cent of the women in Northeast are stunted then if also this is a dryland farming area and the men are uncircumcised, then it is as a key area to watch for an explosive epidemic impact.

²⁰ FGN, *Food Consumption Survey 2001* (Provisional), Table 12

Practices with regard to breastfeeding also impact on the nutrition of children, as does the general health of the mother herself. There is some indication that despite the clear nutritional (and other) advantages of breastfeeding, in Nigeria only around 19.6 percent of babies younger than three months and 8 percent of babies less than 6 months of age were being exclusively breastfed.²¹ The significance is that around 80 percent of infants are being exposed at a very early age to the possibility of diarrheal infection from introduced foods, with consequent intensification of malnourishment and diminished resistance to malaria and other endemic diseases. Conversely, for children aged between 1 and 2 years the rate of transfer from breast feeding to other, complementary, foods was slow, though this perhaps reflects cultural norms as much as any deficiency in availability. Without further research only speculation is possible. For poorer families the predominant food intake across the country consists of various root crop products, but while those rather better off will also consume grains, the diet for both children and adults remains dominated by carbohydrate, leaving considerable deficiency in protein and micro-nutrient requirements. The major micro-nutrient gaps are in Vitamin A deficiency which is estimated to contribute to 25 percent of infant, child and maternal mortality in Nigeria, and with iodine and iron deficiency. The way in which nutrition impinges on the HIV/AIDS cycle is discussed below.

B. Conceptual Links Between HIV/AIDS, Tuberculosis, Malaria, and Malnutrition, and Food Security

B1. The Vicious Cycle of Malnutrition and Disease

The manner in which HIV/AIDS, TB, malaria, and nutrition have been introduced in this Report and their incidence summarized for Nigeria is typical of much of the way in which they are discussed in the literature: that is, independently of each other. But, of course, for the individual man, woman or child diseases do not always come one at a time or in isolation and they impinge on almost all other aspects of life. Only belatedly is the literature on HIV/AIDS coming to recognize these interactions, while in other areas such as those on agricultural production and broader aspects of food security there is still some way to go. As with all such interdependent cycles of cause and effect, and attendant feedback loops, it is difficult to know where to commence analysis, and, as we shall see, how to engage in positive intervention.

Let us start with HIV/AIDS. The virus, in most of Nigeria, is contacted through heterosexual intercourse. It is more readily transferred from men to women than vice versa, and the probability of its transmission is increased if there are other STDs present. A relatively short incubation period of several months is followed by a prolonged period of 5-10 years, if untreated, in which the infected individual's immune system is gradually eroded. This exposes a vulnerability to other opportunistic infections, of which the most common is TB. Many adults have carried the TB bacterium, *Mycobacterium tuberculosis*, since childhood, and while the normal bodily immune system keeps it suppressed, the gradual ascendancy of HIV creates the opportunity for TB to emerge, with the result that in Nigeria in 2001 some 17 percent of TB cases were found to be HIV+. The other side of this coin is that in African circumstances about

²¹ Policy Project, *Child Survival in Nigeria: Situation, Response and Prospects: Key Issues*, October 2002

40 per cent of people with HIV infection may be expected to develop TB. This normally occurs earlier in the course of HIV infection than other opportunistic infections such as fungal infections of the mouth and throat, intestinal infections and pneumonia.²² In one respect TB is more pernicious than the others as it can also be readily transferred to non-HIV+ residents of the same household. Even more worryingly, a proportion of these tubercular infections will be multi-drug resistant.

The process of gradual debilitation as HIV evolves into AIDS is accelerated by inadequate nutrient intake, often with poverty as a primary cause, but aided by loss of appetite, inefficient digestion, reduced metabolism, and poor absorption, all side effects of the progress of the HIV virus infection itself, and, as we shall see, compounded by endemic malaria. Box 1, adapted from HIV/AIDS: A Guide for Nutrition, Care and Support (USAID 2001) summarizes the position.

Box 1. Impact of HIV/AIDS on Nutrition and of Nutrition on HIV Infection

An HIV infected person is more at risk of malnutrition for the following reasons:

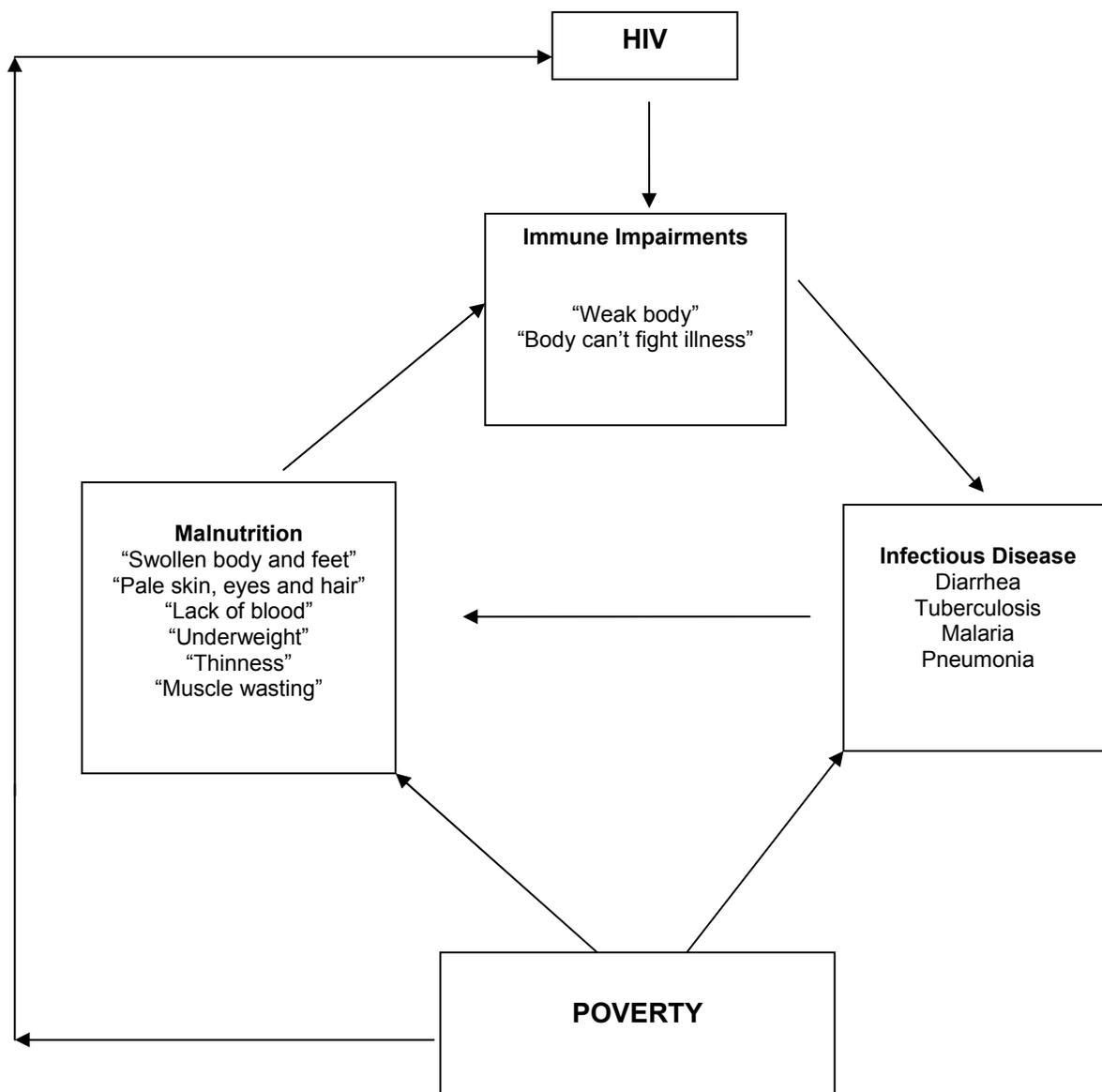
- *Income and Asset Poverty:* increases sexual risk taking; poor diet, hard and physically testing work; high fertility.
- *Association between HIV prevalence and:*
 - income inequality
 - rapid urbanisation
 - falling protein consumption
 - malnutrition - lack of micro-nutrients
 - parasite infection
 - previously compromised immune systems
- *Reduced food intake:* Adults with HIV/AIDS suffer from appetite loss (anorexia) and have difficulty eating. The person may be suffering from an infection such as mouth sores or fever, or may be depressed psychologically because of stigma or having to accept the implications of a fatal disease.
- *Poor absorption:* Poor absorption of nutrients accompanies diarrhea which is common with HIV infection, particularly where water is unclean. If diarrhea continues for a prolonged period of time severe malnutrition results. HIV may also damage intestinal cells that affect the absorption of fats and carbohydrates which in turn may affect the absorption of micro-nutrients such as vitamin A.
- *Changes in metabolism:* With poor nutrient absorption the body may not be able to digest foods efficiently.
- *Chronic infections and illnesses.* Fevers and infections that accompany an HIV infection lead to greater nutrient requirements and poor use of the nutrients by the body. In Nigeria a common cause of recurrent fever is malaria.
- *Other factors affecting the intake and efficient conversion of nutrients:* these include nausea and vomiting resulting from drugs used to treat HIV/AIDS, thrush which may affect swallowing, and anemia resulting from malaria and hookworm. HIV infected persons who are anaemic tend to progress more rapidly to AIDS than those who are not.

Source: based on but significantly adapted from *HIV/AIDS: A Guide for Nutrition, Care and Support*, USAID 2001 and from E, Stillwaggon²³

²² UNAIDS, *Tuberculosis and AIDS*, Best Practice Collection, October 1997

²³ E. Stillwaggon, *HIV/AIDS in Africa: Fertile Terrain* - unpublished, forthcoming in *J. Development Studies*, 2003

Figure 7. The Spiral of HIV Infection, Poverty, Malnutrition and Disease



Source: HIV/AIDS A Guide for Nutrition, Care and Support, USAID July 2001

It is evident that an HIV infected person is caught in a vicious circle of malnutrition and opportunistic disease, into which HIV adds an additional dimension of vulnerability with drastic consequences. What is shown as an endless loop in Figure 7. invariably ends — in the absence of ARV treatment — in the death of the infected person.

The prospects of breaking out of this circle are bleak in a country like Nigeria. Up to 25 percent percent of adult women and 57 percent percent of children under three are severely

malnourished, and an estimated 70 percent per cent of the entire population live below the poverty line of less than \$1 a day. Problems are compounded by the effect of repeated occurrences of malaria in adults, throughout the country, and on the frequently fatal impact of malaria on children under five. Although those who survive to adulthood tend to develop a resistance to the morbidity of malaria, most in the rural areas will experience between one and three attacks a year. This not only implies days lost to productive activities, but creates opportunities for other infectious diseases to enter the body while its ability to repel them is weak. The relentless progression of the HIV virus in infected individuals also accelerates during these periods. Increasingly, moreover, the individual with HIV finds it less easy to shake off each attack of malaria, which weakens the body's resistance further, and, in a deeper plunge of the downward spiral, permits latent TB bacteria to emerge.

The pervasiveness of untreated malaria in young children, with or without HIV/AIDS, adds further complications (putting to one side the tragedy of such early deaths) when the child's sickness contributes to other health risk factors in the household environment, compounded by the absence of potable water and efficient sewage disposal. In Enugu, for instance, only one quarter of households have access to safe water and only 53 percent of households had any means of sanitation.²⁴

B2. Impact on Agriculture and Consequences for Food Security

The 'normal' situation of the majority of rural households in poor countries is where two or more adults share a range of subsistence and money-making tasks, assisted by children according to age and whether attending school or not. The more arduous tasks, involving relatively short periods of high energy, tend to be undertaken by male household members while more continuous repetitive tasks which are less dependent on physical strength tend to be carried out by female members who are also universally responsible for the daily welfare of children, cooking, and household management. Thus in an agricultural environment men will be involved in tree felling, destumping, plowing, house construction and perhaps some harvesting and marketing of significant cash crops. Women undertake weeding, pruning, harvesting, and care of any vegetable plot for household consumption and small livestock such as hens. In a country like Nigeria such a household will typically be operating at a level close to or just above the minimum necessary for survival, with little in the way of assets in the form of savings, implements, radios, or furniture which would provide a safety net in the case of a disruption to normal productive activities.

It has been shown in the Agricultural section of this report that the variety of crops, livestock husbandry and patterns of production in Nigeria is wide, ranging from a combination of sorghum, millet, groundnut and cowpea production in northern zones, where cattle and small livestock are also significant, through to maize, soya, yams, cassava, sweet potato in the fertile, productive middle belt, and to palm oil, fruits and fisheries, in addition to maize, in the coastal and Niger delta regions.

In all cases the chronic sickness and ultimate death of an adult member severely impacts on household production capabilities, particularly, and with additional implications, if it is the

²⁴ Francis, P. and Nweze, N., *Poverty in Enugu State, Nigeria*, June 2003

household head who is afflicted. The immediate direct effect is obviously in the gradual loss of labor power from the infected person, but secondary, knock-on, effects are imposed on other members of the household who have to share in tending for the sick person, fetching medicines, and taking on as much of their work as possible. One estimate is that a bed-bound patient in the household requires as much as 7.5 hours of family care per day.²⁵ The process through which a family affected by HIV/AIDS goes through over time as the disease progresses has been chronicled by a number of authors. Topouzis,²⁶ for example, lists the following, in decreasing order of reversibility and increasing order of severity as they impact on household resources:

- Seeking wage labor or migrating for paid work
- Switch to production of low-maintenance subsistence food crops
- Liquidating savings or other stores of value, though not necessarily draught animals at first
- Tapping obligations for extended family or community
- Soliciting family or marriage remittances
- Formal or informal borrowing
- Reduction of consumption
- Decreased spending on education, health care of other family members
- Sales of land, implements and tools
- Reduce amount of land farmed and change of crop mix
- Dependence on charity
- Break-up of household and distress migration

A similar array of reactions have been identified by UNAIDS (1999) in which strategies which aim to improve food security (such as consumption of cheaper foods, sending children to stay with relatives), those which aim to raise and supplement income (temporary migration, borrowing, sale of assets) and those which compensate for the loss of labor (withdrawing children from school, putting in extra hours, decreasing area cultivated) have been differentiated.²⁷ Other approaches distinguish four sets of impacts on the household: health, economic, social and educational, while Barnett and Blaikie (1992) in Uganda identified changes within the household on its structure, domestic work organization and quality of life (inadequate diets, poorer housing restricted access to education).²⁸ The same authors also depict five stages through which a typical mixed cropping farm may go through as first one adult child dies, another is ill and subsequently dies while the male head becomes ill and so on. Haddad and Gillespie (2001) characterize the problems facing agriculture in dealing with the impact of HIV/AIDS “as 1) labor shortages, 2) knowledge loss, and 3) a loss of formal and informal institutional support or capacity (such as a weakening of property rights and a diminished ability and incentive for collective action)”.²⁹ Others focus on the different array of assets upon which a household is able to draw at different times, and with different long-term consequences.

²⁵ Topouzis, D., “Measuring the Impact of HIV/AIDS on the Agricultural Sector in Africa” Paper presented at the Africa Development Forum, Addis Ababa, December 2000

²⁶ Topouzis, D. & du Guerny, J., *Sustainable Agriculture/Rural Development and Vulnerability to HIV/AIDS*, UNAIDS Best Practice Paper, 1999

²⁷ UNAIDS, *A Review of Household and Community Responses to the HIV/AIDS Epidemic in the Rural Areas of Sub-Saharan Africa*, 1999

²⁸ Barnett, T. and Blaikie, P.M., *AIDS in Africa: Its Present and Future Impact*, London, 1992

²⁹ Haddad and Gillespie, 2001 p.26

It is clear, without going into further detail, that the impact of HIV/AIDS on a household which is only just keeping its members above the poverty line is gradually to drag it below as the ability to produce food in sufficient volume and nutritious value, or ability to earn cash from occasional laboring diminishes. For families and households which already exist below the poverty line, the consequences are even more severe. The extra hours requiring to be worked by those who remain fit, the decrease in nutritional intake, decline of the home environment, all create an atmosphere in which disease and illness may more readily strike anywhere in the family. Even without the presence of HIV/AIDS, in such an environment tuberculosis is more likely to surface, malaria is less easily shaken off and its attack on children tends to be more fatal, while the individual infected by HIV finds that progression to AIDS accelerates as their resistance is eroded from within by the virus and from without by the decreasing productive capability of the household.

We have focused here on the impact of HIV/AIDS at household level, in an agricultural community, but the consequences at national level could have wider implications for food security if it means a reduction in marketable output by those households who had been able to produce a small surplus. We may briefly summarize with the observation that we have a situation in which an initial injection of an ultimately fatal virus, acquired through a behavioral act, exposes the individual to a series of contingent attacks, either from latent infections or from their living environment, which then unfold, as in a Shakespearean tragedy, to that individual's untimely, but apparently inevitable, death, disrupting as they go the economic, social and psychological stability of other household members. How this process is likely to work through in Nigeria is explored in Section 3. First, it is necessary to summarize the principal policies and actions that have been put in place by the FGN, international agencies and CSOs in Nigeria to counter these trends.

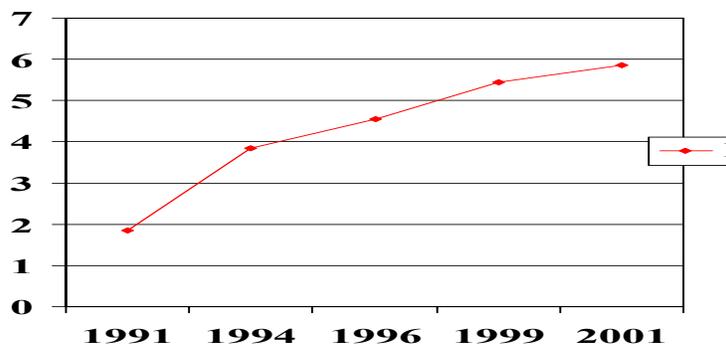
C. Policy and Institutional Environment in Nigeria

C1. Policy Environment

Nigeria is divided into 6 geo-political zones, 37 States including the Federal Capital Territory, and 774 local governments. The country is facing an HIV/AIDS crisis similar to that in eastern and southern Africa a decade ago. The estimated median HIV prevalence was 5.8 percent among antenatal clinic attendees in Nigeria at the end of 2001, with over 3 million HIV positive adults. However, the epidemic is complex, with some states having a prevalence of more than 10 percent — among the highest levels in the world. The future course of the epidemic is uncertain, but even at present levels; millions of new HIV and AIDS cases are a certainty.

Figure 8.

Nigeria: HIV Prevalence 1991-2001. (FMOH)



C2. Institutional Settings

The government of Nigeria has been slow to react to the threat of HIV/AIDS. The problem was exacerbated during the period of military rule by low overall support for health care. However, the present Government has shown both leadership and increased investment in HIV/AIDS related activities. However, despite this impetus the overall attention and investment in HIV/AIDS prevention has been far too low.³⁰

The restoration of democracy in 1999 brought the first signs of a national response to the growing HIV/AIDS epidemic. Following the presentation of the 1999 seroprevalence survey results, the President immediately formed a presidential Committee on AIDS. Members of the committee include all government Ministers, with the President serving as chairperson. This action was quickly followed in early 2000 by the formation of the multi-sectoral National Action Committee on AIDS (NACA) that reports to him directly. At the state and local governmental levels, state and local government action committees on AIDS have been formed to spearhead the local multi-sectoral responses to HIV/AIDS.

A three year HIV/AIDS Emergency Action Plan (HEAP) has been developed as the national strategy for HIV/AIDS. The HEAP is, in the President's words, Nigeria's "Battle Plan" in the fight against HIV/AIDS³¹. The plan identifies multiple activities that Nigeria intends to pursue. Activities are conceived as short term and high impact interventions. Priority strategies include the removal of socio-cultural, informational and other barriers to catalyzing community-based responses, preventive interventions targeted at high risk populations and the general population, and care and support for people living with or affected by AIDS.

³⁰ USAID/Nigeria HIV/AIDS strategy Assessment Report, page 8, Submitted by TvT Associates. April 2002.

³¹ National Action Committee on AIDS:HIV/AIDS Emergency Action Plan (HEAP) , February 2001.

C2a. Key Results of the HEAP Action Plan

- Reduction in the rate of infection
- Impact mitigation on people infected by AIDS, people affected by AIDS and the general population
- Sustainable, multi-sectorial and decentralized response to HIV/AIDS prevention and impact mitigation

C2b. Objectives of the HEAP:

- 1) To precipitate national multi-sectorial and multi disciplinary mobilization for AIDS prevention
- 2) To increase awareness and sensitisation among the general population and strategic targeted stakeholders
- 3) To promote behavior change in both low and high-risk populations
- 4) To remove human resource, financial, cultural and informational barriers to HIV/AIDS prevention
- 5) To develop and implement a multi-sectorial, multi disciplinary institutional framework and legal machinery for HIV/AIDS prevention
- 6) To develop standards, guidelines and institutionalize best practices in care giving and support to people infected by HIV/AIDS
- 7) To implement the activities of the HEAP using a decentralized and participatory approach, which incorporates all tiers of government and the private both profit and non-profit sectors
- 8) To mitigate the impact of AIDS by (i) providing affordable and accessible drugs; (ii) by encouraging counselling to those infected and affected by AIDS; (iii) by providing financial assistance to AIDS Orphans and (iv) by providing micro-credit facilities to people infected and affected with HIV/AIDS.
- 9) To empower people infected and affected by AIDS to form networks and contribute to HIV/AIDS planning and programming at National, State, local government and community levels.
- 10) To develop an effective surveillance system
- 11) To stimulate research, documentation and research networks on HIV/AIDS in Nigeria, and
- 12) To develop gender sensitive approaches to data collection and reporting

C2c. Strategies of the HEAP:

Component A: Creation of an Enabling Environment

- Strategy 1: Removal of Socio-Cultural Barriers
- Strategy 2: Removal of Information Barriers
- Strategy 3: Removal of Systemic Barriers
- Strategy 4: Catalyzing Community-Based Responses

Component B: Specific HIV/AIDS Interventions

- Strategy 5: Preventive Interventions Targeted to High-Risk Populations
 - Sub-strategy 5.1: Youth (High risk youth population and non-high risk youth population)
 - Sub-strategy 5.2: Empowerment of Women to Negotiate Safer Sex
 - Sub-strategy 5.3: HIV/AIDS Intervention with the Armed Forces and the Police.
 - Sub-strategy 5.4: Prevention of Infection through MTCT

- Sub-strategy 5.5: Commercial Sex Workers
 - Sub-strategy 5.6: HIV/AIDS intervention in Prisons and Immigration Border Control
 - Sub-strategy 5.7: Workplace policies and programs related to HIV/AIDS
 - Sub-strategy 5.8: HIV/AIDS Intervention For Transport-Related Workers
- Strategy 6: Preventive Interventions for the General Population.
 - Strategy 7: Care & Support for Persons Infected by HIV/AIDS
 - Strategy 8: Care & Support for Persons Affected by HIV/AIDS

In spite of recent efforts, so far, the response to the epidemic is limited and the coverage of core HIV/AIDS activities remains critically low. Limitations in the response are said to be mainly caused by insufficient funding and confusion in roles and responsibilities. Improving institutional arrangements, establishing a clearer distinction between “purchasers” and “providers”, developing more reliable and transparent mechanisms to provide funds to the stakeholders implementing on the ground activities will be essential for scaling up the response to the epidemic.

The Federal Government of Nigeria (FGN) is currently debating the status of NACA and it is likely that the organization will be given formal standing as an agency. Several different competing bills are before the House of Assembly on the formation of an agency. FGN has decided that further institutional appraisal of the structures for managing and implementing the national response to HIV/AIDS is needed before the legislation is further debated.

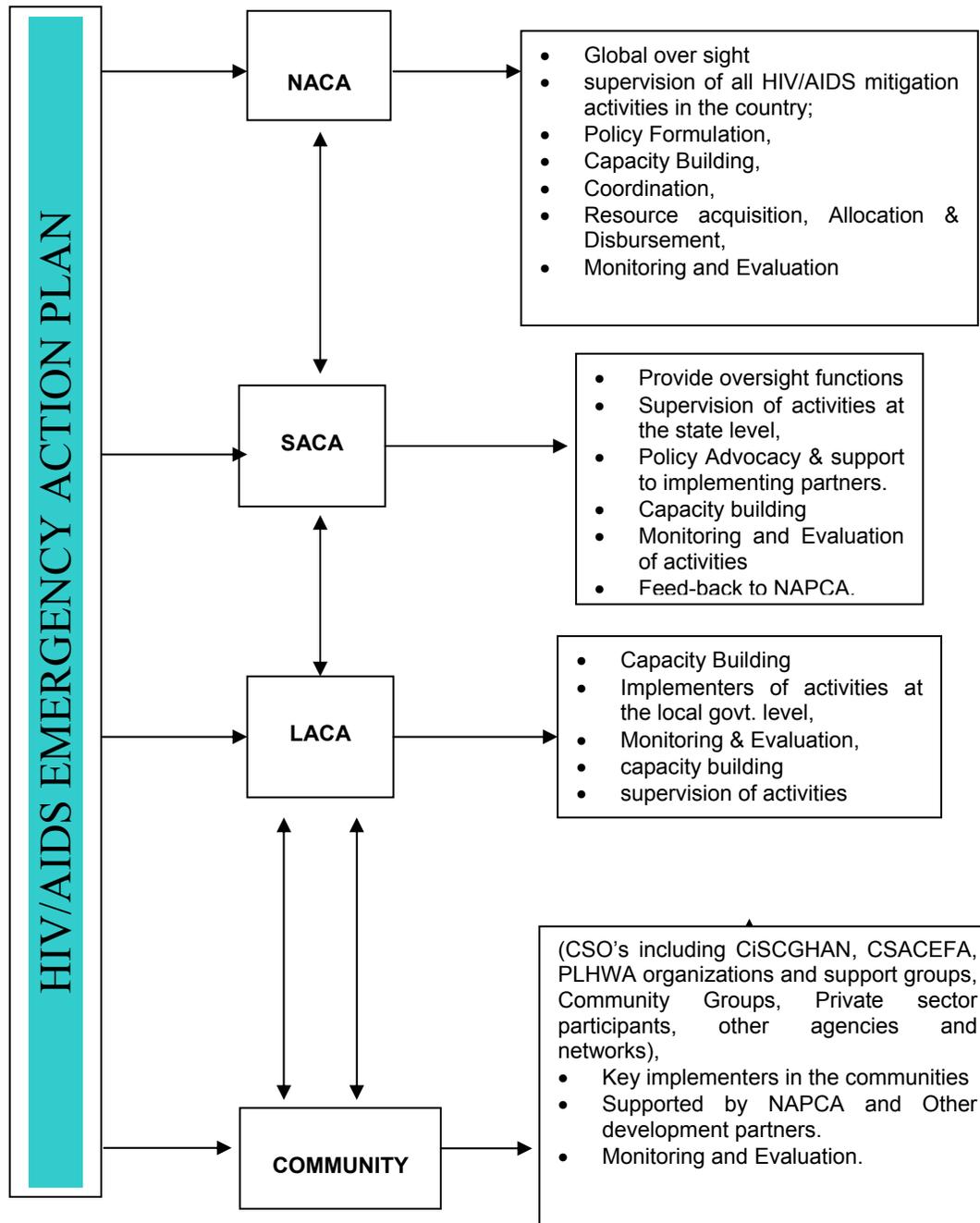
The policy environment of HIV/AIDS in Nigeria is undergoing changes. The current HIV/AIDS policy was completed in 1997 before the creation of NACA and the present increase in HIV activities occasioned by increase government and donor support. The old policy does not reflect recent changes in the international environment to pay greater attention to the plight of persons living with HIV/AIDS (PLWAs) their families, and AIDS orphans, and to the lowering of prices by pharmaceutical companies for antiretroviral drugs. In collaboration with stakeholders, NACA is currently working through a process of extensive stakeholders review developing a new draft policy framework that addresses most of these envisaged changes. The overriding goal of the national Policy on HIV/AIDS and Sexually Transmitted Infections (STI) and of related strategies and interventions is to achieve a reduction in HIV/AIDS prevalence to less than 1 percent of the population by the year 2010. The completion of this process will lead to more informed implementation of the HEAP as well as the basis for developing enabling legislation in the national response³².

The revision and recreation of this policy is necessitated by the need to recognize the tremendous changes that have taken place in the understanding of the epidemic since and to put in place a new framework of guidelines that gives meaning to all the structural changes and interventions now adopted by the country.

³² HIV/AIDS: What it means for Nigeria; background, projections, Impact, Interventions, Policy. Policy Project Nigeria. December, 2002.

To oversee the implementation of the HEAP, the federal government has developed a tiered committee structure (Figure 8), which includes the Presidential Council on AIDS (PCA), the National Action Committee on AIDS (NACA), State Action Committees on AIDS (SACAs) in each of the 37 states in the Federal Republic and Local Action Committees on AIDS (LACAs) in each of the 774 Local Government Areas (LGAs) in the country. NACA, is comprised of a multisectoral committee and a secretariat, and has been the key organization at the Federal level.

Figure 9: Relationships within the National HIV/AIDS Response



Most states now have SACA, but LACA are only just in formation. In addition, donor project management units are being created (for instance National and State Program Teams, in the case of the World Bank financed project). The World Bank project has \$90.3 million funding to run for a period of five years. The project represents the World Bank contribution to the HEAP as part of the Multi-Country AIDS Program for Africa (MAP). Under the project plan targeted support is to be provided to Federal, State and Local governments including Line Ministries and community groups³³.

The National Action Committee on AIDS (NACA) is situated within the Presidency and has principal oversight responsibility for the definition of HIV/AIDS and STI policy and for the development and management of the Program's strategies. Membership of the NACA is multi-sectoral and appointed by the President of the Federal Government of Nigeria. Likewise, the membership of SACA and LACA is determined by respective heads of the nation's state and local governments.

Representation in NACA is structured so as to include all relevant line ministries including but not limited to the Federal Ministry of Information, the Federal Ministry of Health, the Federal Ministry of Internal Affairs, the Federal Ministry of Women Affairs and Youth Development, the Federal Ministry of Defense, the Federal Ministry of Education, the Federal Ministry of Finance, the Federal Ministry of Justice, and the Federal Ministry of Labor. Membership in SACA and LACA also to the extent applicable, mirror that of the NACA with reference to SACA and LACA government institutions.

NACA's Role and Responsibilities. As defined through an extensive series of multi-sectoral meetings and as illustrated in the HEAP itself, the National Action Committee on AIDS, situated structurally within the Presidency, has principal responsibility for advocating the government's proactive approach to responding to the HIV/AIDS epidemic. In addition, NACA is responsible for coordinating the timely and effective execution of the HIV/AIDS Action Plan. As such, NACA's role is to ensure that those entities responsible for the implementation of a specific activity receive the financial, organizational, and human resources support required to undertake and complete assigned activities in a multi-sectoral environment. At the same time, NACA facilitates partners' implementation using the HEAP as a framework for national and nation-wide coordination of a unified effort (Figure 9).

NACA also has responsibility for creating an enabling environment for the effective management and mitigation of HIV/AIDS in Nigeria and on ensuring that appropriate level of resources is directed toward effective and specific HIV/AIDS interventions. NACA also undertakes the monitoring of the overall national HIV/AIDS response and reports upon progress achieved in responding to identified HIV Emergency Action Plan objectives. In its role as coordinator of the HEAP's execution of activities, NACA is expected to share fiduciary responsibility with implementing agencies to ensure transparent and accurate reporting on the utilization of financial and material resources.

³³ Project Appraisal Document on a proposed credit to the Republic of Nigeria for a HIV/AIDS Program development Project. Document of the World Bank. June 18, 2001.

Finally, NACA undertakes the development of institutional capacity of SACAs and LACAs which, when they have built sufficiently capacity, will undertake to advocate and support the development of HIV/AIDS activities originating at the state and local levels³⁴.

C3. TB and Malaria

In terms of numbers, Nigeria is sixth among the top twenty two endemic countries in the world with a WHO estimate of 305/100,000 for all forms of TB. Control is managed by the National Tuberculosis and Leprosy Control Programme (NTBLCP) which was established in 1991, and comes under the Department of Public Health of the Federal Ministry of Health. The program is structured along the three tiers of government with policy formulation and strategic planning conducted at federal level while implementation is managed through support from state level, under the Director of the Department of Disease Control and State TBL Control Officers and Supervisors, to local government. At the Local Government level the TBL Control activities are organized by Local Government TBL Supervisors who are supposed to direct local PHC workers but a shortage of personnel has meant that TBL Supervisors do much of the work themselves. According to the strategic plan of the NTBLCP its long term objective is to reduce the incidence and prevalence of TB to a level that does not constitute a public health problem in the country. The aim is to reduce mortality, morbidity and disease transmission as well as prevent the development of drug resistance.

The principal means of controlling TB is through the Directly Observed Treatment Short course (DOTS) which involves the provision of standardized short-course chemotherapy, which should be directly observed during the initial treatment phase. Although the ultimate objective is to be able to cover the entire country, resource constraints have confined the program to only 21 of the 36 states, largely funded by donor support. In terms of recurrent costs, international donors provide drugs, logistics and running costs while the government has responsibility for payment of salaries. These constraints mean that in the year 2000, DOTS was being implemented in only 282 out of 774 Local Government Authorities, and only about 900 of the over 5,000 health facilities in the country were providing TB treatment. As the case finding method is passive it is estimated that only about 15 percent of new smear positive cases are being detected each year. Most victims are in the age range 15-54 and treatment success was 77 percent in 1999.

The DOTS Expansion Plan 2002-2005 intends that DOTS implementation should expand rapidly in all states, including those where it was not currently operating such that by 2005 some 70 percent of TB cases existing in each State would be detected. There is no reference in the Plan to the link with HIV/AIDS and how this may affect the rate at which DOTS can be expected to expand (and associated costs) but acute awareness of the link is present among officials at Federal level and will be taken into account in reviews and updates.

C4. Malaria

As we noted earlier malaria is endemic throughout the country and is one of the most serious public health hazards facing its population. Malaria control is therefore identified as a priority program within the framework of the National Health Policy. The present Roll Back Malaria

³⁴ National Action Committee on AIDS: HIV/AIDS Emergency Action Plan (HEAP), February 2001.

program follows the National Malaria Control Program Plan of Action 1996-2001, and was inspired by the African Summit on Roll Back Malaria of April 2000, endorsed by the Abuja Declaration of Heads of State. The program involves a package of interventions including disease management with a disease management target by 2005 of 60 percent of persons affected by malaria to have access to “prompt adequate and affordable treatment within 24 hours after the beginning of the symptoms” and to reduce mortality and morbidity due to malaria by 25 percent by 2005. The disease prevention target involves increased use of chemoprophylaxis for pregnant women, utilization of ITNs, selective vector control and environmental management. Disease Management and Prevention are two of five strategic approaches of RBM in Nigeria, the other three being Information, Education, Communication and Social Mobilization; Operational Research; and Partnership.

Management of the Roll Back Malaria program comes under the National Malaria and Vector Control Division of the Federal Ministry of Health. It is headed by a Chief Consultant Malariologist who is responsible to the Director of Public Health in the Ministry, and the Division itself is comprised of the five units: Epidemiology and Training, Disease Management, IEC (Information, Education and Communications)/Social Mobilization, ITN (Insecticide Treated Nets)/Environmental Control, and Monitoring and Evaluation. Policy is determined by the National Malaria Control Committee and implementation of the programs devolves to the State Ministries of Health, which are responsible to the Deputy Director of Public Health, and to the Local Government Authorities, which manage Primary Health Care clinics.

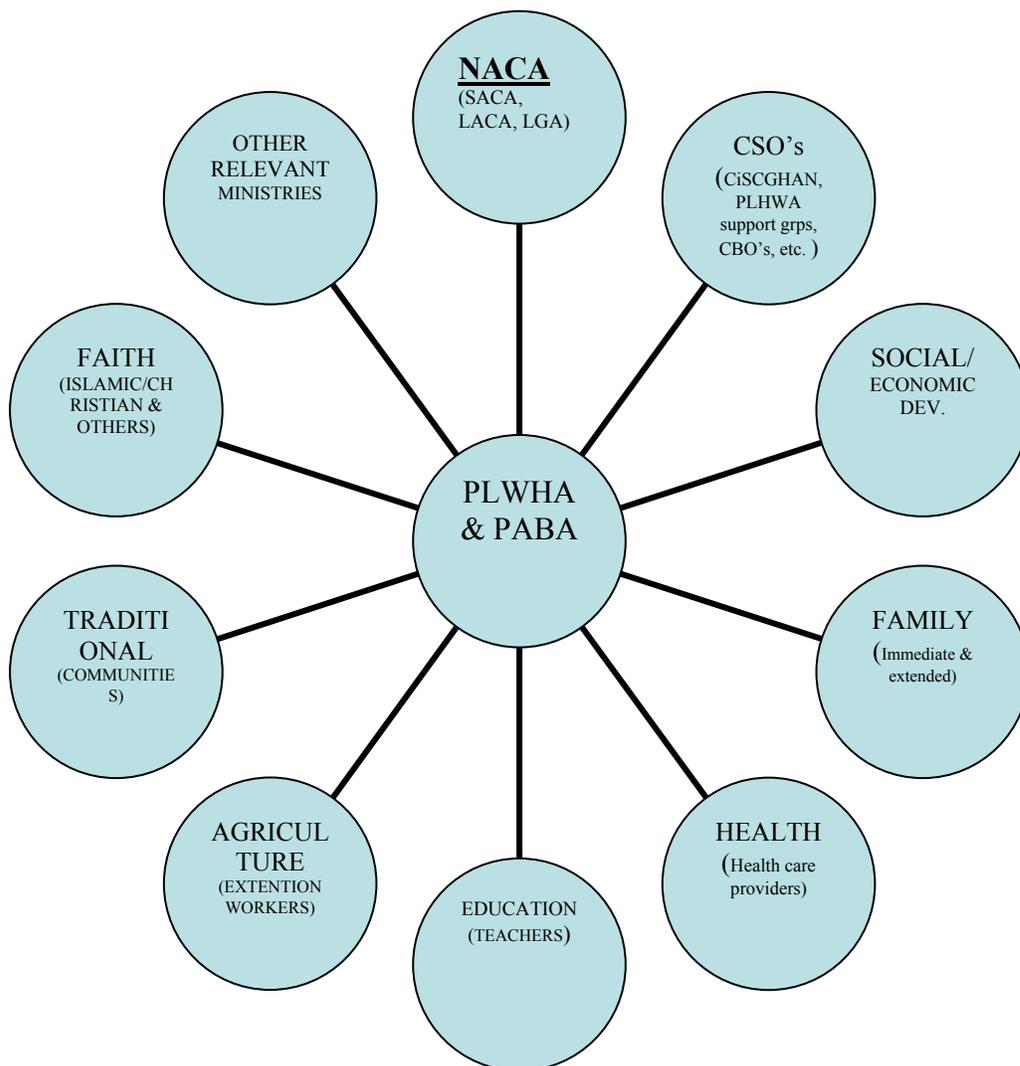
A number of problems have been identified in the early stages of the program. The distribution and availability of drugs, for instance, depends on a combination of formal and informal private sector sources, purchased by the state, where cost recovery sometimes applies, or by individuals, and overall organization of supply appears to be weak. Package treatment is not always available, and a high proportion of chloroquine syrups prepared is either too weak or too strong. The Strategic Plan for Rolling Back Malaria identified a number of attitude and administrative problems in providing chemoprophylaxis treatment to pregnant women, ranging from poor antenatal care attendance, through to the high cost and non-availability of drugs and a frequent requirement for multiple visits to the health facility. ITNs have been slow to take up and it is not clear that the primary users are the most vulnerable in a household.

These and other problems are recognized in the Strategic Plan for Rolling Back Malaria 2001-2005 which lays out a number of costed targets and strategies in each of the areas mentioned above. As with the TB DOTS Expansion Plan there is no mention of links with HIV/AIDS but as there is scope under the partnership aspect of the terms of reference for the National Malaria Control Committee to be strengthened one hopes that this would allow for cross representation from related public health programs. There is current discussion in the FMOH on revising the prophylactic mix for children where there is severe malnourishment or if they have inherited HIV infection from their mother, indicating an increased awareness that historically determined administrative divisions are becoming less relevant to the range of health problems faced by the nation today.

C5. Cross-Cutting Programs and Policies

In practice many of the policies and programs described in the section are predominantly self-standing within a particular division of a line Ministry. There is increasing recognition; however, that success in one area can depend on what is going on in another. Thus the control of TB is very much influenced by the spread of HIV/AIDS, and the ability to slow the development of AIDS affected by recurrent bouts of malaria. All such links become critical in the survival prospects of children under five and pregnant women where an added factor may be a context of food insecurity at the household level and associated levels of malnutrition. The importance of cross-over links, or in other words, of taking a more holistic approach, were recognized in the wording of the Abuja Declaration which refers to the fights against HIV/AIDS, TB and other related infectious diseases. The key word here is “related”. A step in this direction is in the FGN’s application to the Global Fund to Fight AIDS, Tuberculosis and Malaria, in which a joint program to tackle HIV/AIDS, TB and Malaria, which incorporates their overlapping incidence and prevalence, is a requirement. This project is overseen by the CCM (Central Control Mechanism) which has responsibility for coordinating the various Ministerial inputs.

Figure 10. Nigerian HIV/AIDS Community Management System



PARTNERS:

Under the HEAP arrangements implementation of activities are conducted with key partners including the following:

- National Primary Health Care Development Agency (NPHCDA)
- National Network of Persons Living with HIV/AIDS (NNPLWHA)
- Civil Society Organizations (CSO)
- Faith Based Organizations (FBOs)
- Non-governmental Organizations (NGOs),
- Community Based organizations (CBOs)
- UN SYSTEM AGENCIES (UNAIDS, UNICEF, UNFPA, UNIFEM, UNDCP, UNFPA, WHO;
- DEVELOPMENT PARTNERS and Bilateral Organizations (CIDA, DFID, European Union, USAID etc).
- All line Ministries at both federal and state levels.

C6. Participation

All sectors of society in Nigeria are involved in the national response to HIV/AIDS, although presently at varying degrees. This specifically includes the public sector (line ministries) at federal, state and local government levels, the private sector, non-governmental Organizations (NGOs) and community based-Organizations (CBOs), donor agencies, and religious, traditional, women's and youth organizations.

All tiers of Government in collaboration with Non-Governmental Organizations (NGOs), Community Based Organizations (CBOs), bilateral and multilateral partners, and other international agencies are contributing in various ways towards the national response especially through the implementation of the HIV/AIDS Emergency Action Plan (HEAP) jointly developed by all stakeholders. NACA is currently supporting sector arrangements for mainstreaming HIV/AIDS into the development policies and strategies of line ministries in addition to extension of activities into relevant departments and agencies. Institutional arrangements for the facilitation of the civil society activities are in progress. Institutional arrangements for the cooperation/coordination with Civil Society Organizations and faith based groups at the Federal level and the State level is in progress.

The active engagement of the private sector institutions in HIV/AIDS response has been facilitated by the government using the public/private sector forum as template. Within the agreed operational framework each partner's roles and responsibilities are expected to be worked out to interface with existing national institutions/programs. Under the current arrangement each partner's role is to be streamlined to conform to agreed institutional arrangements to avoid confusion and minimize unnecessary overlaps. Also under NACA's coordination better balance between health and non-health related sectors is to be strengthened.

It is perhaps necessary to mention some challenges associated with the above mentioned initiatives undertaken by NACA. Firstly, each of the initiatives would require time to mature before maximum benefits can be attained with respect to achieving key milestones within the HEAP framework. Secondly, existing human resource constraints may handicap speedy achievement of planned activities. There are also existing major limitations in logistic and implementation capacities among relevant partners at especially at the state and local government levels. Overall there is still a long way to go at the grass-root level despite the presence of well intentioned policies.

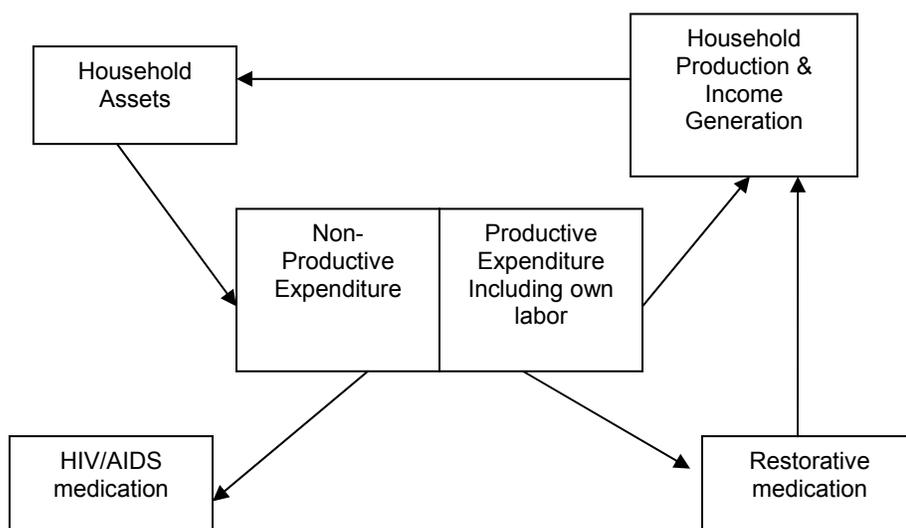
D. Model of Impact of HIV/AIDS, Tuberculosis, and Malaria on Household Income Expenditure and Production.

An overview of the relationship between production, generation of income, and how that income is spent for any household is given in

Figure 11. It displays schematically how these three components of household economic activity (production, income and expenditure) are aspects of a single flow of resources upon which the on-going sustainability of the household depends. Thus, a certain minimum of productive expenditure and labor input is necessary for the required levels of food production and income generation for the household to survive at a constant standard of living from one period to the next. Any repeated, large leakage from this flow, such as the various costs involved in treating

long-term adult sickness will send this circular flow of income and production into a downward spiral which, as we saw above, may be irreversible.

Figure 11. Circular Flows of Household Income, Production and Expenditure



The scheme in

Figure 11 allows the principal relationships, and consequent dependency of one activity upon the other to be highlighted. This should be kept in view in the more detailed discussion which follows.

D1. Impact on Household Production

As indicated in Section 2 the variety of crops and production patterns found in Nigeria is highly varied across the three main agroecological zones. This means that the effect of HIV/AIDS and its associated opportunistic diseases is also likely to be variable. Data is weak, but we may surmise from that section that households affected by chronic illness of key adults will respond by adjusting their cropping (and perhaps livestock) pattern to match the time and effort which they have available, both in terms of hours and reserves of energy. There is some indication from Benue that in response to declining fertility of land there has been a shift from more demanding crops such as yam and maize to others that are easier to manage such as cassava (which also requires less labor) and sorghum.³⁵ This process is likely to be accelerated in households where chronic illness has significantly reduced the supply of adult labor. Area planted and yields are also likely to fall in such cases, while conversely the tendency to sell produce in advance of

³⁵ KIT, DFID Planning Mission of the Impact Assessment Study of HIV/AIDS on Rural Livelihoods in Benue State, Nigeria, (Draft Report) May 2002

harvesting will increase. Sample figures indicate that the latter may be as high as 30 percent in parts of Benue.³⁶

The Food Consumption and Nutrition Survey of 2001 investigated food related coping strategies but unfortunately did not address the production, as opposed to the expenditure, side of food availability and access. Nevertheless, the second most popular response, after purchasing food on credit, was to rely on less expensive foods, and this was followed by an adoption of less preferred foods. In each case we may reasonably surmise that the parallel situation in production would involve a transfer from preferred, costly input crops to less preferred, crops that are easier to grow and harvest.

Much will depend not only on the types of alternatives available but also on who traditionally supplies the key inputs. In Enugu state, for instance, between 58-68 percent of the agricultural labor force consists of women, who are estimated to produce as much as 80 percent of food for household consumption.³⁷ In such households, the manner in which food security is impacted by the effect of HIV/AIDS on women is likely to be considerably more severe than due to the effect on men. Given that a greater proportion of women than men are projected to become sero-positive in rural areas in Nigeria, this is a matter of some concern. As was shown in sub-section B2, responses to the advance of AIDS will tend to have increasingly dramatic effects on agricultural activities as the disease progresses. At the early stages the most frequent impact will follow from generally decreased lack of energy, from bouts of illness which take the victim away from work for a week or more at a time, augmented by malaria and minor opportunistic ailments. We have seen that recurrent bouts of malaria are endemic even amongst the non-HIV infected population, which may take the victim away from work for a week to ten days. When this disease strikes the individual whose immune system is already, struggling to control HIV, the period of illness and recovery time will become gradually longer, thus hastening the substitution of relatively low input crops for high input ones. By the time TB has appeared in a crucial adult member of the household, of either sex, it is likely that declining production will already be far advanced.

The replacement of adult labor by that of children will also tend to reduce productivity, encouraging the spread of invasive weeds such as *striga*. Yields per hectare of various crops will gradually diminish and in due course the more labor intensive crops, such as yam which needs more ground preparation and staking up when the plants start growing, will be replaced by substitutes such as cassava which require less tending. The area under cereal, such as maize, sorghum or millet and their yields will also tend to be reduced and their combination varied. Thus cultivation of rice and millet may be replaced by less labor intensive maize and cassava.³⁸ An additional factor relates to those activities in which greater male strength gives an advantage such as in the digging and pulling up of large root crops, and which if not available within the household implies that relatives or hired labor will, be required, probably followed by reduced area planted in the following season. This process may also mean that production for the market is displaced by production for subsistence, with consequences for household cash income.

³⁶ KIT, *Impact of AIDS in Benue State: Implications for Rural Livelihoods*, Draft Report, June 2003:58

³⁷ quoted in Francis, P. and Nweze, N., *Poverty in Enugu State, Nigeria*, June 2003:15

³⁸ Akande, S.O., "Impact of HIV/AIDS on Agricultural Development" in Ajakaiye, D.O. & Odumosu, O.F., *Socio-economic Burden of HIV/AIDS Epidemic in Nigeria*, NISER, 2002

The effect of the change of diet implied by such changes may at first be gradual but in its cumulative longer-term impact it becomes severely deleterious. Table 5 shows the consequences of changing from a yam/maize holding of about 2.6 ha (the national average) to a predominantly cassava/maize holding. As is seen, the effect on annual calorie availability to the household is minimal, other things being equal, but there is a significant drop in protein availability, from a total of 377 kg per annum to 165 kg per annum, a drop of over half. For a household which would normally put most of its land over to maize it is clear from the figures in Table 5 that a significant shift to root crops would have a considerably more dramatic effect on both calorie and protein availability over the year. It is not shown here but a shift from maize to sorghum, which is said to occur in some instances, would reduce calorie production by only about 0.05 percent for each kilogram of change and would even increase protein and vitamin A availability. Neither cassava nor yam are sources of vitamin A.

The data in Table 5 are based upon best practice, of course, and incorporate appropriate levels of fertilizer input. In practice the yield from many smallholders will be substantially less than this. One may also surmise that families lower down the socio-economic scale will also have been granted access to less fertile land, or land more distant from markets. Additionally, these data assume that the quality of labor input is the same for each mix of production but if the reason for changing the mix is related to the health of adult workers this is not going to be the case. Thus, the yield per hectare of the less preferred crop in a poor HIV infected household will be considerably less than those shown, and the calorie and protein availability correspondingly less. The longer-term implications of this nutritional outcome are explored further below.

While the situation just described is typical of many parts of Nigeria, especially in the middle belt, the moist savannah zone, there are quite substantial differences elsewhere, and although the broad trend of the changes just described will be repeated according to local circumstances, the details may impinge differently on affected households. In those extensive parts of the dry savannah in the north, for example, where large livestock are kept alongside numbers of goats and sheep that are not typical of middle belt households, the impact of the prolonged sickness and death of a key adult male member of the household could be considerably more dramatic for the widow and rest of the family than any shift from yam or maize to cassava production. Traditionally a nutritional crisis would be averted by the adoption of the widow and children into her deceased husband's family, but as we note in the section on gender below this cannot be guaranteed where the cause of death is suspected to have been AIDS. In such cases, if the widow is left to herself she will only be able to retain a typical stock of, say, ten cattle, and twenty sheep and goats, but depending either on teenage sons or on hired help. As we also note below, the prolonged illness of her husband may also have necessitated the sale of livestock to pay for medication, and there would also have been funeral expenses. Illness and death will also and in themselves result in lowered levels of animal husbandry with consequent effects on current income in kind such as milk and eggs, and longer term effects on wealth such as declining reproduction rates and deaths in the animal populations.

The transition from a livestock-based household, with some small area of land given over to cowpea, groundnut, and perhaps maize, to one with only a few small livestock and greater dependence on crops, means not only a reduction of asset value but also of a change in diet

which is likely to contain fewer calories, protein and essential micro-nutrient. Lack of experience in growing some crops may also contribute to low yields.

In the southern part of the country and on coastal and estuarine land, a similar dependence on a certain type of male occupation will have similar consequences. Sea fishing, for example, is primarily a male activity and the loss of the main performer in this area in a household will severely damage both the consumption of fish as food for the household and the opportunity to add value in smoking or drying the fish harvest, and hence obtain sufficient cash income for other family needs. The reduction of fish in the household diet means a loss of a richer source of calorie, protein and micro-nutrients than is likely to be found in replacement root crops. Similarly, the household which depends upon the fairly arduous task of harvesting the fruit of the oil palm, or in climbing the taller trees to tap the sap for palm wine, will suffer a drop in income and hence the ability to purchase a balanced array of other foodstuffs. This moves us away from the consequences of altering a crop mix to the effects of a reduction in total household agricultural (or piscine) production on income, to which we now turn.

D2. Impact on Household Income

We may note here also that for a farming household which was specializing in maize or yam production for the market the consequences of chronic adult sickness or death may well be a considerably reduced marketable surplus (possibly of inferior quality) and hence reduced money income. The scope for continued purchase of nutritionally favorable foods will then be reduced.³⁹ In both cases (production for subsistence and for sale) the household is exposed to the downward spiral of malnutrition, opportunistic infection, acceleration of AIDS and eventual dissolution that was highlighted in Section 2. Similarly, as observed above, any income from other sources such as petty trading, casual wage labor, palm wine sales, pottery, soap making, knitting and weaving will also gradually be spent on cheaper and less preferred foodstuffs. The potential to earn such incomes will also be diminished by recurring and chronic illness of an adult member of the household. According to a member of a faith based coordinating group in Jos the effect on women and children is getting worse, time spent on caring for the sick and on farming means less petty trading.⁴⁰

These are what one might call the mechanical results of a physical decline in adult productivity at the household level. An additional factor which may considerably intensify the negative impact on income stems from the very high levels of social stigma which many of our informants claimed continued to be experienced by PLWHA or suspected to have AIDS. Such people often find others unwilling to employ them or to buy their produce, for fear of contracting the disease themselves. One comment from the Benue Network of PLWHA was that farmers can't even sell water from boreholes on their land because of the stigma associated with HIV/AIDS leading another to claim that HIV/AIDS was like a curse on the family. They may therefore have either to accept lower returns for their efforts or they may have to travel outside their immediate district for employment or to effect sale of produce.

³⁹ FGN, *Food Consumption and Nutrition Survey 2001*

⁴⁰ Field notes

We have come across no information on comparative income levels of households in which there is an adult infected by HIV/AIDS and those which are not so infected. Such a survey would also have to take into account those households in the latter category which have taken in orphans who may possibly have come from an AIDS infected household. One may only surmise, on two principal grounds, that even small negative income effects will have deeply serious consequences. The first of these follows from the extremely low levels of income which predominate across the country. A recent study of Enugu state may be taken as representative. Here the level of poverty measured by those with incomes less than one third of the mean national per capita expenditure, classified as 'Extremely poor,' had increased in percentage terms by a factor of greater than six between 1980 and 1996 compared with a national average increase of five fold, as shown in Table 6.

For households consisting of such individuals, whether urban or rural, the consequences of even a slight decline in income could lead to the termination of its continued viability even as a minimally protective environment for its members.

The second factor is that it is in these same households where the risks of infection and opportunistic disease are greatest. Further decline of household income can only increase despair and a sense of hopelessness which increases such risks and renders adverse outcomes even more likely. The absence of hard data should not disguise the reality that, if the trends in Table 6 have continued, which seems likely, over a third of the population of Nigeria is currently verging on destitution. For many such people any decline in income, however small, can tip the remaining elements of family structure into disintegration.

Such a pessimistic viewpoint was supported by our talks with PLWHA, Faith based and other CBOs, in which the basic need for food cropped up repeatedly as the most urgent problem for the people whom they represented, in many cases having priority over medicines. In Benue state only 35 percent of households reported that they never had a problem in satisfying food needs in the course of a year, while 20 percent of female headed households reported often or always having difficulty satisfying food needs.⁴¹

D3. Impact on Household Expenditure

It is evident from the preceding paragraphs in this Section that the negative effects of HIV/AIDS and opportunistic infections on production and income will inevitably affect expenditure. This will be so even where the household succeeds for a short time in making up some of the shortfall from borrowing or subsidy from relatives. However, it is not only the level of income and production which is relevant here but the pattern of expenditure itself as an increasing proportion of available income is spent on medication and visiting clinics.

To start at the top end, the cost of ARVs to treat HIV/AIDS is free only for positively tested pregnant women. For others, the initial investigation for suitability of treatment is N6,000 and thereafter N1,000 per month for medication. Sums of this amount are clearly beyond the scope of families in moderate or extreme poverty, but they can push other families (such those of office workers, shop assistants, primary school teachers) closer to these levels, and where funds

⁴¹ CWIQ Benue State Main Report, FOS Abuja, 2001: Figure 2.3

eventually run out and lead to the death of the principal wage earner, the family may fall into a state of chronic poverty. Of course, before the household reaches the stage of investigating the acquisition of ARVs it will have spent considerable sums on patent and prescription medicines, medical fees and transport to clinics. Studies elsewhere have shown that expenditure on health care can quadruple when a family member has AIDS.⁴² A recent survey in Benue revealed average total medical costs for AIDS-related households of N39,213, though this must be compared with an average of N26,862 for non-AIDS related households.⁴³ Such averages disguise both differences and impacts on households at different income levels and the same survey showed that the poorest households in the sample appeared to spend more than the average on medical expenses, amounting to some N37,000. Despite the possibility of sampling error or special circumstances in the latter figure, the burden is likely to be proportionately greater on poor families, which makes it even less likely that they will have been in a position to invest in the types of measures which would provide protection for other members of the household, such as insecticide treated mosquito nets, or measles and other vaccinations to protect children under the age of five. Some indication of pressure such families are under is provided in the Poverty Report of 1996 which compared the proportion of non-food expenditure of poor and non-poor families, reproduced here as Table 7.

The obvious point from this table is that households classified as core poor spent the least share of their income on non-food products, 23.8 percent out of a total household expenditure of only N1,853.5 per annum. That is, an average non-food expenditure of N441.1 per annum, or N8.5 per week, per household. Allowing for inflation this is still equivalent to only N40.45 per household per week, or N2103 per annum. Clearly the scope here for additional spending on health care was, and remains, limited in the extreme. Even for the moderately poor the annual amount of expenditure on non-food items in 1996 was only N882.92, or N16.98 per week per household, equivalent in 2003 to N80.96 per week.

To focus on income alone is also to oversimplify. In the dry savannah regions of the northern belt some 64 percent of under-5 children have had no immunization whatsoever, compared with 35.0 percent and 10.7 percent for the moist savannah and humid forest zones respectively. For these northern groups the primary source for treatment of illness is the traditional healer followed by primary health care centers and chemist shops, whereas in other zones the traditional healer comes second or lower. Yet, the proportion of households with an annual income under N25,000 was (at the time of the survey in question) considerably smaller in the dry savannah zone than elsewhere.⁴⁴ Problems of access to facilities, and of cultural practices and attitudes, are therefore also likely to be of some significance in certain types of health care contexts.

D4. The Effect on Household Members

The links shown in Figure 12 suggest that orphans and other vulnerable children may come from a wide variety of backgrounds and that their own gender needs will perhaps have been influenced by those of their parents, depending upon who died (or otherwise left the family) first. It is not possible in a report of this nature to explore all such combinations, and the absence of

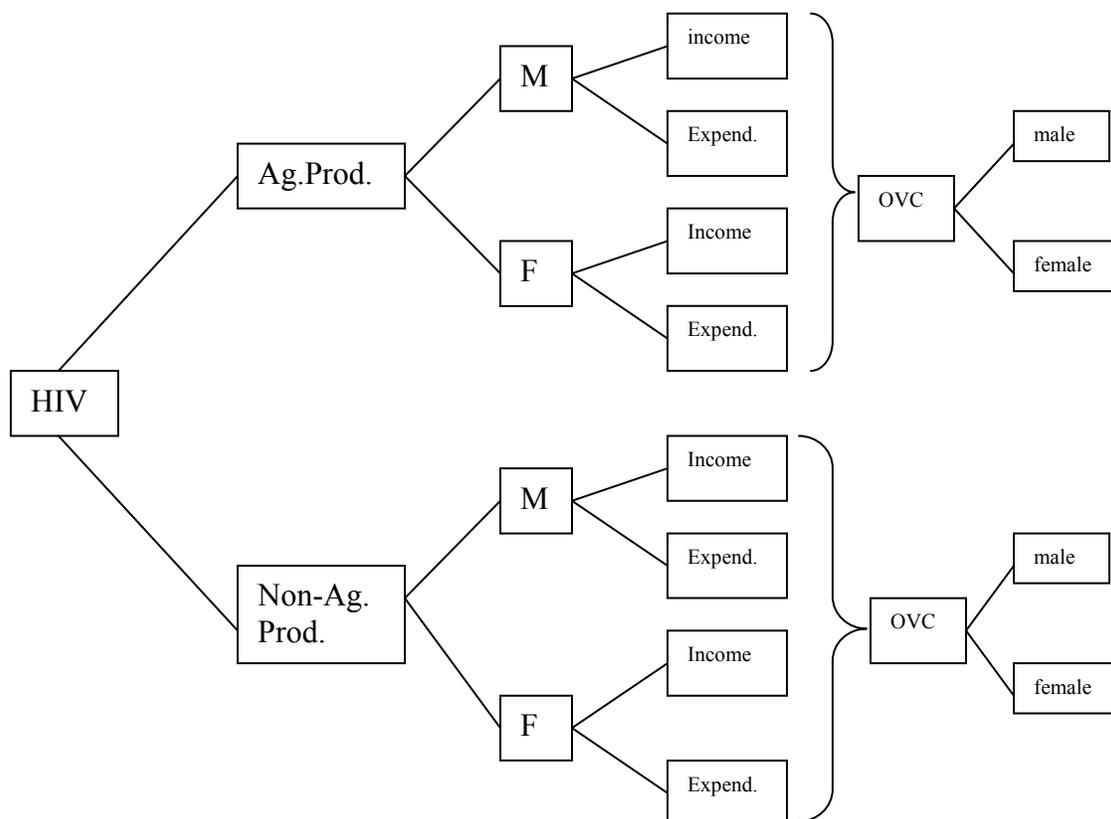
⁴² Ajala, A.O. & Babatimehin, Oye, "Impact of HIV/AIDS on the Household" in Ajakaiye & Odumosu (op.cit)

⁴³ KIT, *Impact of AIDS in Benue State: Implications for Rural Livelihoods*, Draft Report, June 2003:51

⁴⁴ Food Consumption and Nutrition Survey 2001: Tables 34, 37, Figure 13

data would severely limit any attempt to do so. The discussion which follows, therefore, on gender and on orphans, is selective in what has been possible to cover, but the reader should bear in mind, from the chart in this Figure, that a number of variations are possible, each capable of creating its own pattern of need.

Figure 12. Networks linking HIV/AIDS to OVCs



D4a. Gender Impact: Roles, Power, and Culture

We have already noted that in Enugu state as much as 68 percent of the agricultural labor force consists of women, and where this includes care of household garden produce and small livestock the figure may be representative of the country as whole. Although this type of observation is made frequently its implications do not always enter into policy making and subsequent program planning to the degree that they merit and in the case of HIV/AIDS the omission would be to severely distort our understanding of the impact and consequences of the disease and of how it spreads.

We should note that although women may provide the greater input to agricultural labor, in both numbers and time, their returns from the fruits of this labor are likely to be disproportionately low. Recent evidence shows that although between 26.9 percent and 69.1 percent (depending upon agroecological zone) of women had a family tradition of food sharing, all felt that it limited their choice, and in times of shortages it was the woman in over 70 percent of cases who took the least share of food.⁴⁵ Such practices contribute towards the high rates of female malnutrition noted in Section 1, particularly those for the northern zones where 79 percent of women took the least share of food in times of shortage. In a context, therefore, where a large proportion of the major part of the labor force are under- or malnourished the ability to resist the progress of the HIV virus when infected by it is severely inhibited, and the progression to AIDS accelerated. We may recall that the prevalence of HIV/AIDS is higher in rural areas of Nigeria and that it is also higher amongst women. The reasons for each observation are unclear, and although it is often adduced that wives are infected by husbands this would not account for imbalance in infection by gender, unless there are many non-resident husbands, husbands being more unfaithful than wives, or simply the demographic impact of earlier deaths amongst men.

The implications, however, are of significant effects on household food production and related levels of nutrition. Although few figures are available on this situation it is one which was frequently mentioned in our interviews with UN personnel, with international and local NGOs, and with PLWHA. Thus one member of a faith based coordinating group in Jos was clear that the effect on women and children is getting worse, and from another that in many rural parishes women are the main farmers by default, through the death of their husbands, and that petty trading by women has consequently suffered. Another member, representing local PLWHA believed that 50 percent of males in all households have HIV/AIDS or an STD, and added that 90 percent of their membership consists of widows.⁴⁶

The period of sickness in a household often begins with that of the husband, calling for his labor to be replaced by that of other household members, including children. To this is added the time spent in caring for him and expense in paying for treatment (usually from several sources). All this further weakens the strength and energies of wives and other family members, rendering them increasingly vulnerable to the ravages of malaria and other opportunistic illnesses. (A related factor is that it is often the men rather than women or children who will use a mosquito net if there is one in the household). In due course the husband (in most cases classed as household head) will die, and it is at this point that the household and its immediate nucleated family unit comes under greatest threat. In many parts of Nigeria, on the death of a husband the widow and children are often taken under the wing of the husband's extended family and while this usually ensures their survival it does not allow them any independent power or control over productive assets such as land entitlement. In many parts of the country the widow in effect becomes another wife of one of her deceased husband's brothers, though this practice appears to be dying out. In many cases, however, the children stay with the husband's family and the woman must return to her own family, and practices vary across the country. It is common, nevertheless, throughout Nigeria, for a woman to have no immediate inheritance rights to land, though her sons may inherit through her in certain cases.

⁴⁵ FGN, *Food Consumption and Nutrition Survey 2001*; Table 44

⁴⁶ Field notes, June 2003

Where the widow is believed to be infected with HIV and to have AIDS, however, the extended family of her husband may refuse to take responsibility for her, and such rejection was believed to be frequent by many of our interviewees. Even within the same blood relationship there can be problems, as one focus group discussant observed in Lagos “my uncle even ran away when my sister had the disease”.⁴⁷ Stigma is not the only factor; there may also be understandable economic reasons for a reluctance to support the remaining members of the household. There may well have been a prior and prolonged period when the husband’s relatives were called upon to support him and his family during the later parts of his sickness, and they may then feel that their obligations were completed when he died. There is also an older custom that in the case of a wife’s illness she is expected to return to her own family.⁴⁸ Even where she is taken in by her husband’s family, if there is an association with HIV/AIDS (whether in fact true or not) she and her children are often likely to be treated less favorably than other members of the extended family, which of course increases their tendency to morbidity and reinforces the prejudice against them. The key point is that, in the absence of any independent rights to land or other assets of her deceased husband, a widow, particularly in rural areas, is usually at the mercy of her relatives on either side. Female vulnerability in this sense is illustrated by the situation in Benue State where about 51 percent of males own their land compared with only 14 percent of females.⁴⁹

In Kano State and most of northern Nigeria inheritance practices are based on Islamic law, whereby a male child, being de facto head of the family on the death of his father, inherits double the amount of any pecuniary assets than females. Practice may not conform to the intent of the law, however, as one observant noted:

“... if there are smaller children, some of their elder brothers or even uncles will collect these children’s share with the promise of keeping it for them till they are of age. But in the end such children end up with nothing” (FHI Kano State OVC Situation Analysis 2001: 24)

The Islamic system also specifies how a widow should behave during the period immediately following her husband’s death. A mourning period of four months and ten days is stipulated, during which she may not leave the house. Clearly this severely restricts the amount of productive work that a widow can perform, though in a normal situation the relatives of the extended family would be around for support and assistance, and in helping her to get on her feet again after the mourning period. Where such support is not present, however, possibly because of fear of AIDS or stigma, the widow is forced to break her withdrawal period and engage in field work or trading, which one imagines would only reinforce the prejudice against her.

Although the extent of Islamic law is wider amongst northern peoples there are of course substantial Islamic communities further south and in the central belt of the country. In Lagos

⁴⁷ HIV/AIDS In-Depth Assessment for Lagos, Family Health International, 2001

⁴⁸ KIT, DFID Planning Mission of the Impact Assessment Study of HIV/AIDS on Rural Livelihoods in Benue State, Nigeria, (Draft Report) May 2002: Annex 6

⁴⁹ CWIQ Benue State Main Report, FOS Abuja, 2001: p.18

State people from a great variety of cultural practices have congregated, but variations in the gender aspects of inheritance rights tend to be minor. As the FHI OVC Survey for Ajeromi/Ifelodun and Lagos Mainland LGAs reports:

“The sharing of property is usually supervised by members of the deceased man’s (husband’s) family. In many situations, wives are denied any access to any part of their husband’s property as they are often accused of being responsible for the death of their deceased husband. Under this pretext they may be chased out of the house without any share of the property which may then be shared among members of the husband’s families. This is even more likely to be the experience of women who did not have any children for their deceased husbands, or in some cases, wives who did not have any male child for their deceased husbands. Young wives are also more likely to suffer this deprivation.” (FHI Lagos State OVC Situation Analysis, 2001:26)

In both the period of her husband’s illness and in response to the deprivations of widowhood many women and their daughters drift into commercial sex, in which they are either exposed to HIV if they do not have it already or in which they transfer the infection to clients. The various FHI In-Depth Assessments of the HIV/AIDS situation paints a vivid and depressing picture of life in the markets and transport stops of many towns across the country. As one of their key informants reported, “There is a lot of poverty among the women; (payment) could be as low as someone just buying food for the woman”, and the phrase ‘petty prostitution’ is coined to describe the situation.⁵⁰ Our own interviews with the Benue network of PLWHA found unanimous agreement with the observation by one member that their major problem is poverty and finance. This being so, and transactional sex (as opposed to commercial sex work) being so prevalent, nutritional security for women and their children particularly where they have no male partner, must be seen as an important component in any prevention strategy. Food, income and assets give women the ability to make choices and to negotiate their sexuality. Poverty exposes women to infection. Thus it is most important to see food security as one element in a strategy of social protection and HIV prevention.

The entire downward moral and physical spiral on which such women are forced to embark takes place in an environment in which their alternative income earning opportunities are limited by a lack of education. In Enugu state, for instance, literacy rates amongst women are around 66 percent compared with 80 percent for men (Francis and Nweze 2003), while the enrolment rate at primary school in 1997 consisted of 51.4 percent boys and 48.6 percent girls.⁵¹ The latter compares favorably with the national picture in which 43.5 percent of primary enrollment was female, and with Kano where girls comprised 38.3 percent of enrollment. Such differences reflect a complex combination of economic necessity in different agroecological zones and historical cultural practices which become deeply entrenched. These are also the reasons why girls are more likely to be withdrawn from school in times of severe food insecurity.⁵² Once again the dry savannah zones in the north of the country stand out, with almost 65 percent of respondents indicating priority for the education of boys when resources are limited. A by-

⁵⁰ Taraba State In-Depth Assessment 2001

⁵¹ Francis, P. and Nweze, N., *Poverty in Enugu State, Nigeria*, June 2003

⁵² FGN, *Food Consumption and Nutrition Survey 2001*: implied in Table 45

product of illiteracy and poor education is a lack of awareness of elementary hygiene which accounts in part for the observation in same Food Consumption Survey that over 26 percent of households used open garbage, had unwashed utensils and stagnant water around their houses, hence creating a threatening environment to vulnerable infants and children.

D4b. Orphans

Although the data are weak there is a widespread impression amongst many community activists that the number of orphans in Nigerian society is rapidly increasing. In a sample of 508 households in Benue State in 2002 it was found that 34 percent of the total were looking after either maternal, paternal or double orphans, while the figure rose to 58 percent in households that had experienced chronic illness and death. Most, 89 percent, were one parent orphans where three-quarters of these had experienced the death of the father.⁵³ Nationally, there were estimated to be some 700,000 AIDS related orphans under ten years old in 1999, and a cumulative total of 2.5 million anticipated by 2010. It is a phenomenon of potentially great social concern.

In many cases, even where one parent is still alive, the continued care of children becomes impossible in the family home and they are frequently passed over to other members of the extended family, who, as with widows, are aware of a traditional obligation to take such children in. This comes especially from the father's family where it is more certain to happen in the case of maternal orphans. There was a widespread sense amongst people whom we interviewed that both pure orphans and paternal orphans were commonly given inferior status within the adoptive household, particularly, if there is believed to be a link with HIV/AIDS. Many PLWHA consider it unfortunate and unnecessary to separate children whose parents died of AIDS from other orphans because of stigma. As one PLWHA declared:

“the community stigmatizes them and looks at them with pity and sometimes indifference” (FHI, Lagos OVC Situation Analysis, December 2001).

Another referred to a couple who

“died and left a baby who had AIDS; even relatives would not take the baby. Even to sell their house was struggle. People think that you can get the disease through the latrine” (FHI Kano State OVC Situation Analysis, 2001:24)

In Benue the network of organizations of PLWHA does what it can to support orphans from AIDS afflicted households, giving food about three times a month (though they do not receive food donations from any agency). The problem is, however, widely perceived to be increasing, as evidenced in a series of surveys during 2001 on orphan incidence by FHI in which 60 percent of caregivers across the country observed an increase in the number of orphans during the period preceding the survey, and around 45 percent observed an increase in the number of families caring for orphans.⁵⁴ In the same survey the majority of orphans investigated (60 percent) were paternal orphans, with 22.6 percent having lost both parents. A sense of the general feeling is clear in the following statement from a focus group discussion:

⁵³ KIT, *Impact of AIDS in Benue State: Implications for Rural Livelihoods*, Draft Report, June 2003

⁵⁴ FHI, unpublished summary tables

“The number of orphans has greatly increased ... life expectancy has reduced from 60 to 40 years, there is a lot of diseases, increase in accident, natural disaster, wars, AIDS and harsh economic conditions. These factors cause more people to die than before leaving their children thus creating more orphans ... Although there are no statistics to back these observation, the increase is not hidden, it is clearly seen” (FHI Taraba State, 2001).

Another observed that:

“I begin by saying first that every child is in need in this community, because the people are generally poor. They face difficulty in getting feeding, education, medical care, clothing, proper parental care and shelter. Here the orphans and all other children are in need, the only difference is that the orphans are worst hit by this difficulty” (FHI Taraba State, 2001)

Despite this, orphan children are often better off than the widow in as much as in principal they can inherit any property or land rights of their father through his family. Likewise, as one observer noted in Taraba State:

“The children being property to be inherited, if many, are shared among the extended family members. Other properties of the deceased are shared among his surviving brothers and grown up children, usually the first son. The females are usually not considered in the inheritance process” (FHI Taraba State, 2001)

A summary of the data collected from household heads in all six of the regions studied in this project identified the first three priority needs of both orphans and other vulnerable children (OVC) as educational, health and medical, and nutritional in that order. The second and third are clearly closely related.

Lest the reader gets a false impression of the Nigerian family response to crisis amongst its members it is well to conclude this section more positively. In a focus group attitude towards AIDS orphans in Kano State the following observations were made by young people in their twenties:

“We don't maltreat the orphan of children whose parents died of AIDS.”

“We even assist them with whatever they need because their parents' death should not affect them in any way.”

“The orphan is primarily taken care of by the mother or maternal relations. If the mother or maternal relations are unable to give care, then the relations of the father will undertake care giving. This applies to all Muslims in this community.” (OVC Situation Analysis Taraba State, 2001)

It is interesting, however, and an indication of the complexity of the situation, to note from the third quotation here the Islamic understanding, common in most patrilineal societies, that an

orphan is a child who has lost his or her father. It must also be noted that in spite of the widespread fear of HIV/AIDS there are NGOs which have been involved in the care of PLWHA and orphans for a number of years, including Living Hope Care, Bethel Clinic, Muslim Sisters Organization (Kano) and the Society of Women Against AIDS in Nigeria (SWAAN)⁵⁵. Some of these focus on home-based care for PLWHA, some on prevention, and some on all aspects. They provide specific support for orphans included clothing, counseling, food, drugs, free medical care and support in education. How widespread such support is across the country is impossible to say.

D4c. Urban/Rural Dimension: Urban and Non-farm Activities

Although malnutrition has been found to be most prevalent amongst farmers, at over 60 percent experiencing severe food insecurity, it is also high in non-farming occupations such as traders and artisans where over 50 percent suffer from severe food insecurity.⁵⁶ The latter may, of course, be rural or urban based, and it is clear that in both types of environment the presence of chronic adult illness will impinge significantly on income generation. It may in fact be worse for traders and artisans in rural areas if the higher rates of seroprevalence in these areas mean a reduction in value of marketable activities by farmers, including expenditure on implements and small tools, cooking pots, clothing repairs, soap and so on, especially if (though this has not been studied) the number of new households is exceeded by the break-up of old ones as a consequence of HIV/AIDS.

In the more formal urban areas the drain on commercial and industrial productivity, on profits and hence general business prosperity, caused by recurrent long-term sickness, introduces additional problems to those of the individual employee and his or her household. That is, repeated and increasing absenteeism due to sickness or to attend funerals, together with the loss in due course of many key personnel, is becoming a problem to which more businesses are having to pay attention.

In a 2001 study of 230 businesses in the formal sector it was found that of all those employees who had died or retired on medical ground in the previous year, about 36 percent had been for HIV/AIDS related reasons (The Implications of HIV/AIDS for Nigerian Manufacturing Firms, Center for International Health, Boston University, primary author: Sydney Rosen). To keep the matter in context, the authors also pointed out that this constituted less than 2 percent of all departures from the sample workforce in that year.⁵⁷ On the other hand, it should be remembered that these figures will related to employees who probably contracted HIV some seven or eight years previously, say between 1990 and 1994 at a time when the national prevalence rate was calculated to be around 2 percent. The figures cannot be indicative of the total proportion of the current workforce who are HIV+. A number of the larger businesses have company clinics and amongst these the most common health were complaints were associated with malaria and chronic pain, followed by respiratory infections, diarrhea, typhoid, injuries and hypertension.

⁵⁵ USAID, *AIDS Orphans in Nigeria: A Rapid Assessment Survey*, 1999

⁵⁶ FGN, *Food Consumption and Nutrition Survey 2001*: Figure 18

⁵⁷ *The Implications of HIV/AIDS for Nigerian Manufacturing Firms*, Center for International Health, Boston University (Primary Author: Sydney Rosen), 2001

The major AIDS related opportunistic diseases such as TB or pneumonia were seldom mentioned.

The message from this survey of larger companies is therefore somewhat mixed, though the results may be biased downwards as a result of discriminatory recruitment practices against anyone who “appears weak or thin”, and by the tendency of employees to hide their HIV status or any suspected symptoms. The report concludes that “it is very likely that Nigerian workforces include many more HIV positive employees than company managers believe”. An interesting side effect of departures from death or medical reasons was that in 60 percent of cases the departing employee was not replaced, thus suggesting that firms were using the occasion as an opportunity for downsizing. The implications of this for our own study are that the loss of income to the household of the person who leaves through sickness or death is not generally compensated by the recruitment of another individual, perhaps previously unemployed, who would then be in a position to support his or her own family. There is, in other words a net loss of income to the households of wage earners. That this response by business has significant indirect effects is evident in the recent DFID study of Benue state in which it was observed that some 60 percent of households afflicted by HIV/AIDS had been in receipt of remittances from urban based relatives which had stopped when the relative returned to the rural household⁵⁸.

The median annual salary of casual production workers surveyed in the formal sector was N48,000. This allows a weekly income of N923, which for a household of 5.5 gives N167.82 per person per week (or less than \$2). In the vast informal sector of an urban metropolis like Lagos there will be thousands attempting to survive on considerably less than this. It is from all such people that many rural households depend for their irregular remittances. The loss of employees in the formal sector will therefore have dispersed but no less real effects on this informal sector. Although it may be spread so widely in a large urban conglomeration as to be unnoticed at the macro-level, it will impinge widely at small but critical levels throughout the country. A further indirect effect lies with those urban dwellers who maintain some form of agricultural production activity either in their home rural area or in nearby peri-urban areas. In such cases the incidence of HIV infection will add to the decline in food production and availability.

E. Nutrition Care and Support Needs of PLWHA and Affected Households

E1. Nutritional Deficiencies and Requirements

In order to appreciate the magnitude of the task in Nigeria, where so many are already undernourished and malnourished even before the onslaught of the HIV virus on their bodily system, Box 2 summarizes in a more general sense the nutritional requirements in the form of daily energy and protein needs, beginning with a mean requirement of 2070 kcal for an adult.

⁵⁸ KIT, *Impact of AIDS in Benue State* (op.cit)

Box 2. Daily Energy and Protein Requirements

	Energy (kcal/day)	Protein (g/day)
<u>Mean Requirement for Adults</u>	2070	
Plus Adjustment for Activity Level		
Moderate: Males	360	57
Females	100	48
Heavy: Males	850	57
Females	330	48
Pregnancy	285	55
Lactation	500	68
HIV Infected Adults	Increase of 10-15 percent	Increase of 50-100 percent
<u>Mean Requirement for Children</u>		
0-24 months	404-1092	12
1-10 years	1250-1880	23-38
Boys: 10-18 years	2170-2820	50-84
Girls: 10-18 years	1925-2150	52-66
Source: USAID, 2001		

Thus, in order to effectively fight and delay the process of transformation from being HIV positive to the onset of AIDS an infected adult is estimated to require an additional 10-15 per cent of energy intake per day plus 50 to 100 percent additional protein, compared with that normally required for an adult who is not HIV positive. This is based on mean daily requirement for healthy adults of 2070 kcal/day if engaged in light activities, implying therefore a supplement in the case of HIV infected persons of 207-310 kcal per day and 40-80 grams per day of protein. In the case of pregnant women these figures increase by virtually the same amount again. Thus, a moderately active female who is pregnant and HIV positive would require some 2823 kcal per day (2070+100+285+368; the last figure being 15 percent of the sum of the first three). A male involved in arduous activity, such as ploughing or sea fishing would require an additional 850 kcal per day for this, and, were he to be HIV infected, a further 292-438 to fight the progress of the disease, making a total of 3212-3358 kcal per day. These are demanding requirements for a country like Nigeria where average kcal intake in many parts of the country is in normal times considerably lower than the theoretical norm, as we saw in the earlier discussion on Nutrition where high levels of stunting in children and low Body Mass Indices for mothers were seen.

Precise figures on the degree to which a household, particularly a rural farming household, containing an HIV/AIDS infected adult falls below such requirements in Nigeria are absent, but a reasonable order of magnitude can be obtained from experience elsewhere. It has been observed in Zambia, for instance, that in households with a chronically ill household head the gap in cereal requirements per capita is 26 percent higher than for households with healthy households heads.⁵⁹ A chronically ill adult member of the household other than the head creates a gap on average 21 percent greater than the healthy household. Although it is somewhat presumptuous to apply such ratios from one part of a continent to another (and the procedure

⁵⁹ SADC FANR 2003, *Towards Identifying Impacts of HIV/AIDS on Food Security in Southern Africa and Implications for Response*

may be problematic even when applied to neighboring countries) the absence of any similar study in Nigeria (of which we are aware), but where there are similarities in scale and range of cereal crops grown, allows us to take a figure in this range as a likely measure of the same effects in Nigeria. If it assumed at present that the healthy peasant household in a good year is able to meet its minimum survival levels, and taking the mid point of 23 percent of the above range, we may surmise that households feeling the effects of AIDS in the form of chronic sickness of at least one adult will experience a fall in cereal production of around 23 percent. If cereals are the principal source of calories then this implies a similar fall in household per capita kcal intake. The figure may be expected to alter slightly when roots and tubers are a significant alternative but for the moment it may be taken as a reasonable benchmark for the following type of calculation.

The figures in Box 2 indicate that an HIV-infected adult requires 10-15 percent additional kcal in order to fight the disease effectively. By combining the top of this range, i.e. 15 percent, with the cereal gap outlined in the preceding paragraph of 23 percent we are left with a deficiency in the HIV-infected adult in Nigeria of 38 percent kcal per day. For the adult male with HIV mentioned above who has an estimated total requirement of 3358 kcal per day this implies a shortfall of 1276 kcal per day, which would be found in about 380 gms of wheat flour, for example, or 350 gms of cornmeal.⁶⁰ On a weekly basis these figures translate to 2.66 kg of wheat flour (or 138.32 kg p.a) and 2.45 kg of cornflour (or 127.20 kg p.a.).

Of course, these calculations on calorie requirements do not guarantee that protein needs will be met, which for an adult male involved in heavy labor who also has HIV amount to 100 gms per day (normal 57 gms plus say 75 percent of this to combat HIV). If it also assumed that protein production on the farm falls by the same 23 percent as calorie production this adds a further shortfall of 13.11 gms (23 percent of 57). The extra protein required in total for such an HIV positive male is therefore 55.86 gms per day (75 percent of 57, plus 13.11). Now the protein content of 350 gms of cornmeal, which was calculated to satisfy the calorie deficiency is only 29.75 gms, leaving a shortfall of 26.11 gms of protein. This would be satisfied approximately by an additional 100 gms of pulses such as lentils or peas. Alternatively, 341 gms of corn/soy blend would meet both calorie and protein daily deficiencies.

That these figures are for many people unattainable was evident from discussions which the team had with CBOs and PLWHA in Makurdi and Jos where it was repeatedly stressed that food was the primary need of most people in rural areas, even to the extent that the deficiency affected their ability to benefit from whatever medicines were available. In our meetings in Jos there was unanimous agreement that HIV/AIDS was having a severe effect on food production in all three sub-states (thus supporting the comparison with Zambia mentioned above).

On the other hand, it also became evident that amongst PLWHA there was a strongly felt need for more advice and information on their nutritional needs and how they could make adjustments to their diet, even within their existing means, to improve on their present situation. Amongst those, and amongst CBOs working in this area there was also almost universal feeling that the current services of PDAs in agricultural extension were irrelevant to their needs and that any

⁶⁰ USAID *HIV/AIDS: A Guide for Nutrition, Care and Support*, July 2001:Table 6

attempt to approach the extension services for advice on nutritional combinations of crops would be pointless.

E2. Support Needs for Individual and Household

E2a. Support Needs for the Individual

It is clear from the previous sub-section that for the individual infected by HIV/AIDS the restoration of desirable nutrition levels is a priority need. How it may be addressed is discussed below, but it is only one of a number of areas of need which may be listed as follows.

- Psychological and practical counseling. On first learning that they are HIV positive the infected individual needs sound, and perhaps on-going psychological support to assist them in coming to terms with what it means for their future, and to enable them to maintain a positive view. This means that all health professionals need to be fully educated and trained not only in the clinical aspects of the disease but also in an awareness of how it affects the victim mentally and socially. This will also go a long way to reduce stigma in the community if professionals are seen to be objective and supportive of infected people. The same applies to the NGO/CBO sector, and in particular in the faith based groups, whether Christian or Moslem, amongst whom pastors and their spouses, and imams and womens' groups, should have basic training or learning in simple sympathetic counseling.
- A number of the informants amongst PLWHA expressed a need to know more about their nutritional requirements and of different ways of meeting them. There is clearly a gap to be filled here, perhaps by the Ministries of Health and Agriculture working more closely together on developing simple alternatives, and propagating them amongst the households and associations of PLWHA.
- A related issue is in the usefulness of anti-HIV drugs. Many PLWHA remain ignorant of the relative values of a balanced, highly nutritive diet on the one hand, accompanied by psychological well-being, and putting one's hope entirely on ARVs on the other. This is especially important when the high cost of accessing ARV treatment puts it out of reach of so many people, thus intensifying their feelings of rejection and hopelessness.
- Reassurance about the future of their children is a recurring concern amongst PLWHA in other surveys and in our own discussions. Concern about their care and support perhaps in alien surroundings, and with the knowledge (coming from their own experience) of the pervasive and damaging effects of prejudice and stigma is high amongst many PLWHA.
- In all of these areas the support at many levels which is provided by peer group victims is important. The knowledge that one is listened to by another who has gone through the same experience provides emotional security which cannot be matched by the non-affected professional or church volunteer. Thus support by the community and the state of associations of PLWHA is crucial.
- The various points above assume the PLWHA is an adult. However, the care needs of children who are HIV+ at birth are a significant group, and affect 25-40 percent of births by infected mothers. Their needs are mentioned in the discussions below on caregivers and orphans.

E2b. Support Needs of Households and PABAs

One cannot generalize in this area as the impact of having an HIV infected adult in a household is different for different household members and over time. The three most important categories are caregivers, widows, and children. During the period of illness and death a given individual may find themselves in more than one of these roles; thus a child may be a minor care-giver, then a major caregivers, and a major care-giver is likely in due course to become a widow. As the needs in each case are different they are discussed separately.

Caregivers

- It is not only the PLWHA who has a need for information and education about nutritional needs and alternative ways of meeting at least some of them. The caregivers are often the only remaining person responsible for growing and purchasing food produce, and for its preparation and cooking.
- Enumerators in the 2001 Household Expenditure Survey observed many instances of poor domestic hygiene. Caregivers need to be better informed about how this encourages diarrheal infection, particularly amongst children. As we also observed in the opening Section of this report some 30 percent of infant mortality is caused by malaria. Caregivers need to be fully aware of the link between malaria and transmission by mosquito, of the combined impact on a young body of both malaria and HIV, and of the importance of a clean environment as well as appropriate nutrition for the child's survival.
- A care-giver also needs support in understanding the psychological state of the infected person and in his or her own needs in watching that person slowly waste away and eventually die.
- Two categories of caregivers need significant support: these are young teenage girls caring for a surviving parent, who may well be looking after younger siblings too, and a husband caring for his wife (assuming a monogamous relationship). The latter may seem a strange category for support, but the combined impact of stigma in the community and entrenched cultural practices which do not prepare a man for such roles may easily endanger the cohesion of that household, to the further detriment of its children.

Widows

On the death of a husband who was suspected, or known, to have been suffering from HIV/AIDS, the widow is in great danger of social isolation and she and the surviving children become highly vulnerable to economic deprivation, for reasons that were laid out earlier. Support to hold the family together is therefore needed and must come from statutory services as much as from relatives or CBOs. Support needs take the following forms:

- As with for all other individuals infected or affected by HIV/AIDS improved awareness and removal of stigma from society at large must be an on-going activity, in order that the potential support from all sections of society can be maximized. In particular, the obligations of the extended family to ensure that she continues to have

land to work and that she is given the respect that would be traditionally expected is maintained.

- Income generation support. In a farming household the widow will either require supplementary labor at particular times of year or she will need assistance in maximizing the returns from less labor intensive crops. That is, she requires social and institutional help rather than medical (unless she herself has acquired HIV from her husband). If farming was not the household's principal economic activity, or if it has ceased to be so, then she may need support in improving her skills in other areas, including money management and record keeping, to encourage new areas of income generation. If a micro-credit scheme is in operation in her neighborhood she should be empowered to have the confidence to use it.

Orphans

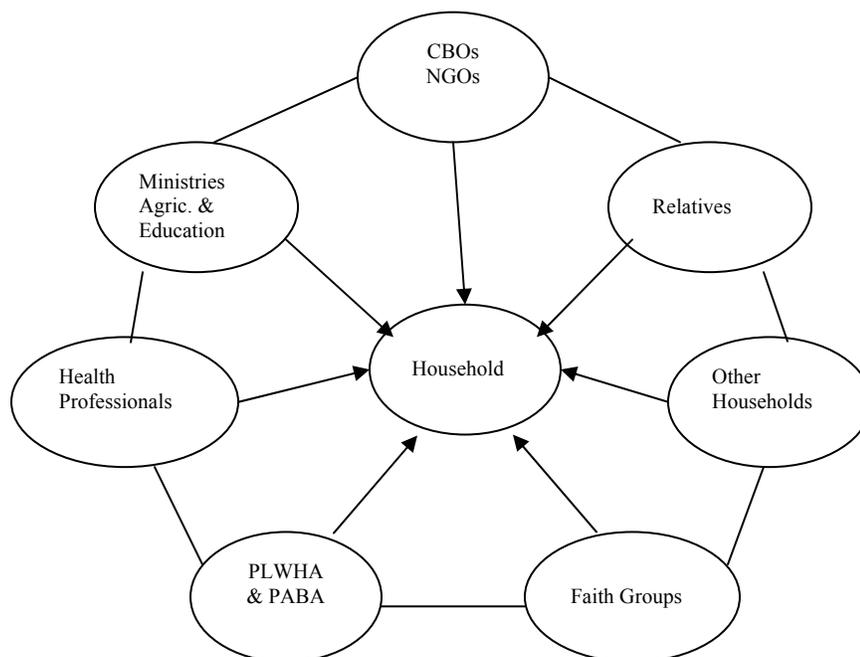
As we observed earlier the term 'orphan' includes children who have lost one or both parents. The variety of support that they need is as wide as the circumstances in which they find themselves. What must remain at the forefront of all policy in this area is the vulnerability of such children. Their needs encompass the following:

- Nutritional support and on-going food security. This may depend upon the income levels of the surviving parent, perhaps a widow, or grandparents. Where the orphan is taken in by the family of a relative with similar aged children then equal access to household resources should somehow be ensured.
- Educational needs. Support either for the immediate surviving family or for the host family of one or more orphans in economic terms will help to ensure that the education of school age orphans is uninterrupted. Help for school uniforms, books, writing materials may also be needed.
- For female orphans particular protection is needed, not only to prevent sexual abuse but also to ensure that they do not carry an undue labor burden in their own or host household. This is particularly the case where a young teenage girl becomes head of household on the death of both parents. All such children need a protective wall around their vulnerability, a wall which in Nigeria's circumstances at present must depend largely upon an educated community.

In addition to these groups there are also lone grandmothers who are often responsible for quite large numbers of inherited orphans, and whose needs parallel those of widows, with the added complication that their own health may be failing as they age.

The ideal situation is one which may be summarized in Figure 13, in which the various groups and organizations providing support of different kinds are in touch with each other, become aware of deficiencies in coverage, and cooperate in programming, planning and advocacy. This thus implies considerable capacity building support.

Figure 13. The Potential Protective Shield Support for Households Affected by HIV/AIDS



F. Feasibility of Direct Food Distribution to PLWHA

“The biggest challenge for food assisted interventions is to provide food to meet needs but also to program interventions so that family members and communities are left with a means to improve their food and nutrition security after the food assistance stops”
(Gillespie, Haddad & Jackson 2001)

From our discussions with national and international NGOs, local CBOs, and PLWHA, there was no doubt that adequate availability of food was a recurring and pressing need. The responses as to how this effectively might be met by direct distribution of food to PLWHA were more varied however. Nationally based and international NGOs were more conscious of potential logistical problems regarding delivery and stressed sustainability, disincentive, and dependency effects, while zonal CBOs and associations of PLWHA were more immediately optimistic about the effectiveness of existing channels and organizations for this purpose. The difference was, it must be said, a matter of degree more than of substance as the local groups were also strongly aware of the need in the longer term to be independent of food donations. Principal problems which were mentioned were as follows:

- 1) **The problem of disincentives:** clearly the introduction of additional, free supplies of food to a local area has the potential to undermine local prices. This not only threatens the livelihoods of those farmers who still produce for the market, but also the income of merchants and traders dealing with the same or substitutable produce. One solution suggested was to monetize the food aid (assuming it was to come from abroad) in the international market where the disincentive effect would be widely dissipated, and the revenue so obtained to be used for direct distribution to PLWHA. An alternative would be to purchase food within the country for distribution to PLWHA. This would, of course, put additional strain on existing supplies and hence push prices of local produce upwards, thus creating the classic situation whereby farmers may respond by producing more while the poorest non-farming consumers, and non-beneficiaries of the food distribution, suffer from reduced purchasing power.
- 2) **The problem of dependency:** although there is a widespread and desperate immediate need in many households for additional food this should not be identified with, or allowed to disguise, the more fundamental problems of long term food security. It was frequently stated that any food distribution scheme should be part of a larger program to facilitate the spread of income generating activities for those living with or affected by HIV/AIDS.
- 3) **Identification of recipients:** at present there is a problem in knowing who has HIV/AIDS and how many people have HIV/AIDS in a given community. Because of the very high stigma attached to the disease few people are either prepared to be tested or to 'come out' as being HIV positive. It is conceivable that the existence of a relief scheme directed solely at PLWHA would persuade more to do so, but there would still remain many, including children, who would remain excluded. An alternative would be to direct the food to all households which are identified as severely food insecure. As a number of our informants declared, the main problem is one of poverty, to which HIV is for many only one more dimension. Although this route would be more costly it would ensure that all HIV/AIDS cases were covered and that significant externalities to the benefit of other poor households were present also.
- 4) **Channels of distribution:** Nigeria has had virtually no experience of large scale programs of non-market food distribution. For specific emergencies the Red Cross has had some involvement in the past and a number of church groups have effective local schemes around the country. As we discussed in Section 3 there are significant problems of disconnected institutional arrangements for addressing the HIV/AIDS pandemic at the government level which are still in the early stages of being effectively addressed. One consequence of this is that much of the officially sponsored coordinating activity, whether through NACA and the various SACAs or through the National Food Security Program, retain the momentum of historically top-down governance and have not yet be rendered meaningful at the grass roots level. On the other hand, we became aware of considerable collaborative activity at the local level amongst community based organizations, certain official international aid programs and a number of international NGOs. In broad terms, therefore, the networks that are evolving in civil society may, at

least in principle, offer a basis for the distribution of food and may also have the knowledge at the local level to identify the needs of those families that are eligible.

- 5) **Pride:** several commentators felt that many people would be too proud to accept charity, especially if it came from non-Nigerian sources. Much would perhaps depend on how the donations were presented, and their context. They should not be seen as intensifying stigma, or as in some way associated with people who have brought their own downfall. A context in which the spread of HIV/AIDS is regarded as the consequence of the social conditions in which individuals find themselves may help to overcome this problem.
- 6) **PLWHA capabilities:** it may be thought that channeling food assistance through associations of people living with HIV/AIDS would ensure that the correct target population is met. However, at the present time these associations include only a small number of potential members in most areas of the country, most are very small, with few resources and are organizationally unsophisticated. Considerable capacity building would be required before they could be used as channels for the distribution of food. On the other hand, such associations could usefully work as members of local coalitions of other CBOs such as church groups (a number of which already run local food distribution schemes) to coordinate an assistance program for PLWHA. Indeed their incorporation would be essential to their own self-esteem in being part of the decision-making process, and would help to break down the widespread levels of stigma. Such coalitions would, nevertheless, still have to be linked in to a distribution structure which extended beyond their own locality, and would again benefit from capacity building advice and support. A decentralized structure at local level which was not well coordinated would also have to be alert against potential recipients claiming from more than one organization.
- 7) **Resentment from non-HIV/AIDS poor households:** in the absence of similar schemes to help other classes of poor households the presence throughout the country of a network of food distribution channels solely for PLWHA is likely to cause resentment by these other groups and to widen the barriers caused by stigma. Thus, while a successful scheme may ameliorate immediate problems of household food security amongst PLWHA and close relatives there may be a negative trade-off in social and psychological terms which would render all the more difficult any parallel attempts to seek employment or engage in locally based income generation.
- 8) **Fear of corruption and potential lack of effective accountability:** There is a clear danger that any nationally based network of food distribution which does not have its own storage and transport provision will, especially in a country as large and diversified as Nigeria, expose itself to exploitation and abuse by traders. This is perhaps a particular danger in Nigeria where there has been no record of nation-wide distribution of relief food and hence little experience to guide its implementation.

In the quotation which opened this subsection the need for a correct balance between relief of present urgent food needs and provision of future sustainability of the target communities was stressed. The same authors identify a number of programming principles which help to keep such concerns to the forefront and are summarized in Box 3.

Box 3. Food Assistance for PLWHA: Core Principles

- There must be a clear need for food amongst recipient families and communities.
- Food should only be provided as part of a larger “package” of assistance, including information, education and awareness components.
- Food should be combined with relevant training or income generating activities, perhaps including micro-credit, to build self-sufficiency.
- Close consultation with affected communities is more likely to guarantee effective targeting and delivery.
- Close consultation also ensures the appropriateness of the type of food and its preparation requirements.
- To avoid stigma other food insecure households should also be included, even where there is no visible HIV/AIDS impact. This makes economic as well as social sense because as the epidemic progresses, more and more people in a community experience impoverishment as the epidemic affects everyone directly or indirectly.

Based on Gillespie, Haddad & Jackson 2001

It has been pointed out that many food assistance programs in the past have been targeted at communities within well defined and specific geographic zones, such as drought, flood or earthquake areas. In the case of HIV/AIDS, although there is likely to be link with poverty, the prevalence, as we have seen in Nigeria, is more likely to be scattered throughout the country, thus necessitating more complex and widely spread communications channels. Any such program will therefore have to be adequately planned, groundwork prepared, and monitoring systems set in place. As we noted above, the capacity to deliver food assistance at the local level in Nigeria, whether through NGOs, CBOs or LGAs, is weak, and will require considerable input of skills and training of personnel, together with investment in secure and adequate storage facilities. Transportation may also be a problem if private sector vehicles are employed which are poorly maintained, liable to breakdown, and insecure.

Finally, certain indirect effects should be considered. If food assistance to PLWHAs alone persuades significant numbers of others to come forward to be tested then pressures on facilities at clinics would increase. Should this in turn lead to a substantial increase in numbers eligible for assistance then the system should be able to respond at short notice. It also clearly implies the need for careful record keeping, and for recipients to obtain and preserve correct documentation. The question also arises as to how to deal with “affected” households, that is, with households which may have taken in a child from an “infected” household. Not all such children will be orphans yet their need may well be as great, and their host households struggling to survive. In a country where not all births, or even deaths, are registered, proof of parenthood will not always be easy to supply, and the potential for abuse of any system increased accordingly.

If a decision is taken to avoid stigma by distributing food to all poor households, then one possibility is through children at school. This not only provides an incentive to keep children at school but is also self-policing as each parent will know what each child should be receiving. The additional cost to the donor of thus broadening the scheme to all households in certain areas, or schools, may well be less than the disappearance of supplies, or attendant cost of monitoring and control, of alternative more specifically targeted schemes. This, of course, assumes that there are children in each infected and affected household, which may not be the case. Many PLWHA may have no children or, because of ostracism or limited resources, may have had their children fostered or adopted, or they are the partner to a divorce who lost custody of the children. A school based system would not, therefore, provide universal coverage of PLWHAs or PABAs. Similarly, although distribution through private and public clinics and primary health centers would ensure that a large proportion of qualified victims of HIV/AIDS were targeted effectively,

including many women and children, many would also be excluded perhaps because of distance to be traveled or the inability to travel.

In conclusion to this section, it is most important to understand the ways that food security and social protection more widely must be seen as part of any effective prevention program as well as a part of mitigation. Poverty is closely allied to the spread of sexually transmitted disease. Relief of poverty assists those affected and prevents infection.

F1. Aggregate Food Needs of HIV/AIDS Afflicted Households: An Estimate

Most of the analysis in this HIV/AIDS component has been directed at the impact of HIV/AIDS at household level. In discussion of the direct provision of food assistance it is also useful to have some estimate of what total volumes are being suggested at the national level. Any calculation, however, is inevitably based upon a number of assumptions, which, in the absence of hard data, must be loosely based. The margin of error in what follows is therefore high, though readers may wish to narrow it to their own satisfaction by making their own assumptions and recalculating.

F1a. Assumptions:

Number of AIDS cases:

Total number of HIV infected at end 2001 estimated to be 3.1 million adults 15-49.

Estimated number of new AIDS cases per annum. (Policy Project)

2000	246,000
2005	483,000

Interpolate for 2003 to get 388,000. Assume also by interpolation 246,000 in 2002 and assume they are still alive. Then, in 2003 there may be a total of 634,000 adults incapacitated by AIDS.

Number of TB cases:

Cases notified in 2001 were 28,865, but this is believed to be only about 15 percent of the total occurring, which implies a total number each year of 192,433. Of those notified, the DOTS programme cures about 37 percent, amounting to 10,680. Subtract this from the total to get 181,753. If these are new untreated cases per year and each untreated case survives for two years then we may guess that in any one year there are double this number of severely incapacitated TB victims each year, amounting to 363,506. To avoid double counting, subtract from this the 17 percent who will have HIV/AIDS (though not all will have AIDS at the same time) to leave 301,710.

Total of AIDS and TB cases

Total number of AIDS and TB cases approximately in 2003 would then be 935,710. Assume no more than one of either per household so that the number of afflicted households would also be 935,710. Let us consider only rural households for the moment, and assuming household size is approximately equal in rural and urban areas, then the proportion of households that are rural would be the same as the proportion of population that is rural, estimated to be 63.7 percent. This provides a total number of rural households of 596,047

F1b. Nutritional Needs of Households with Long-term Adult Sickness:

Turning now to Nutritional Deficiencies and Requirements. We have calculated that adult male with HIV/AIDS requires an additional 1276 calories per day. From the accompanying Box we can estimate that his wife would normally need 2170 cal/day and if pregnant a further 285 cal/day. Say two children between 1 and 10 years old, each requiring 1565 cal/day, and a young teenager requiring 2200 cal/day. The total requirements of wife and children therefore come to 7785 cal/day, but because of the disability of the husband there is a shortfall of 23 percent of this (see text), amounting to 1791 cal/day. Adding this to the husband's needs makes a grand total of 3067 cal/day additional support needed for this household.

Now, 100 gm. of cornmeal supplies 366 calories. Thus the family's shortfall could be supplied by 837.98 gm. of cornmeal per day. Over the length of a year this comes to 305.86 kg. of cornmeal per household per annum.

From the estimates of AIDS and TB cases above we estimated that 596,047 rural households were likely to be in this position. The total food assistance required therefore comes to 182,306 metric tons of cornmeal.

This is for rural households only. If roughly the same needs and assumptions were to apply to urban households then the total would rise to 286,194 tons.

F1c. Forecast

The calculation above is based on households where an adult has already reached the stage where HIV has advanced into AIDS, and would therefore refer to those who were infected some 7-10 years ago when the national seroprevalence rate was around 3.8 percent (1994). In 2001 it was measured as 5.8 percent and may now be around, say 6.0 percent, as a conservative estimate. This would mean that in a further seven or so years time, if nothing else changes, the food needs of HIV/AIDS afflicted households will increase by 57.9 percent. Ignoring non-AIDS TB, this means the total food needs will increase to 398,469 tons by, say, 2010. Were the total number of TB cases (AIDS and non-AIDS related) to be increasing at the same rate the total food required would rise to 451,900 tons per annum.

F1d. Malaria

The impact of malaria is somewhat different as it produces short periods of a week to ten days when the victim is unable to work effectively. This does not have the cumulative impact of unrelieved long-term sickness. Nevertheless, if each adult suffers say two bouts per annum, losing a total of three weeks work, and making a total of six weeks lost to a two-adult household, then the impact may well be of the order of say one month's agricultural output in a rural household.

Now malaria affects all households in the country, which with a total population of 120 million and average household size of 5, implies some 24 million households. Using the same household composition as above the normal daily calorie requirements for a three child, two parent

household (with the husband engaged in heavy labor) come to 10,705. If this were to drop by one twelfth because of malaria the shortfall would be 892 calories per day. Using the same formula as before, but now for 20m households this amounts to some 1.778 million tons of cornmeal.

F1e. Conclusion

The needs generated by HIV/AIDS and TB seem relatively modest in total compared with those caused by malaria, but two caveats should be made. One is that the smaller total disguises the fact that HIV/AIDS is impacting more severely on a smaller number of households than malaria, and the other is that because short ten day sicknesses may be absorbed by other household members or their impact spread over the year, the estimate of a 12 percent decline in household output is likely to be a considerable overestimate, though as pointed out above the additive impact on households already suffering from HIV/AIDS and /or TB will be significant.

Note: These figures are all likely to be over-estimates as they assume a common household set-up of two adults (including pregnant wife) and three children throughout, but they may be regarded as giving a safe order of magnitude.

F2. Antiretrovirals as an Alternative to Food Aid

In this section, we consider the feasibility of providing ARVs as an alternative to or supplement to food assistance. This would be an innovative but potentially most cost beneficial intervention. Further work would need to be done in order to come to more final conclusions. However, what follows provides some indications of what might be possible.

F2a. ARV versus Food Assistance

Cost of ARV. Assuming that generic ARVs could be obtained at a cost of \$300 per person per annum. This converts to about N36,000. In addition to the costs of the medications, we should assume another 25 per cent for delivery and clinical oversight. Thus the total cost per sick person per year would be in the region of \$375 or N45,000.

Cost of Food Assistance. Price of maize grain in 2002 was N40,000 per mt or N40 per kg. We have calculated in the preceding that in a household where a key adult member has AIDS the extra food needs could amount to some 305 kg of maize flour per annum. If we assume that each kg of maize flour requires 2 kg of maize grain then 305 kg of maize flour would cost N24,400 per household per annum. Were food assistance to be distributed as part of a dedicated, targeted programme then there would be distribution costs and some mark-up if private distributors were used. Also wastage and illicit diversion, all of which might add a further 20 percent to the costs, raising them to N29,280.

F2b. Comparison

The total cost of food assistance at N29 290 per head costs N15,710 per head less than the cost of providing ARVs. However, there is no real long-term return to provision of food assistance. People with HIV/AIDS die. Their period of illness and final death generate immediate costs for their households and long term costs to their communities and ultimately the nation in terms of

lost production, lost quality of care for children who are orphaned, and lost social capital. These costs, many of which are hedonic costs, endure over many years and decades and far exceed the difference between food assistance and ARV provision. Establishing infrastructure for ARV provision also has positive synergies for provision of other kinds of medical assistance. With ARVs there are also long-term, less-quantifiable benefits in terms of continued ability to invest in land, passing on of knowledge and skills to new generation, holding households together and minimising institutional costs of orphans, and the general externality of doing less damage to social cohesion, community trust, and the potential for development of structures of good governance and local empowerment.

Provision of ARVs in rural communities will be problematic and the effects are time limited as viral resistance will develop. However, a person on ARVs is productive, less infectious than one not on ARVs (as ARVs reduce viral load below 50 copies/ml) and viral resistance will develop anyway as ARVs are distributed through informal channels and administered in low and inappropriate doses.

G. Summary and Potential Areas of Intervention

We have reviewed the current prevalence of HIV/AIDS, TB and malaria in Nigeria and made some comment on the possible future growth rates of their incidence. Malaria, being most widespread, is an important trigger in the development of AIDS and the associated opportunistic emergence of TB. In its turn malaria is also more likely to be severe when it attacks people with HIV/AIDS and TB, thus forming a circle of infection and vulnerability which can have a significant impact on the livelihoods of those involved. Through effects on appetite, digestion and metabolism the complications arising from HIV/AIDS usually mean a decline in the nutritional intake of PLWHA, and this in turn reduces their ability to work and support their families. In recognition of these problems, at both human and national levels, the Government of Nigeria has set in place since 1999 a number of institutional programs to tackle them, including the 'Roll Back Malaria' program, the DOTS scheme to treat TB (under the National TB and Leprosy Control Program), the National Action Committee on Aids and the National AIDS and STD Control Program. Many of these have State level equivalents or subsidiary programs in which they cooperate with varying degrees of success with community based organizations and with other departments of appropriate line ministries.

Between and behind the interstices of this network of organizations and programs lie the households, families and communities directly affected by the diseases in question. The combined effect of HIV/AIDS, recurring malaria and advancing TB on the food security of the average household in rural areas, especially when it is the head of household or another senior productive adult who is infected, is to severely reduce the productive capabilities of that household. This is likely to elicit a variety of responses, ranging from an alteration in the crop mix of a small-holding, to less labor intensive crops, to increased borrowing from relatives, to placing younger children in the homes of relatives for their maintenance and upbringing. For non-agricultural households a parallel range of displacements and reactions will occur as the household reacts to the presence of chronic illness amongst its members. In each case, whether rural or urban, agricultural or industrial/services, formal or informal, there will be a drop in income, which for over 60 percent of households that are already below the poverty line may mean the disintegration of the household as a unit. Many others will be pushed below the poverty

line and into severe poverty. There is a particular concern for the vulnerability of widows, orphans and grandmothers who, for various reasons, are likely to find themselves with such limited means of support, in material, social and psychological terms, that they suffer profound food insecurity. Very often food is available in their community, or in their extended family, or in local markets, but it is not accessible. Even if it can be accessed it may not be easily processed or cooked.

Very rough calculations indicate that as many as 2 million households out of some 20 million in Nigeria may be afflicted and affected by long term sickness related to HIV/AIDS, and that their aggregate nutritional needs created by the disease amount to the equivalent of some 700,000 mt of wheat flour per annum. Although direct nutritional needs are of prime importance they need not take the form of food distribution. Many PLWHA and PABA expressed a desire to know more about the nutritional component of different diets and of how they might change their diet to their benefit. It also became apparent that stigma caused by fear and ignorance about HIV/AIDS was severely constraining the degree and quality of support provided by extended families and the wider community. Political commitment at the top for a widespread educational campaign would help in counteracting these very entrenched attitudes. Finally, although the various official programs are well intentioned they are often poorly implemented and coordinated, both horizontally and vertically, and attention has to be given to improving the efficiency of governance, particularly at cross-ministerial levels. It was not our view that the direct distribution of food was a viable or desirable strategy at this stage in the evolution of the HIV/AIDS epidemic in Nigeria.

G1. Potential Areas of Intervention

Policy Areas

First, it is important that the Government of Nigeria retains the policy priority which it has given to this issue. We have shown that the prevalence of HIV/AIDS has a momentum of which the full impact has yet to be experienced, and that it may well still be accelerating. Within the broad policy commitment to tackle the problems created by HIV/AIDS the following policy areas call for urgent attention:

- 1) It is vital to understand that this is a crisis like no other that has faced Nigerian society. Communicating this to the most senior politicians must be a priority. Only with that kind of support will the right political lines be drawn up to meet the challenge of the effects of HIV/AIDS on food security.
- 2) There is a role for ARVs⁶¹. The key problem is labor loss to agriculture and all aspects of rural livelihoods. Solutions in training, educating and introducing new technologies will take a long time, and if effective will have familiar problems of adoption and uptake. This problem requires an immediate response. ARVs are problematic. They are not a solution and only open a window of about 15-20 years. But that will be long enough to a) keep people alive to innovate, adopt, and produce and b) enable the present generation to bring up a new

⁶¹ The most up to date information about the economics of ARVs can be found in: J-P Moatti, T. Barnett, Y. Souteyrand et al (eds), **Economics and AIDS: Treatment and Care in the Developing World**, Agence Nationale pour Recherche sur le Sida (ANRS), Paris, July 2003.

generation with parents rather than as orphans. That new generation can then make its own choices about production and its own contribution to food security.

- 3) Mapping farming system vulnerability in relation to seroprevalence and using this map as a basis for predicting state and district levels of vulnerability over the next five to ten years and developing appropriate responses⁶².
- 4) Inheritance Rights of Women. The problems faced by widows and their families on the death of a husband from AIDS have served to highlight gender inequalities in access to land and how it is transferred between generations. To alter this in any fundamental way is a long-term institutional challenge, but in the short term a recognition by government of the problems which existing customary laws, and indeed Islamic law, can create for women and children in an environment in which stigma and ignorance about HIV/AIDS prevails would be welcome, and policy to encourage the implementation of existing law or traditional custom humanely, sympathetically and responsibly would mitigate some of the social aspects of food insecurity.
- 5) For many PLWHA and PABA it is the network of community organizations, from churches to women's groups, through to savings groups and age groups that they will depend for a variety of support services. However, many of these are small, under-funded and with limited organizational capacity. Given their importance in the formation of effective and democratic civil society, and hence political stability, a commitment to capacity building for these organizations, individually and in coalitions, will create a payback that extends beyond the needs of one particular group.
- 6) Support for families in distress comes not only from the extended family and the community in civil society but also from government. In the case of food security it is essential that the various branches of government are aware of what each is doing and that programs are developed in which the complementary potential of historically separate Ministries, such as Agriculture and Health, is optimized (in, for example, such areas as diet and crop mix). Experience from elsewhere has indicated that such multi-sectoral responses under the leadership of senior politicians and supported by the heads of state are most likely to be effective.
- 7) Clearly there is a great responsibility on the machinery of government to deliver adequate and appropriate health care, educational services and agricultural advice and support. The implementation of well intentioned policy in these areas should not be frustrated by inefficiencies and lack of motivation at district and local government level, where, for instance, employees are frequently owed several months back pay. Policy to improve fiscal and administrative efficiency in governance at local level is therefore an essential underpinning to all else which government does, ranging from payment of salaries to supplies of anti-malarial drugs.

G2. Specific Interventions

Within the umbrella of these broader policy areas there is a number of specific interventions which we feel would ease the plight of those living with HIV/AIDS or affected by others who have HIV/AIDS.

⁶² Guides to how this might be done are to be found in Barnett, T. and Blaikie, P., AIDS in Africa: its present and future impact, 1992, Guilford Press, New York; Barnett, T., HIV/AIDS Impact on Farming Systems and Rural Livelihoods in East and Central Africa, 1994, Rome, FAO, available from Dr Marcela Villarreal at FAO HQ.

Anti-stigma campaign. The potential support for PLWHA from family and community is considerable but remains to a very large degree limited and unexploited because of fear and stigma. This results in a greater burden on government services on the one hand and increases the likelihood of family disintegration on the other, the latter both prompted by food insecurity caused by illness and death, and converting it into a chronic state for members of the affected household. Overcoming stigma would allow victims to harness the full potential of the community for support and sustainability of their household.

Subsidized provision of ARVs. As we argued above the ability which a successful program of ARV treatment has in enabling a PLWHA to live a normal life eliminates the alternative costs of dealing with the food insecurity which would otherwise afflict that person and his or her household. Serious attention should therefore be paid to a properly costed program of free or highly subsidized distribution of ARVs, and its viability weighed against likely benefits, quantifiable where possible.

Capacity building for CBOs. Many CBOs are willing to take additional responsibilities for supporting PLWHA on board but have limited structural, organizational and administrative capacity. This would apply to faith based and secular groups. Localized programs of capacity building for small NGOs would therefore considerably improve the quality of social support provided by community organizations. Associations of PLWHA need particular attention in this area as they will also be advocates as well as deliverers of services. The support of community leaders, including chiefs, will be an essential aspect of this.

Role of agriculture extension services. There is a need for the Ministry of Agriculture, especially in its extension services, to address the particular production problems of households where a senior adult member suffers from long-term sickness, and for those households who lose mature adults in premature death. Advice on alternative crops, assistance in coordinating labor and marketing support, less labor intensive processing techniques, would all be part of such a package.

Nutrition and dietary advice. A specific joint program by the extension service of the Ministry of Agriculture and the nutrition/dietary services of the Ministry of Health should be developed, perhaps called "Agriculture for Nutrition" which would not be targeted exclusively at PLWHA but which would ensure that they were included and their needs addressed.

Skills training for women and PLWHA. This would be part of a program to assist PLWHA and widows to embark on income generating activities in order that they maintain as high a level of independence as possible for as long as possible. In addition to a range of specific occupational skills such training would include knowledge of how to set up and run a small micro-credit scheme and also of how to apply for a loan and to monitor the use of money borrowed.

Care for vulnerable women. In many cases the extended family fails and women, both mothers and daughters migrate to urban areas to seek income in petty trading or casual labor. Even in a small way, support to NGOs such as the YWCA, for the increased provision of hostel accommodation could provide some additional security to some women.

To these one could add institutional and governance support for State Action Committees on AIDS and Local Government ACAs which have been set in place in most states but whose impact has often yet to be felt. Although there is undoubtedly a place for state level and LG level action committees and coordinating committees, and for them to be effective organizations, their development must move in parallel with existing actions at the grass roots level rather than precede them. It is to the urgency of the grass roots situation that our proposals in this section are primarily addressed and hence we would not prioritize capacity building support for SACAs or LGACAs at the present time, although they remain important statements of official recognition of the extent of personal and social problems created by the spread of HIV in Nigeria.

Tables

Table 1: Adult HIV Prevalence by Geographic Zone

Zone	Rate 1999 percent	Rate 2001 percent
North Central	7.0	5.5
South South	3.6	7.7
South East	5.2	5.8
North East	3.5	5.4
South West	3.5	3.0
North West	3.2	3.3

Source: National AIDS and STD Control Program, FGN, 2002

Table 2. Notification of TB and Reported Deaths in Nigeria 1992-2001

Year	Notified Cases	Reported deaths
2001	28,865	na
2000	26,641	na
1999	24,157	na
1998	20,249	940
1997	16,660	271
1996	15,020	423
1995	13,323	326
1994	7,919	352

Source:DOTS Expansion Strategic Plan 2002-5. FMOH, National Tuberculosis and Leprosy Control Programme (NTBLCP). Dept of Public Health (undated); FOS Annual Abstract of Stats.

Table 3. Notified Cases and Reported Deaths from Malaria 1991-2001

Year	No. of cases notified	Reported deaths
1998	1,875,380	3,189
1997	1,176,363	3,490
1996	1,423,533	6,320
1995	1,208,533	3,268
1994	1,154,725	1,427
1993	981,943	719
1992	-	1,068
1991	898,230	1,840

Source: FOS, Annual Abstracts of Statistics, FGN, 1999, 2001

Table 4. Geographic Patterns of Malnutrition

Region	Children Height for age, percent below - 2SD	Mothers BMI percent below 18.5
Northeast	55.2	25.0
Northwest	57.0	18.0
Southeast	35.3	6.5
Southwest	38.9	19.9
Central	53.1	8.4

Source: National Demographic Household Survey 1999. Tables 9.6, 9.7

Table 5. Comparative Calorie and Protein Production of Yam, Cassava and Maize

Crop	Yield kg/ha	Ha. Cultiv.	Harvest (kg)	Calories per kg	Protein Gr/kg	Total kcal. p.a.	Total kg protein p.a.
Yam	8,100	2.0	16,100	898	21	14,490	338
Cassava	7,000	2.0	14,000	1,090	9	15,200	126
Maize	700	0.6	420	3,600	93 m	1,512	39

Source: Compiled from PCU Farm Management Survey, Advisory Handbook 2000/2001, MARD

Table 6. Percentage in each category of poverty 1980-1996

Year	Extremely Poor		Moderately poor		Non-poor	
	Nigeria	Enugu	Nigeria	Enugu	Nigeria	Enugu
1980	6	2.1	21	7.8	73	90.1
1985	12	6.7	34	20.9	54	72.3
1992	14	12.3	29	19.9	57	67.7
1996	29	13.9	36	37.1	34	49.0

Source: Francis and Nweze 2003, Tables 2 3

Table 7 Expenditure Patterns by Poverty Levels 1996

Expenditure Source	Non-Poor	Moderately Poor	Core Poor	All Nigeria
Food Cash (%)	41.4	43.2	45.2	42.2
COP (%)	17.0	29.7	31.1	21.4
Total Food (%)	58.4	72.9	76.2	63.6
Non-Food (%)	41.6	27.1	23.8	36.4
Total HH Exp.	100.0	100.0	100.0	100.0
Total HH Exp. (N)	6309.24	3258.01	1853.5	4350.16

Source: FGN, Poverty Profile for Nigeria 1980-1996, Table 20

Note: COP – Consumption of Own Produce

ANNEX A

Scope of Work

A. Background

Nigeria is the most populous nation in Africa, with an economy second only to that of South Africa in size, and enormous agricultural potential. Agro-ecological zones range from near desert in the arid North to tropical rainforest in the far Southeast that receives more than 2,000 mm of rain per year. Nigeria produces a huge diversity of food and commercial crops, including cereals, roots and tubers, grain legumes, fruits, livestock, and fish and marine products. But the largely subsistence agricultural sector has not been able to keep pace with rapid population growth and Nigeria, once a large net exporter of food, is now a substantial importer, expending \$300 million annually on rice alone. Agricultural productivity has been stagnant for the past decade and increases in yields of all major crops have not exceeded one percent per annum, with marked declines for rice, yams, and cassava. Production and export of cocoa, palm oil, and peanuts have also declined precipitously over the past 20 years, and although agriculture accounts for more than 40 percent of GDP and employs 70 percent of the population, agricultural exports provide less than five percent of foreign exchange earnings.

Agricultural stagnation is a product of low productivity, lack of yield-enhancing inputs and technology, high post-harvest losses, poor market linkages, and limited post-production processing and value adding. A poor policy environment has also contributed to agricultural stagnation; under the government's fertilizer procurement policy, for example, the use of fertilizer has dropped by as much as 50 percent over the past decade. The small increases in agricultural production that have been achieved are the result of an expansion of cultivated area rather than increased productivity. The natural resource base has been seriously degraded, with widespread soil erosion, deforestation, and desertification. The forested area has declined to less than 10 percent of what it was 50 years ago, and most of what remains is found in just one state. Nigeria is now classified as a low income food deficit country by the FAO, and with close to 70 percent of the population living below the poverty line, the majority of Nigeria's people are food insecure. Further exacerbating this already difficult situation are cultural norms such as those governing the division of labor, inheritance rights, food allocation and feeding practices, and the growing number of people living with HIV/AIDS. The gravity and complexity of the food security problem in Nigeria demand that it be a priority concern to the USAID Mission, and that approaches to enhancing food security be integrated throughout the portfolio.

B. USAID Program

USAID/Nigeria's development program is implemented under a Transition Strategy that was developed in late 1999, after successful democratic elections. The immediate goal of creating an enabling environment to support the new institutions of democratic governance is supported by four strategic objectives and one special objective, addressing democracy, governance and conflict, agriculture and economic growth, basic education, maternal/ child/ reproductive health and HIV/AIDS, and infrastructure. Food security has direct linkages to the Mission's efforts and

activities in economic growth, agriculture, education, child survival, conflict mitigation, and HIV/AIDS.

The economic growth and agriculture program was initiated in FY 2000. In the economic growth area emphasis has been placed on building the capacity of key institutions such as the Bureau for Public Enterprises, the Economic Policy Coordinating Committee, and the Ministry of Commerce. Policy areas addressed have included trade, investment promotion, poverty reduction, the gas sector, and the budget, but not the agriculture sector. The agriculture components of the portfolio address input supply, seed multiplication, production and marketing, policy analysis, and tailored technical assistance to farmers and entrepreneurs. The Mission has been active in nutrition in the context of child survival, sponsoring the first comprehensive national nutrition survey in many years and fostering the establishment of a Nutrition Partners' Group. Food security is also crucial to the success of efforts in basic education, since hungry children cannot learn. Many of USAID/Nigeria's conflict mitigation activities deal with violence ignited by competition over scarce productive resources. Efforts in HIV/AIDS have begun to address the needs of persons living with HIV/AIDS (PLWHA) and vulnerable children, including their unique food security concerns, principally through care and support programs implemented by NGOs. Most of these activities have been under implementation for two years or less and have yet to demonstrate measurable impact on food security in Nigeria. Ongoing efforts in all of these areas will benefit from a comprehensive assessment of food security in Nigeria. In addition, the assessment will inform the development of USAID/Nigeria's Country Strategic Plan 2004-2009. Focus areas for the new strategy will include democracy, governance and conflict, sustainable agriculture and economic diversification, social sector service delivery, and HIV/AIDS and tuberculosis.

C. Objectives

The food security assessment will be a comprehensive examination of the issues surrounding access to, availability of, and utilization of food in Nigeria, addressing the following objectives:

- An analysis of the current state of food security in Nigeria, with particular attention to regional variations and disparities, and their causes;
- An analysis of the findings of the recently completed National Nutrition Survey, highlighting the key problems identified, cause-and-effect relationships, and food security linkages;
- An examination of the impact of HIV/AIDS on food security at the household level, and the broader implications of rising rates of seroprevalence for production, productivity, and the workforce.

D. Statement of Work

On the basis of the objectives outlined above, this food security assessment will have three key components: an economic and agricultural analysis, a nutrition assessment component, and an HIV/AIDS component. For each of these components, a number of key issues will be examined.

Economic/agricultural component:

- Regional (within Nigeria) production, productivity, and marketing trends; disparities in production and purchasing power in different parts of the country; and causes of these disparities (i.e. soil degradation, deforestation, infrastructure, seasonality).
- National and regional food distribution structure, including import, export, and informal cross border trade.
- The infrastructure and transportation grid and its implications for distribution in relation to regional production trends.
- The impact of Government of Nigeria (GON) interventions (if any) that currently and directly affect the food distribution structure/network.
- Smallholder practices, including resource management, sustainable practices, postharvest handling, and utilization of production (sales, consumption, seed, fodder etc.).
- Feasibility of PL 480 Title II interventions in Nigeria.

Nutrition assessment component:

- Analysis and interpretation of National Nutrition Survey and other food consumption related data, with particular reference to children (age cohorts: birth to five years and 6 to 14 years).
- Regional distribution of protein-energy malnutrition (PEM) and micronutrient deficiencies (if data are available), and variables that affect this distribution.
- Relative magnitude and wider health implications of PEM and micronutrient deficiency patterns, especially vis-a-vis malaria.
- GON and NGO supported nutrition programming.
- Feasibility of Global Food for Education Initiative interventions in Nigeria.

HIV/AIDS and opportunistic infections component:

- Nutritional care and support needs of persons living with HIV/AIDS and affected household members.
- A model of impacts of HIV/AIDS, tuberculosis, and malaria on income, expenditure, and production patterns at household level, and the implications of these for household food security.
- Feasibility of direct distribution of food commodities to PLWHAs and their dependents in Nigeria.

ANNEX B

Work Plan

Activity	Organization to Visit	Location	Date
WEEK 1			
Arrival of Dr. Kenneth Neils (team leader), Dr. Elizabeth Adelski, Dr. Martins Ovberedjo, and Dr. Roy Love.	Project office	Abuja	June 12
Arrival of Dr. Bisi Ogunfowora and Dr. Tola Atinmo. Discuss food security assessment and PCU food security program	FMoA/PCU	Abuja	June 13
Discuss food security assessment	USAID	Abuja	June 13
Prepare workplan	Project office	Abuja	June 14-17
WEEK 2			
Making contacts for upcoming visits	Project office	Abuja	June 16
Discuss food security situation and collect food security related documents	NAPEP, UNFPA, UNICEF	Abuja	June 16
Discuss food security situation and collect food security related documents	FAO, FMoA/PCU, FMoH, Dep't of Rural Development, UNAIDS, DFID	Abuja	June 17
Present workplan, meet as a team to discuss integrating all components of food security, discuss food security situation and collect food security related documents	USAID, DFID, DAIMINA, APIN, FAO	Abuja	June 18
Discuss food security situation and collect food security related documents	Central Bank, SAFS, IFAD, FMoH, FMoWA, NPC. Farmer-Farmer	Abuja	June 19
Discuss food security situation and collect food security related documents	World Bank, ActionAid, Oxfam, Africare, NPC, FOS, FMoA, FMoWA	Abuja	June 20
Provide interim summary of activities to Tony Barnett in UK		Abuja	June 20
Collect information on market structure, distribution, infrastructure, and transportation (agric), develop report outline	Private sector market participants (Agric), project office	Abuja	June 21
WEEK 3			
Discuss food security situation and collect food security related documents	(Ag) Dep't of Ag. Econ, AERLS (HIV), FHI, APLWHA (Nut) SMOH, FMoH	(Agric) Zaria (HIV) Lagos (Nut) Lagos	June 23
Discuss food security situation and collect food security related documents	(Ag) UI, NISER (HIV) UNDP, UNAIDS, UNIFEM, (Nut) NPC, WHO, WB	(Ag) Ibadan (HIV, Nut) Lagos	June 24
Discuss food security situation and collect food security related documents	(Ag) IITA-RUSEP Coordinator, Research Coordinators of food crop programs (HIV) CEDPA, WFP (Nut) IITA, NISER, UI, Food Basket	(Ag and Nut) Ibadan (HIV) Lagos	June 25

Discuss food security situation and collect food security related documents	(Ag) Winrock/Farmer-to-Farmer, Project office (HIV) Enugu State Ag.& Rural Dev. Authority. ENSACA. LATH & PLWHA (Nut) UNDP, ADP	(Ag) Abuja (HIV) Enugu (Nut) Lagos	June 26
Develop report outline, sort through additional agricultural information (Ag), gather regional information/data (HIV, Nut)	(Ag) PCU/FAO, other organizations (HIV) Benue State Ag.& Rural Dev. Authority, BENSACA, PLWHA. (Nut) SMOH, ADP, Rivers State U.	(Ag) Abuja (HIV) Benue (Nut) Pt. Harcourt	June 27
Report writing	(Ag, HIV) Project office (Nut) Travel to Lagos/Abuja	(Ag, HIV, Nut) Abuja	June 28
WEEK 4			
Meet with all Team members to integrate all components of food security, submit report outline to USAID, report writing	All in Project office	Abuja	June 30
Report writing (Ag, HIV) Collect regional data on nutrition and food security (Nut)	(Ag, HIV) Project office (Nut) ADP, SMOH, NPHCD	(Ag, HIV) Abuja (Nut) Kaduna	July 1
Report writing	Project office	Abuja	July 2
Departure of Dr. Love			July 3
Report writing, close coordination kept with Dr. Barnett of UK	Project office	Abuja	July 4-5
Dr. Love meets with Dr. Barnett in UK		UK	July 6
WEEK 5			
Report writing	Project office	Abuja	July 7-8
Departure of Dr. Adelski			July 8
Report writing	Project office	Abuja	July 9-12
WEEK 6			
Report writing, prepare draft final report, format, print	Project office	Abuja	July 14-15
Oral debriefing with USAID/Nigeria and draft final report submitted to USAID/Nigeria	USAID	Abuja	July 16
Departure of Dr. Bisi Ogunfowora, Dr. Martins Ovberedjo, Dr. Tola Atinmo and Dr. Kenneth Neils			July 17

ANNEX C

Assessment Team Itinerary June 13- August 8, 2003

- June 12-13: Travel to and Arrival in Abuja, Nigeria
- June 13: Meeting with USAID/ Nigeria, Anne Fleuret, and Andrew Levine
- June 13-17: Meetings with Federal Ministry of Agriculture and other Key Partners and Informants in Abuja
- June 18: Presentation of Workplan to USAID/Nigeria
- June 18-21: Additional Meetings with Key Partners and Informants in Abuja
- June 22-28: Field trips to Lagos, Port Harcourt, Zaria, Kano, Enugu, Benue, Ibadan, and Jos

Sites Visited Include:

Lagos: APIN, BASICS II-Nigeria, CEDPA, Family Health International, Federal Ministry of Health Nutrition Division, Lagos State Ministry of Health, UNICEF, UNIFEM, WHO

Port Harcourt: Stakeholders forum for the CMD Epidemic Prevention Program, Rivers State Ministry of Health, Rivers State University

Zaria: Amadou Bello University, Institute of Agriculture Research

Enugu: University of Nigeria, Federal Department of Agriculture and Rural Development, Enugu State, UNICEF Enugu

Kano: Federal Ministry of Agriculture, IFDC

Enugu: African Institute for Applied Economics, DFID (Enugu), Enugu State MOH, Federal Department of Agriculture and Rural Development Enugu State, PATHS, Tabitha Infirmary Foundation, UNICEF/ Enugu, University of Nigeria

Benue: Benue Network of PLWHA, Benue State Agriculture & Rural Development Authority, Benue State University, DFID Benue, World Bank

Ibadan: IITA, University of Ibadan

Jos: Church of Christ in Nigeria, HALT AIDS, National Institute for Policy and Strategic Studies

June 29-
July 2 Report Writing and Further Meetings with Key Partners and Informants

July 3: Team Member Roy Love Departs

July 3-7: Report Writing and Further Meetings with Key Partners and Informants

July 8: Team Member Elizabeth Adelski Departs

July 8-15 Report Writing

July 16: Oral Debriefing and Submission of Draft Report to USAID/ Nigeria

July 28: Response from USAID/Nigeria on the Draft Report

August 8: Submission of Final Report

ANNEX D

Contacts

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ANNEX E

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