



Federal Republic of Nigeria



National Bureau of Statistics

*General Household Survey –Panel
(Post Planting-2010)*

Basic Information Document
June 28, 2011

ACRONYMS

BMGF	Bill and Melinda Gates Foundation
CAPI	Computer Assisted Personal Interviewing
EA	Enumeration Area
FCT, Abuja	Federal Capital Territory, Abuja
FMA&RD	Federal Ministry of Agriculture and Rural Development
FMWR	Federal Ministry of Water Resources
GHS	General Household Survey
GHS-Panel	General Household Survey-Panel (panel subcomponent of GHS)
GHS-Cross	General Household Survey-Cross (annual cross section of GHS)
LGA	Local Government Area
LSMS-ISA	Living Standards Measurement Study – Integrated Surveys on Agriculture
MSF	Master Sample Frame
NBS	National Bureau of Statistics
NFRA	National Food Reserve Agency
NISH	National Integrated Survey of Households
NpopC	National Population Commission
PSU	Primary Sampling Unit
SAE	Small Area Estimation
WB	World Bank

Table of Contents

(GHS-Panel)	1
1.0 Introduction	1
1.1 Expected Benefits	3
1.2 Innovations	3
1.3 Coverage.....	3
1.4 Scope	4
2.0 The Survey Questionnaires	5
2.1 Contents of Household Questionnaire.....	5
2.2 Contents of the Agricultural Questionnaire	7
2.3 Survey Concepts and Definitions.....	8
2.4 Pilot Test	11
3.0 Sample Design.....	12
3.1 Sample Framework	13
3.2 Sample Selection	19
4.0 Organization of the Survey.....	19
4.1 Survey Management	19
4.2 Training of Field staff and Data Entry Operators	20
4.3 Organization of Fieldwork.....	20
4.3.1 Roles and Responsibilities of Field staff	21
4.3.2 Fieldwork Monitoring and Evaluation.....	22
4.4 Field Work Problems, Challenges, Lessons Learned and Proffered Solutions	23
5.0 Data Entry and Data Management.....	24
5.1 Data Entry	24
5.2 Data Cleaning.....	25
5.2.1 Data Cleaning Challenges.....	25
5.3 Weighting of Data	26
5.4 Description of the Datasets	26
6.0 Using the Data.....	28
6.1 File Structure	28
6.2 Variable Naming Scheme.....	29
7.0 Overall Problems and Challenges Faced During the Survey.....	29

General Household Survey –Panel (Post Planting-2010)

(GHS-Panel)

1.0 Introduction

Nigeria has made substantial strides in providing household, farm and enterprise data to policy makers and researchers. In spite of these efforts, there are still gaps in the production of adequate and timely data to inform policy making. One special concern is the need to produce sufficient and accurate agricultural production statistics. The current set of farm and household surveys conducted by the National Bureau of Statistics (NBS) does provide data on a wide range of sectors. But, typically, different sectors (or topics) are covered in separate surveys. The one exception to this is the Harmonized Nigerian Living Standard Survey (HNLSS) which covers multiple topics and thus allows one to understand the linkages between various characteristics of households and their level of well-being.

To date, however, detailed agricultural data have been collected separately from other information on the households engaged in agriculture. While the HNLSS does collect agricultural data this is not at the level of detail that the National Agricultural Sample survey does. Given the dependence on agriculture of large numbers of households in the country, the country needs information on household agricultural activities *along with* other information on the households (e.g. human capital, all economic activities, access to services and resources). Additionally, to truly understand the role of agriculture in household welfare over time, panel data is needed. To date, in the country, only cross-sectional surveys have been collected. In a panel survey, the same set of households is re-interviewed over time. This allows analyses to be made of how households add to their human and physical capital, how education affects earnings and the role of government policies and programs on poverty. As part of the efforts to continue to improve data collection and usability in the country, the NBS has partnered with the Federal Ministry of Agriculture and Rural Development (FMA&RD), the National Food Reserve Agency (NFRA), the Bill and Melinda Gates Foundation (BMGF) and the World Bank (WB) to develop a method to collect agricultural and household data in such a way as to allow the study of agriculture's role in household welfare over time. To do this NBS, with its partners, has revised substantially one of its core surveys (the General Household Survey-GHS) and added a panel component to it. The GHS is a cross-sectional survey of 22,000 households throughout the country. The panel component (GHS-Panel) is now being applied to 5,000 households of the GHS and covers multiple agricultural activities. The focus of this panel component is to improve

data from the agriculture sector and link this to other facets of household behavior and characteristics. The GHS-Panel drew heavily on the HNLSS and the NASS to create a new survey instrument and method to shed light on the role of agriculture in households' economic wellbeing. The NBS implemented the first stage (Post Planting) of the first wave of the GHS-Panel in 2010. This panel is a subset of the full GHS (or GHS-Cross Section) that will be finished in 2011.) It is envisaged that the GHS-Panel will be carried out every two years while the GHS-Cross Section will be carried out annually. A schematic of data collection is shown in Figure 1.

Figure 1: Schematic of GHS

2010	2011	2012	2013
<div style="border: 1px dashed black; padding: 10px; width: 150px; float: left;">GHS-Cross Sectional 22,000</div> <div style="border: 1px solid black; padding: 5px; width: 100px; float: right; margin-top: 10px;">GHS-Panel Post Planting 5,000</div>	<div style="border: 1px solid black; padding: 5px; width: 100px; float: left;">GHS-Cross Section (17,000)</div> <div style="border: 1px solid black; padding: 5px; width: 100px; float: right; margin-top: 5px;">GHS-Panel Post Harvest 5,000</div>	<div style="border: 1px dashed black; padding: 10px; width: 150px; float: left;">GHS-Cross Sectional 22,000</div> <div style="border: 1px solid black; padding: 5px; width: 100px; float: right; margin-top: 10px;">GHS-Panel Post Planting 5,000</div>	<div style="border: 1px solid black; padding: 5px; width: 100px; float: left;">GHS-Cross Section (17,000)</div> <div style="border: 1px solid black; padding: 5px; width: 100px; float: right; margin-top: 5px;">GHS-Panel Post Harvest 5,000</div>

This revised and expanded GHS survey (Cross and Panel) forms part of a larger, regional project in Sub-Saharan Africa to improve agricultural statistics. Nigeria is one of seven countries being supported by the World Bank, through funding from the Bill and Melinda Gates Foundation (BMGF), to strengthen the production of household-level data on agriculture. This regional project, the Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS_ISA)0 has the over-arching objective of the improving our understanding of agriculture in Sub-Saharan Africa – specifically, its role in household welfare and poverty reduction-- and how innovation and efficiency can be fostered in the sector.

The present document is designed to provide a brief overview of the first round of data collection under the revised GHS. This first visit was done on the panel households in the post-planting period (August-October) of 2010. The second visit will be done in the Post Harvest Period (February-March) 2012 and will include both panel and cross-sectional households. A separate document will provide information on the second visit.

1.1 Expected Benefits

The specific outputs and outcomes of the revised GHS with panel component are:

- ◆ Development of an innovative model for collecting agricultural data in conjunction with household data;
- ◆ Development of a model of inter-institutional collaboration between NBS and the FMA&RD and NFRA, *inter alia*, to ensure the relevance and use of the new GHS;
- ◆ Building the capacity to generate a sustainable system for the production of accurate and timely information on agricultural households in Nigeria.
- ◆ Comprehensive analysis of poverty indicators and socio-economic characteristics.

1.2 Innovations

The revised GHS with panel component contains several innovative features.

- ◆ Integration of agricultural data at the plot level with household welfare data;
- ◆ Creation of a panel data set that can be used to study poverty dynamics, the role of agriculture in development and the changes over time in health, education and other labor activities, *inter alia*.
- ◆ Use of small area estimation techniques (SAE) to generate state level poverty data by taking advantage of the integration of the panel households into the full GHS.
- ◆ Collection of information on the network of buyers and sellers of goods that household interact with;
- ◆ Use of GPS units for measuring agricultural land areas;
- ◆ Involvement of multiple actors in government, academia and the donor community in the development of the survey and its contents as well as its implementation and analysis;
- ◆ Use of concurrent data entry in Wave 1. In later Waves the project will develop and implement a Computer Assisted Personal Interview (CAPI) application for the paperless collection of the GHS;
- ◆ Use of direct respondents for all sections of the questionnaires where individual level data or specific economic activity data are collected;
- ◆ Creation of a publicly available micro data sets for researchers and policy makers;
- ◆ Active dissemination of agriculture statistics.

1.3 Coverage

The revised GHS with the panel component, while having an intensive focus on agriculture, is a national survey.

The survey covered all the 36 states and the Federal Capital Territory (FCT), Abuja
Both urban and rural enumeration areas (EAs) were canvassed

1.4 Scope

The survey covered a wide range of socio-economic topics which were collected via three different questionnaires administered to the household and the community. These are the Household Questionnaire, the Agricultural Questionnaire and the Community Questionnaire.

- ◆ The Household Questionnaire was used to collect information on:
 - Household identification
 - Household member roster, demographics and migration
 - Education Status
 - Labour and Time use
 - Credit and Savings
 - Household Assets
 - Non-Farm Enterprises
 - Consumption of food (recall)
 - Non-food consumption expenditure
 - Food security
 - Other non-labour income sources
- ◆ The Agricultural Questionnaire collected information on:
 - Production, storage and sales for crops, livestock, poultry, fishery, forestry
 - Productivity of main crops, with emphasis on improved measures of:
 - Quantification of production
 - Plot size
 - Production stocks (pest, etc)
 - Land Holdings
 - Size and tenure/ titling
 - Transaction
 - Access to and use of services, infrastructure and natural resources
 - Agricultural Extension Services
 - Infrastructure (including roads)
 - Credit (both for agriculture and other purposes)
 - Market access
 - Access to information
 - Access to natural and common property resources

- Input use and technology adoption
 - Family and hired labour
 - Use of technology and farming implements
 - Seed varieties
 - Fertilizer, pesticides etc.
 - GPS measure of plot size, etc
- ◆ The community questionnaire

2.0 The Survey Questionnaires

The survey consisted of two household questionnaires and one community questionnaire. The first designated by '*HOUSEHOLD QUESTIONNAIRE*' was administered to all households in the sample. The second questionnaire '*AGRICULTURE QUESTIONNAIRE*' was administered to all households engaged in agriculture activities such as crop farming, livestock rearing and other agricultural and related activities. The third *Community Questionnaire* was administered to the community to collect information on the socio-economic indicators of the community. The contents of each questionnaire are outlined more clearly in the following sections.

2.1 Contents of Household Questionnaire

The following table lists the sections of the household questionnaire with a short description of the information collected in each section.

Table 2.1: Description of Household Questionnaire

Section	Section Name	Description of Areas Covered
Cover	Cover	Identification of household and location. Administrative data about field staff and conducting survey in the household
1	Roster	This section provides a list of household members and is used to record basic demographic information about these members
2	Education	This section collects Education and qualification of household members five years and older. This section also collects information about student in school including the type of school, distance and mode of transportation, class level and costs.
3	Labour	This section collects information on the labour activities of all household members five years and older. Information on the type of work that individuals do, either on their own account (as their own boss), for others, or in household enterprises will be collected. The hours and income earned will also be recorded in this section.
4	Credit and Savings	This section collects information on the use and type of credit that household members 15 years and older have taken. Information about individuals' savings practices are also collected from these persons.
5	Household Assets	In this section the household report the assets owned and who owns these assets and their values.
6	Non-farm Enterprises	Description of non-farm activities owned and /or operated by household members. The information collected includes the type of activity, the revenue from these activities, and the costs of operating these enterprises.
7A	Meals Away From Home	This section collects information on expenditure on food purchased and consumed outside the home by household members during the past seven days.
7B	Household Food Expenditures	Food consumption of household members over the past 7 days, including food consumed, food purchased, food consumed from own-production, and food received as gifts.
8	Household Non-food Expenditures	Non-food expenditures of household members including frequent and non-frequent purchases.
9	Food Security	Information regarding the regularity of food consumption and vulnerability of household to food insecurity.
10	Other Income	Sources and amounts of non-labor income, including interest on savings.
	Contact Information	Information to follow up with the household on subsequent visits.

2.2 Contents of the Agricultural Questionnaire

The following table lists the sections of the household questionnaire with a short description of the information collected in each section.

Table 2.2: Description of Agricultural Questionnaire

Section	Section Name	Description of Areas Covered
Cover	Cover	Identification of household and location. Administrative data about field staff and conducting the survey in the household
11a	Plot Roster	Information of agriculture plots owned and/or operated by household members.
11b	Land Inventory	Identification of the land holdings of the household, the use of the land and the characteristics of the land including size and water source for irrigation.
11c	Input Costs	The inputs used for cultivation and their costs are collected in this section, specifically pesticides and herbicides.
11d	Fertilizer Acquisition	This section asks specific questions about fertilizer use and acquisition.
11e	Seed Acquisition	Information about seeds and how they were acquired is collected in this section.
11f	Planting Field Crops	Information about the field crops grown by the household on each plot during the last planting season.
11g	Planting Tree Crops	Information about the tree crops grown by the household over the last planting season.
11h	Marketing of Agricultural Surplus	This section collects information on the income generated when agricultural surpluses are sold. Also collects information on the characteristics of the sales and buyers.
11i	Animal Holdings	Information on the animal holdings by the household including livestock, fish, and other animals such as draft animals.
11j	Animal Costs	The costs of holding these animals, including vaccinations and the cost of food supply to animals.
11k	Agriculture by-product	Information on other agriculture products that is not reported under crop production and animal production of the household
11l	Extension	Information on where households receive agricultural information.
12	Network Roster	Characteristics of the business networks of households.

2.3 Survey Concepts and Definitions

Concepts and main definitions: In order to manage the survey properly, a list of key terms has been established, which should help interviewers in carrying out their work. Detailed definitions are provided in relevant Chapters of the Interviewer's Manuals.

- ◆ **Population:** Set of elements which make the whole. That could be all the people in a country or an entity, all households, all household, etc.
- ◆ **Sample:** a part of population representing the whole population. Sample selection is a subject of statistical methods that take into account characteristics of both the population and individual members of the population.
- ◆ **Direct interview:** Procedure by which information on each person is collected directly from that person. The person giving information on him/herself is a "direct respondent".
- ◆ **Reference period:** Period about which the respondent is asked questions. The survey uses different reference periods depending on the type of required information, the respondent's ability to remember and the objectives of each topic to be analyzed.
- ◆ **Household** is a social unit consisting of one or more persons who use joint accommodation and food. In other words, a household is a group of people who normally live in the same household unit ("live under the same roof"), who are or are not related and who eat together ("eat from the same pot").
- ◆ **Head of the household:** is a person defined as such by the household for the purpose of the survey, irrespective of reason (the oldest by age, decision maker in the household, a person who earns the most income, based on tradition, etc.).
- ◆ **Guest:** a person who uses the joint accommodation and food free of charge together with household members. A guest who stays longer than six months is then considered to be a household member.
- ◆ **Tenant of the household:** a person who pays for accommodation in a part of a dwelling. This person is not a member of the household whether he/she eats with the household or prepares food separately. Such a tenant is considered a separate household.
- ◆ **Students who study in another town,** but who are supported by the household are treated as household members, although they may be absent more than six months.
- ◆ **Household members:** Anybody who meets the following criteria:

Table 2.3: Main Rules for Household Membership

Members	Non-members
An individual who is present at the moment of interview and has spent at least 6 months of the previous 12 months living in the household. The household head should be listed as a member even if he or she did not spend 6 of the previous 12 months in the household.	Person who would normally reside in the household but who is currently absent from the household longer than 6 months (including those serving military service, in prison, religious service, etc.)
Person who usually lives in the household even if he or she is absent at the moment of the interview, if he/she is absent less than six months during the previous 12 months.	Persons present in the household at the time of the interview who usually live elsewhere; visitors or tourists who are in the household less than six months.
Guests or other persons who live in the household longer than six months during the previous 12 months.	Tenants, i.e. those paying the household for accommodation, whether or not they eat with the household.
Newborn babies irrespective of the duration of their stay in the household.	Those who eat in the household but live elsewhere or live in the household but eat elsewhere.
Students who reside in a different location longer than six months but are supported by household members.	Students who pay the household for accommodation and food.

The GHS-Panel uses direct informants extensively. Thus for all individual sections (education, labor and the like) each person aged 15 and older is interviewed directly. For children, parents or guardians provide the data. For specific topics such as agriculture or non-farm businesses, the person(s) in the household who is(are) best informed provide the data. The following table describes in detail the respondent(s) for each section of the questionnaire.

Table 2.4: Respondents for the Household Questionnaire

Section	Topic	Respondent
Cover	Cover	To be completed by the field staff
Section 1	Roster	Head of HOUSEHOLD or spouse.
Section 2	Education	All individuals for themselves unless under age 12, then collect the information from parent or guardian
Section 3	Labor	All individuals for themselves unless under age 12, then collect the information from parent or guardian
Section 4	Credit and Savings	All individuals 15 years and above
Section 5	Household Assets	Head of HOUSEHOLD or knowledgeable adult member of the household
Section 6	Non-Farm Enterprises	Owner or manager of the enterprise
Section 7A	Meals Away From Home expenditures	Most knowledgeable person
Section 7B	HOUSEHOLD Food Expenses	Person in the household responsible for food preparation and/or food purchases
Section 8	HOUSEHOLD Non-Food Expenses	Most knowledgeable person or person who is responsible for household purchases
Section 9	Food Security	Female in the household responsible for food preparation and/or food purchases
Section 10	Other Income	HOUSEHOLD head or knowledgeable adult member of household
Contact Information	Contact Information	HOUSEHOLD head or knowledgeable adult

Table 2.5: Respondent for Agricultural Questionnaire

Section	Topic	Respondent
Cover	Cover	Completed by field Staff. HOUSE-HOLD ID copied from HOUSEHOLD to Agriculture Questionnaire.
SECTION 11a	Plot Roster	Farmer, owner or manager of plot
SECTION 11b	Land Inventory	Farmer, owner or manager of plot
SECTION 11c	Input Costs	Farmer, owner or manager of plot
SECTION 11d	Fertilizer Acquisition	Farmer, owner or manager of plot
SECTION 11e	Seed Acquisition	Farmer, owner or manager of plot
SECTION 11f	Planting Field Crops	Farmer, owner or manager of plot
SECTION 11g	Planting Tree Crops	Farmer, owner or manager of plot
SECTION 11h	Marketing of Agricultural Supplies	Farmer, owner or manager of plot
SECTION 11i	Animal Holdings	Owner or caretaker of animals
SECTION 11j	Animal Costs	Owner or caretaker of animals
SECTION 11k	Agricultural By-Products	Owner or caretaker of animals
SECTION 11l	Extension	Farmer, owner or manager of plot
SECTION 12	Network Roster	Completed by the field staff

2.4 Pilot Test

Coverage

Six States were selected for the Pilot Panel Survey, namely, Kaduna, Nasarawa Taraba, Osun, Edo and Enugu. Two (2) EAs (1 urban and 1 rural) were selected from each of these states. For each EA, 5 HHs were randomly selected for study. In total, 60 households were selected from all the 6 States, with 10 households coming from each state. The field staff consisted of two teams for each state with each team comprised of four (4) Interviewers, one (1) supervisor, one (1) H/Q monitoring officer and a State Officer.

Pilot Questionnaire

The draft questionnaire used in the pilot was contained in a single household questionnaire. The questionnaire was developed by a team from the NBS, the FMA&FR,

NFRA and the World Bank. The pilot questionnaire covered 22 different topics including, Education, Labour, Credit and Savings, Assets, Non-farm enterprises, Plot Roster, Land Inventory, Input Costs, Fertilizer Acquisition, Seed Acquisition, Planting Field Crops, Planting Tree Crops, Marketing of Agricultural Surplus, Extension, Animal Holdings, Animal Costs, Household Food Expenditures, Household Non-Food Expenditures, Food Security, Other Income and Network Roster.

Training Workshop for Pilot Panel Survey

Two zonal centres were chosen for conducting the Pilot Panel Survey's training workshop. Kaduna centre served as the training location for teams from Nasarawa, Taraba and Kaduna States while Enugu centre served as the training location for teams from Osun, Edo and Enugu States. The training in each center lasted for 4 days and was offered on a staggered basis. The training at the Kaduna centre was conducted April 15 through to April 18, while Enugu centre was between April 20 and 24, 2010. The decision was taken to stagger the training days at the centres in order to allow the World Bank team and the FMA&RD and NFRA counterparts to supervise and monitor both centres during the training.

3.0 Sample Design

The GHS-Panel (Post Planting 2010), like all household surveys in the country, is based on the Master Sample Frame. This Frame is based on the 2006 Housing and Population Census conducted by the National Population Commission (NpopC). The census includes approximately 662,000 enumeration areas (EAs) throughout the country. From the census, the Master Frame was constructed at the local government area (LGA). In 668 LGAs, 30 EAs were scientifically selected. The remaining six LGAs are found in FCT, Abuja. Forty EAs were scientifically selected in each of these 6 LGAs.. This gives a total of 23,280 EAs selected nationally. This is the Master Frame.

From the Master Frame a master sample frame, called the National Integrated Survey of Households 2007/2012 Master Sample Frame (NISH-MSF) was developed. The NISH-MSF was constructed by pooling the LGAs in the Master Frame by state. Thereafter, a systematic sample of 200 EAs was selected with equal probability across all LGAs within the state. Furthermore, the NISH EAs in each state were divided into 20 replicates of 10 EAs each. However, the sample EAs for most national household surveys such as the GHS are based on a sub-sample of the NISH-MSF, selected as a combination of replicates from NISH-MSF frame. For the GHS-Panel, the sample is a subset of the EAs selected for the GHS.

3.1 Sample Framework

The sample frame includes all thirty-six (36) states of the federation and Federal Capital Territory (FCT), Abuja. Both urban and rural areas were covered and in all, 500 clusters/EAs were canvassed and 5,000 households were interviewed. These samples were proportionally selected in the states such that different states have different samples. The distribution of the samples are shown in the table 3.1 below which shows the site of the sample in each state, allocation of EAs, households covered, field personnel used and the number of days for fieldwork by zone and state for the GHS Panel 2010 (Post-Planting).

Table 3.1 Distribution of EAs/Households and Field Staff by State

S/n	Zone	State	No of EAs Allocated	No of HOUSE HOLDS Selected	No of Zonal Controller	No of State Officer	Number of Interviewers	No of Supervisor	Data Entry Operator	No of Extra Interviewer	No of Days for Fieldwork
1	North Central	Plateau	11	110	1	1	4	1	1	1	30
		Kwara	12	120		1	4	1	1	1	30
		Niger	18	180		1	6	2	2	1	28
		Kogi	12	120		1	4	1	1	1	30
		Benue	16	160		1	6	2	2	1	28
		Nasarawa	7	70		1	2	1	1	1	35
		FCT Abuja	4	40		1	1	1	1	1	30
		Sub- Total	80	800	1	7	27	9	9	6	
2	North East	Borno	21	210	1	1	8	2	2	1	26
		Yobe	13	130		1	4	1	1	1	33
		Bauchi	17	170		1	6	2	2	1	28
		Gombe	8	80		1	3	1	1	1	30
		Taraba	9	90		1	3	1	1	1	30
		Adamawa	12	120		1	4	1	1	1	28
		Sub- Total	80	800	1	6	28	8	8	6	
3	North West	Kaduna	12	120	1	1	4	1	1	1	30
		Jigawa	13	130		1	4	1	1	1	30
		Katsina	18	180		1	6	2	2	1	32
		Kano	20	200		1	8	2	2	1	26
		Kebbi	10	100		1	3	1	1	1	30
		Sokoto	8	80		1	2	1	1	1	35
		Zamfara	9	90		1	4	1	1	1	25
		Sub- Total	90	900	1	7	31	9	9	7	
4	South East	Enugu	14	140	1	1	4	1	1	1	35
		Anambra	22	220		1	8	2	2	1	28
		Ebonyi	14	140		1	4	1	1	1	35
		Abia	11	110		1	4	1	1	1	28
		Imo	19	190		1	6	2	2	1	32
		Sub-Total	80	800	1	5	26	7	7	5	
5	South West	Cross River	13	130	1	1	4	1	1	1	33

S/n	Zone	State	No of EAs Allocated	No of HOUSE HOLDS Selected	No of Zonal Controller	No of State Officer	Number of Interviewers	No of Supervisor	Data Entry Operator	No of Extra Interviewer	No of Days for Fieldwork
		Akwa-Ibom	15	150		1	4	1	1	1	35
		Rivers	21	210		1	8	2	2	1	25
		Bayelsa	7	70		1	2	1	1	1	35
		Edo	10	100		1	4	1	1	1	28
		Delta	14	140		1	6	2	2	1	25
		Sub- Total	80	800	1	6	28	8	8	6	
6	South West	Oyo	23	230	1	1	8	2	2	1	28
		Osun	18	180		1	6	2	2	1	32
		Ogun	11	110		1	3	1	1	1	30
		Lagos	17	170		1	6	2	2	1	30
		Ekiti	8	80		1	3	1	1	1	27
		Ondo	13	130		1	4	1	1	1	35
		Sub-Total	90	900	1	6	30	9	9	6	
		Total	500	5000	6	37	170	50	50	37	

Figure 2: Map of Nigeria Showing 36 States and FCT, Abuja



Table 3.2 Distribution of the Population of Nigeria by State and Gender
2006 Nigeria Population Census

State	Male	Female	Total Population	% Population
Abia	1,430,298	1,415,082	2,845,380	2.0%
Adamawa	1,607,270	1,571,680	3,178,950	2.3%
Akwa-Ibom	1,983,202	1,918,849	3,902,051	2.8%
Anambra	2,117,984	2,059,844	4,177,828	3.0%
Bauchi	2,369,266	2,283,800	4,653,066	3.3%
Bayelsa	874,083	830,432	1,704,515	1.2%
Benue	2,144,043	2,109,598	4,253,641	3.0%
Borno	2,163,358	2,007,746	4,171,104	3.0%
Cross River	1,471,967	1,421,021	2,892,988	2.1%
Delta	2,069,309	2,043,136	4,112,445	2.9%
Ebonyi	1,064,156	1,112,791	2,176,947	1.6%
Edo	1,633,946	1,599,420	3,233,366	2.3%
Ekiti	1,215,487	1,183,470	2,398,957	1.7%
Enugu	1,596,042	1,671,795	3,267,837	2.3%
Gombe	1,244,228	1,120,812	2,365,040	1.7%
Imo	1,976,471	1,951,092	3,927,563	2.8%
Jigawa	2,198,076	2,162,926	4,361,002	3.1%
Kaduna	3,090,438	3,023,065	6,113,503	4.4%
Kano	4,947,952	4,453,336	9,401,288	6.7%
Katsina	2,948,279	2,853,305	5,801,584	4.1%
Kebbi	1,631,629	1,624,912	3,256,541	2.3%
Kogi	1,672,903	1,641,140	3,314,043	2.4%
Kwara	1,193,783	1,171,570	2,365,353	1.7%
Lagos	4,719,125	4,394,480	9,113,605	6.5%
Nasarawa	943,801	925,576	1,869,377	1.3%
Niger	2,004,350	1,950,422	3,954,772	2.8%
Ogun	1,864,907	1,886,233	3,751,140	2.7%
Ondo	1,745,057	1,715,820	3,460,877	2.5%
Osun	1,734,149	1,682,810	3,416,959	2.4%
Oyo	2,802,432	2,778,462	5,580,894	4.0%
Plateau	1,598,998	1,607,533	3,206,531	2.3%
Rivers	2,673,026	2,525,690	5,198,716	3.7%
Sokoto	1,863,713	1,838,963	3,702,676	2.6%
Taraba	1,171,931	1,122,869	2,294,800	1.6%
Yobe	1,205,034	1,116,305	2,321,339	1.7%
Zamfara	1,641,623	1,637,250	3,278,873	2.3%
Abuja FCT	733,172	673,067	1,406,239	1.0%
Nigeria	71,345,488	69,086,302	140,431,790	100.0%

Table 3.3 Distribution of LGAs and Total EAs in the Frame by State and Number of Sample EAs in LGA Master Sample and NISH

State	No. LGAs in State	No. EAs in State	No. Sample EAs in LGA Master Sample	No. Sample EAs in NISH
Abia	17	11,582	510	200
Adamawa	21	12,717	630	200
Akwa-Ibom	31	17,059	930	200
Anambra	21	21,907	630	200
Bauchi	20	19,885	600	200
Bayelsa	8	9,024	240	200
Benue	23	22,856	690	200
Borno	27	24,062	810	200
Cross River	18	16,320	540	200
Delta	25	18,231	750	200
Ebonyi	13	13,888	390	200
Edo	18	12,793	540	200
Ekiti	16	11,561	480	200
Enugu	17	13,997	510	200
Gombe	11	9,551	330	200
Imo	27	19,575	810	200
Jigawa	27	21,070	810	200
Kaduna	23	21,791	690	200
Kano	44	36,302	1320	200
Katsina	34	33,316	1020	200
Kebbi	21	16,641	630	200
Kogi	21	15,702	630	200
Kwara	16	16,271	480	200
Lagos	20	24,873	600	200
Nasarawa	13	9,220	390	200
Niger	25	23,149	750	200
Ogun	20	12,754	600	200
Ondo	18	19,213	540	200
Osun	30	25,910	900	200
Oyo	33	31,137	990	200
Plateau	17	15,786	510	200
Rivers	23	24,857	690	200
Sokoto	23	12,779	690	200

State	No. LGAs in State	No. EAs in State	No. Sample EAs in LGA Master Sample	No. Sample EAs in NISH
Taraba	17	10,647	510	200
Yobe	17	14,921	510	200
Zamfara	14	17,025	420	200
FCT Abuja	6	4,157	240	200
Total	775	662,529	23,310	7,400

Table 3.4 Distribution of Final Sample of 500 EAs and 5,000 Households for Panel Survey by State, Urban and Rural Sectors, within Each Zone

Zone	State	Total		Urban		Rural	
		No. EAs	No. Hhs.	No. EAs	No. Hhs.	No. EAs	No. Hhs.
North-Central Zone	Benue	16	160	2	20	14	140
	Kogi	12	120	4	40	8	80
	Kwara	12	120	6	60	6	60
	Nasarawa	7	70	1	10	6	60
	Niger	18	180	4	40	14	140
	Plateau	11	110	2	20	9	90
	FCT Abuja	4	40	3	30	1	10
North-East Zone	Adamawa	12	120	1	10	11	110
	Bauchi	17	170	3	30	14	140
	Borno	21	210	5	50	16	160
	Gombe	8	80	1	10	7	70
	Taraba	9	90	0	0	9	90
	Yobe	13	130	3	30	10	100
North-West Zone	Jigawa	13	130	2	20	11	110
	Kaduna	12	120	4	40	8	80
	Kano	20	200	3	30	17	170
	Katsina	18	180	3	30	15	150
	Kebbi	10	100	1	10	9	90
	Sokoto	8	80	2	20	6	60
	Zamfara	9	90	2	20	7	70
South-East Zone	Abia	11	110	4	40	7	70
	Anambra	22	220	12	120	10	100
	Ebonyi	14	140	1	10	13	130
	Enugu	14	140	3	30	11	110
	Imo	19	190	2	20	17	170
South-South Zone	Akwa-Ibom	15	150	4	40	11	110
	Bayelsa	7	70	1	10	6	60
	Cross River	13	130	3	30	10	100
	Delta	14	140	4	40	10	100
	Edo	10	100	5	50	5	50
	Rivers	21	210	8	80	13	130
South-West Zone	Ekiti	8	80	6	60	2	20
	Lagos	17	170	16	160	1	10
	Ogun	11	110	7	70	4	40
	Ondo	13	130	6	60	7	70
	Osun	18	180	14	140	4	40
	Oyo	23	230	15	150	8	80

3.2 Sample Selection

The GHS Panel Survey used a two stage stratified sample selection process.

First Stage

The Primary Sampling Units (PSUs) were the Enumeration Areas (EAs). These were selected based on probability proportional to size (PPS) of the total EAs in each state and FCT, Abuja and the total households listed in those EAs.

Second Stage

The second stage involved the systematic selection of ten (10) households per EA. This involved obtaining the total number of households listed in a particular EA, and then calculating a Sampling Interval (S.I) by dividing the total households listed by ten (10). The next step is to generate a random start 'r' from the table of random numbers which stands as the 1st selection. The second selection is obtained by adding the sampling interval to the random start. For each of the next selections, the sampling interval was added to the value of the previous selection until the 10th selection is obtained.

Determination of the sample size at the household level was based on the experience gained from previous rounds of the GHS, in which 10 HHs per EA are usually selected and give robust estimates.

4.0 Organization of the Survey

4.1 Survey Management

The GHS Panel Survey was executed by the National Bureau of Statistics and some technical staff from the Federal Ministry of Agriculture and Rural Development (FMA&RD), the Federal Ministry of Water Resources (FMWR) and the National Food Reserve Agency (NFRA). Other stakeholders from Academia, Ministries, Departments, Agencies (MDAs) and Development Partners contributed immensely in the development of the survey instruments. Also, some staff and consultants assisted greatly throughout the duration of the survey implementation under the direction of the Statistician General and the Management Team which included the Technical Committee members. The Management Team was responsible for questionnaire design, recruitment of personnel, training of personnel and the implementation of the survey.

4.2 Training of Field staff and Data Entry Operators

Two (2) levels of training were mounted for the survey. The 1st level was organized at NBS Headquarters in Abuja and was called the Training of trainers (TOT). The participants at the TOT were the trainers for the 2nd level training. The top management team of the survey participated in the TOT. The persons trained in the TOT were then sent to carry out the level 2 training: four (4) resource persons were sent to each of the three training centers, Ibadan (Oyo State) for North Central (NC) and South West (SW) zones Kaduna (Kaduna State) for North East NE and North West (NW) and Calabar (Cross-River State) for South-South (SS) and South East (SE) zones to perform the training. Included in the team was one (1) resource person per training venue who served as IT trainer. The TOT lasted for five (5) days. The core training materials for the 2nd level training were harmonized and finalized during the TOT.

The 2nd level training was held at the three (3) designated centres. This training was provided to the Zonal Controllers, State Officers, Field Officers, Field Interviewers and Data Entry Operators and lasted for sixteen days. Training instructions were given to the field staff by the resource persons from the management team with help from World Bank technical missions. The training consisted of (i) classroom instruction on the questionnaire, concepts and definitions, (ii) interview techniques, and (iii) methods and field practices in performing actual interviews to ensure that field interviewers fully understood the questionnaire. Most of the training instructions are detailed in the interviewer's and supervisor's manuals which are also available.

At the end of the training session, trainees were assessed according to a test that was administered on the material covered in the training process, and an evaluation by the resource persons. The data entry operators were trained along with the field staff and separate training sessions were conducted for them throughout the duration of the training. At the end of the training, field teams were formed of interviewers, supervisors and data entry operators. An additional person, per state was kept on the reserve list in case any interviewer needed to be replaced.. The data Entry Operators underwent additional one (1) week training in the course of the fieldwork.

4.3 Organization of Fieldwork

Fieldwork started on 31st of August, 2010 and was carried out simultaneously throughout the country till mid October, 2010. All three (3) questionnaires; Household, Agriculture and Community were used to collect information on Post-Planting activities. Data were collected by teams comprised of a supervisor, 2-4 interviewer(s)

and a data entry operator. The number of team(s) varied from state to state depending on the sample size (number of EAs selected). The teams moved in a roving manner and data collection lasted for between 25 – 35 days. (See table 3.1 above.)

4.3.1 Roles and Responsibilities of Field staff

Interviewers:

Among the roles and responsibilities of interviewers were:

- ◆ To participate actively in training and complete the training course
- ◆ To study the manual and other instructions carefully in order to understand them fully
- ◆ To comply with instructions and recommendations contained in the manual and any instructions given by persons responsible for the survey, including supervisors and management/technical team
- ◆ To carry out interviews through personal visits to households to interview each individual as specified in each questionnaire module and to collect information directly. It should be noted that the interviewer's task cannot be delegated or transferred to anybody else.
- ◆ To complete interviews with all household members. To visit as many times as necessary, in order to find direct respondents, to correct inaccurate information or to complete incomplete information. The interviewer is obliged to make himself/herself fully available for work in the panel survey, thus he/she must be available for carrying out the survey tasks at anytime the respondent specifies as the most convenient for him/her; weekends, holidays, evenings etc.
- ◆ During the interviews, to behave professionally and formally in accordance with the important work he/she performs
- ◆ To visit households in decent and professional outfit, bearing in mind that this is an important aspect of ensuring cooperation from the household and good quality data
- ◆ To come to work on time according to the supervisor's instructions
- ◆ To insert occupation and other codes after the interview as instructed in the manual
- ◆ To complete the given assignment on a daily basis and to hand over to the supervisor all completed questionnaires with the information properly recorded
- ◆ To perform all scheduled interviews at the time they are planned. Where it is not possible to interview any of the selected households, the interviewer should

inform his/her supervisor, who will take the decision on necessary changes in accordance with appropriate procedures

Supervisors

Among the tasks and responsibilities of the supervisors were:

- ◆ Examining questionnaires in order to make sure that each interview has been carried out correctly and in full. If reports from data entry require returning to the household, the supervisor must communicate the necessary information that is missing from the questionnaire.
- ◆ Visiting some of the households that the interviewers had visited. He/she must repeat some sections of the questionnaire in order to verify that the interviewer recorded that household's answers correctly
- ◆ Observe interviewers during the interview process in order to evaluate the method of asking questions
- ◆ Discuss the work with the interviewers and evaluate the work from the data entry reports
- ◆ The supervisor is the link between the interviewer and the field management team. Hence, he/she must be informed of any difficulties or problems that the interviewer may encounter. If the interviewer does not understand a procedure, he/she must ask the supervisor for advice.

4.3.2 Fieldwork Monitoring and Evaluation

To ensure that good quality data are collected, a monitoring exercise was mounted. Monitoring and evaluation guidelines and formats for fieldwork were developed. One (1) monitor was assigned to 2 – 4 states and all the states and FCT, Abuja were covered. There were three levels of monitoring and evaluation, the first and the third levels were carried out by NBS state officers and zonal controllers while the second level was carried out by the technical team which was comprised of the National Bureau of Statistics (NBS), the Federal Ministry of Agriculture and Rural Development (FMA&RD), the National Food Reserve Agency (NFRA) headquarter staff, World Bank officials and consultants.

The monitors made sure that proper compliance with the laid down procedures as contained in the manual were followed, effected necessary corrections and tackled problems that arose. The monitoring exercise was arranged such that the first level took place at the commencement of the fieldwork, and the third level not later than a week

before the end of the data collection exercise. In-between these two, the technical team visited all the states of the federation and FCT, Abuja. While NBS state officers monitored in their state, the zonal controllers monitored in at least two (2) states (the zonal headquarters state and one other state of the same zone). The 1st and 2nd rounds of the monitoring exercise lasted for nine (9) days while the 2nd round by the technical team lasted for eight (8) days. Monitoring instruments were developed and discussed during both training of trainers and zonal training.

4.4 Field Work Problems, Challenges, Lessons Learned and Proffered Solutions

Some of the problems, challenges, lessons learned and some solutions proffered are highlighted below:

Data entry: As would be expected when introducing new field methods such as the concurrent data entry in the field, some problems arose. Overall the data entry in the field served as a useful quality control mechanism and improved the quality of the data. However, some issues that will need to be addressed going forward are;

- ◆ Some of the data entry operators found the new system challenging; it is recommended to add more training time to this process.
- ◆ Provision of field vehicles with charging facilities for the data entry equipment was an added advantage
- ◆ Challenges on how to send data via internet to NBS headquarters, in part due to poor connections but also due to inexperience of data entry operators with the use of the internet. Specific training on this aspect will be needed in the next round along with alternative connection methods.
- ◆ The concurrent data entry system requires that the data from each questionnaire be entered electronically and a list of errors, inconsistencies and missing data produced. This list is then used by the supervisor to determine if a household needs to be re-visited and the interviewer is responsible for correcting any errors on the list. There were some problems in effective managing of data problems while the teams were in the field like in regards to printing and the correct reading of error messages. Again, additional training will need to be provided in the training for the second visit.

Sampling: Each interviewer was provided a list of addresses of the households in the sample that they were responsible to interview. There were some problems of EA and HH replacement that were not done according to plan. One cause of this may have been the fact that the EAs listing had been done with a substantial gap between it and the actual field work.

- ◆ A re-listing exercise is suggested before the next survey is done

- ◆ It will also be important to improve the training on and the supervision of the method of replacement used in the field.

Geographical codes: The statistical system of the country is decentralized to some extent, with the central office of the NBS working with six zonal offices and 36 state (plus FCT) offices. It was discovered during the field work that there is different codes are in use in the states and headquarters for LGAs, EAs and replicate identification codes (RIC)

- ◆ It is recommended that work be done to harmonize all geographic codes before another round of field work is done. This will benefit all surveys, not just the GHS.

GPS: The GHS-Panel used GPS equipment to take the coordinates of both the dwelling and each plot owned by the household. Additionally, the GPS units were used to measure the area of the plots. One GPS unit was allocated to each field team. Given the number of plots of land and the needs of 2-4 interviewers to measure all of this, it was determined that one GPS unit per team is not sufficient to collect the amount of data required.

- ◆ It may be necessary to procure additional GPS units for the next wave, depending on many households in the GHS-Panel relocate or how many new plots need to be measured.

5.0 Data Entry and Data Management

5.1 Data Entry

This survey used the concurrent data entry approach. In this method, the fieldwork and data entry was handled by one or two teams assigned to the state. Each team consisted of a field supervisor, 2-4 interviewers and a data entry operator. Immediately after the data were collected in the field by the interviewers, the questionnaires were handed over to the supervisor to be checked and documented. The questionnaires were then passed to the data entry operator at the end of each day of fieldwork for entry. After the questionnaires were entered the data entry operator generated an error report which reported issues including out of range values and inconsistencies in the data. The supervisor then checked the report, determined what should be corrected, and decided if the field team needed to revisit the household to obtain additional information. The benefits of this method were:

- ◆ To capture errors that might have been overlooked by a visual inspection only,
- ◆ To identify errors early during the field work so that if any correction required a revisit to the household, it could be done while the team was still in the EA.

The CSPro software was used to design the specialised data entry program that was used for the data entry of the questionnaires.

5.2 Data Cleaning

The data cleaning process was done in a number of stages. The first step was to ensure proper quality control during the fieldwork. This was achieved in part by using the concurrent data entry system which was, as explained above, designed to highlight many of the errors that occurred during the fieldwork. At this stage errors that are caught at the fieldwork stage are corrected based on re-visits to the household on the instruction of the supervisor. The data that had gone through this first stage of cleaning was then sent from the state to the head office of NBS where a second stage of data cleaning was undertaken.

During the second stage the data were examined for out of range values and outliers. The data were also examined for missing information for required variables, sections, questionnaires and EAs. This problem was then reported back to the state where the correction was then made. This was an ongoing process until all data were delivered to the head office.

After all the data were received by the head office, there was an overall review of the data to identify outliers and other errors on the complete set of data. Where problems were identified, this was reported to the state. There the questionnaires were checked and where necessary the relevant households were revisited and a report sent back to the head office with the corrections.

The final stage of the cleaning process was to ensure that the households and individuals were correctly merged across all sections of the household questionnaire. Special care was taken to see that the households included in the data matched with the selected sample and where there were differences these were properly assessed and documented. The agriculture data were also checked to ensure that the plot identified in the main sections merged with the plot information identified in the other sections. This was also done for crop by plot information as well.

5.2.1 Data Cleaning Challenges

The cleaning process at the head office was impeded by the fact that the questionnaires were not immediately available for inspection when problems were identified in the data. The questionnaires were retained by the state in case there was the need for household revisits. So whenever problems were identified at the head office, the state

office had to be contacted in order to determine if the suspect data were the same as the information on the questionnaire, and to ensure that changes were captured in both places. This was a very cumbersome and time consuming process since communication was difficult and in many instances the response was not timely. However, this is a necessary process to ensure that the households can be re-visited to provide the correct information to avoid having to make imputations. Also, this process allows the state officers to understand the key issues that arose during field work and will serve to enhance further rounds of data collection. It will be important, nonetheless, to find a mechanism to facilitate this process in the next round of data collection and cleaning.

A second challenge in data management and cleaning was the difficulty faced by state offices in sending the data from the state to the head office. There were difficulties in accessing internet facilities in many of the EAs and surrounding areas where the field teams were active. The consequence of this was that the data were not sent to the head office until the teams returned to state capitals where, due to the distance, it was difficult to return to the EAs for household revisits when requested by the head office. This issue will need to be addressed for future rounds of the survey.

5.3 Weighting of Data

When a sample of households is selected for a survey, these households represent the entire population of the country. To accurately use the data sets, the data must be weighted to reflect the distribution of the full population in the country. A population weight was calculated for the panel households. This weight variable (WGHT) has been included in the household dataset: Section A (SECTA). When applied, this weight will raise the sample households and individuals to national values adjusting for population concentrations in various areas.

5.4 Description of the Datasets

The data from the GHS-Panel (Post Planting 2010) are available free of charge to any individual or organization interested in carrying out analyses of them. At present, two data sets are available: the household data set which corresponds to the Household Questionnaire and the agricultural data set which corresponds to the Agricultural Questionnaire. An additional data set will be available when the GHS-Panel (Post Harvest 2011) data are finalized. These additional data are those that correspond to the Community Questionnaire. Also, the consumption data in the Household Questionnaire will be released once the Post-Harvest data are analyzed.

Note that, for purposes of maintaining the confidentiality of the data all names and addresses have been removed from the data set. Additionally, the GPS coordinates have also been removed as these could be used to locate households and plots with accuracy. Various approaches to use of the GPS data are available: the user who is interested in these data is requested to contact NBS directly to discuss how these can be used.

The two sets of data correspond with one of the two questionnaires. In the case of the household questionnaire, there is total of 16 data files of which 13 are available (the remaining three on consumption will be available with the Post Harvest data in October of 2011). Table 5.1 shows the sections of the questionnaire and the data set that correspond to these. In the case of the agriculture questionnaire, there are a total of 13 data files. Table 5.2 shows the sections of the questionnaire and the data set that correspond to these.

As seen from Table 5.1 and Table 5.2, the file naming scheme is a combination of the prefix '*SECT*' followed Section number. For example, the data set that corresponds with the section 1 of the household questionnaire is called '*SECT1*'. The exception to this rule is in section 8 of the household questionnaire where the files have been broken into 5 files with each file corresponding with the reference period collected in the section.

Table 5.1: Household Datasets

Section	Section Name	Dataset Filename
Cover	Cover	SECTA
1	Roster	SECT1
2	Education	SECT2
3	Labour	SECT3
4	Credit and Savings	SECT4
5	Household Assets	SECT5
6	Non-farm Enterprises	SECT6
7A	Meals Away From Home	SECT7A
7B	Household Food Expenditures	SECT7B
8	Household Non-food Expenditures	SECT81 – Expenditure in the past 7 days
		SECT82 – Expenditure in the past month
		SECT83 – Expenditure in the past six months
		SECT84 – Expenditure in the past twelve months
		SECT85 – Expenditure on twelve months recall
9	Food Security	SECT9
10	Other Income	SECT10

Table 5.2: Description of Datasets - Agriculture

Section	Section Name	Dataset Filename
Cover	Cover	Excluded because it contains the basic administrative data contained in the Household Data called "SECTA"
11a	Plot Roster	SECT11A - Ownership and Cultivation of land
		SECT11A1 – Plot details
11b	Land Inventory	SECT11B
11c	Input Costs	SECT11C
11d	Fertilizer Acquisition	SECT11D
11e	Seed Acquisition	SECT11E
11f	Planting Field Crops	SECT11F
11g	Planting Tree Crops	SECT11G
11h	Marketing of Agricultural Surplus	SECT11H
11i	Animal Holdings	SECT11I
11j	Animal Costs	SECT11J
11k	Agriculture by-product	SECT11K
11k	Extension	SECT11L1 – Advice on topic and source
		SECT11L2 – Detail information of who in the household received the advice through the source
12	Network Roster	SECT12

6.0 Using the Data

6.1 File Structure

The data should always be used in conjunction with the questionnaire and the interviewer's instruction manual.

Each dataset contains a set of variables which together constitute a unique identifier for the household. These variables consists of six administrative variables plus the household identification variable (**HHID**) generated for the purpose of the survey. See table 6.1 below:

Table 6.1: Household Identifier Variables

Key identifier variable	Description
Zone	This represents the six geo-political zone in the country
State	Represent each of the 37 states of the country
LGA	Represent each of the 774 local government area
SECTOR	Representing the urban/rural classification
EA CODE	Representing each of the enumeration areas
RIC	Representing the replicate identification code

In order to simplify the merging (linking) of files, the variable *ID* has been created in all the datasets. This variable is the concatenation of the variables Zone, State, LGA, Sector, EA, RIC and HHID, and uniquely identifies the household. This variable can be used as the only key variable in the merging of all household type datasets. In some of the other types of datasets, additional key variables may be required in the merging process. In case of individual type files, the universal variable for the Individual ID is *INDIV*. In the agriculture datasets plot files are merged using *ID* and *PLOTID* while crop files are merged using *ID*, *PLOTID* and *CROPID*.

6.2 Variable Naming Scheme

Generally, the variables are named to correspond with each of the questions. For example in the case of the cover dataset (SECTA) the variables names start with 'SA' which means section A of the household questionnaire. This is followed by 'Q' and a number e.g. 'Q1' which indicates the question number, so the first question in Section A is captured in the variable SAQ1. Section 1 to 10, was represented using S1 to S10 with the question (Q) and number post-fixed as in the example above. The approach is similar in the case of the agriculture datasets. Here the variables are labeled 'S11A – S11L and S12 corresponding to the section number. These variables all end with the question and number just as is done in the household datasets.

7.0 Overall Problems and Challenges Faced During the Survey

Some general issues that arose during the field work, while probably not affecting the overall data quality, are still ones that should be kept in mind for following rounds of the survey.

♦ Availability of Electricity

This was required by the data entry operator to operate the laptop computer and printer when in the field. This problem was anticipated so inverters were purchased and made available to each data entry operator. The intention was

that these inverters would be connected to the cigarette lighter socket or battery of the vehicle that was providing transportation for the team. By so doing' electrical power would be generated to run the laptop and printer. Unfortunately, in most cases, no vehicle was available since the team was simply transported and left at the location. In addition some of the locations could only be accessed by motorcycles which did not have the facility to operate the inverters.

In order to alleviate this problem, special provision had to be made for the purchase or renting of portable generators. This proved to be a satisfactory solution to the problem.

◆ **Flooding**

Many roads leading to the rural EAs were very bad and were flooded during the rainy season. In rural areas, movement was difficult as only motorcycles were able to access some of the rural EAs. Using these motorcycles turned out to be more expensive than the taxis or vans that normally travelled those routes. In addition, in the flooded areas it was not possible to collect any information about the farms since these farms were under water.

◆ **Malfunctioning of GPS:**

In some states, a number of the allocated GPS units malfunctioned and consequently reduced the number of farms that it was anticipated would have been covered in a given period of time. These GPS units were eventually replaced but unfortunately not before some delays were incurred.