

Assessment of State-Based Agricultural Information Systems in the Provision of Food and Nutrition Security Information in the Sudano-Sahelian States of Nigeria

Aminu A¹, M. Halliru², S Ubale³, A. Mustapha⁴, A.M Lawam⁵, N.B Rano⁶, A.Idris⁷, H. Ladi⁸, M.M Bello⁹

^{1, 2, 3, 7} Department of Agricultural Economics and Extension, Bayero University, Kano, Nigeria

^{4, 5} Centre for Dry Land Agriculture, Bayero University, Kano, Nigeria

⁶ Department of Animal Science, Bayero University, Kano, Nigeria

⁸ Department of Food Science and Technology, Bayero University, Kano, Nigeria

⁹ Department of Community Medicine, Bayero University, Kano, Nigeria

Abstract

The study was conducted to Identify FNS information system Stakeholders and their competencies, type of state-based FNS information generated and Coordination mechanism, and Linkages among the FNS Information Systems in Nigeria. Qualitative and quantitative data were collected using semi-structured questionnaires to interview the key FNS value chain actors identified. The study used multi-disciplinary experts from various fields of agriculture, nutrition, and health. Results shows that the main structures for generating FNS information identified in the States include Ministries of Agriculture (MoAs) and the Agricultural Development Projects (ADPs), State Ministries of Health and their agencies, States Bureau of Statistics (SBSs), and the State's Emergency Management Agencies. The institutional and organizational agencies for the generation of FNS data exist in all states with weak concern and consistent effort for FNS data. The existing staff in most of the agencies were inadequate with associated qualification deficiency especially Nutritionists, Statistician, Agro-climatologist, M&E Specialist respectively. The necessary tools/equipment for data collection, monitoring and dissemination were grossly inadequate except Kaduna State. Some agencies possessed some essential requirements with external support. All states suffered for budgetary allocation in respect of FNS aspects and activities. The FMARD is currently the lead agency for food security with mandate to coordinate food security activities, including FNS information at national and state levels. Across the 13 States, information systems produced some FNS variables (contributing factors) at a minimally acceptable quality and reliability, fed into the traditional CH analysis conducted at each state, validated at the national level for dissemination to decision-makers and development partners. The core indicators needed for analysing FNS outcomes are obtained through formal surveys implemented at the national level by UN-based organisations in collaboration with NBS and other partners. The study's findings indicated the state-based FNS information systems' low ability to produce the required data, especially the primary FNS indicators for the CH analysis and other policy decisions. The study recommends the development of the technical capacity of the various structures involved in FNS data collection, management and dissemination through implementing short courses, Improving the quality and reliability of FNS data generation, sharing and dissemination among state-based information systems; Strengthening of the Coordination of FNS information systems at the state level.

Keywords

Agricultural Information, Food Security, Sudano-Sahelian.

INTRODUCTION

Agriculture is the mainstay of Nigeria's economy, employing approximately two-thirds of its total labour force and contributing 40 per cent to Nigeria's GDP [1]. Most rural population farms on a subsistence scale, using small plots and depending on seasonal rainfall. A lack of infrastructure, such as roads, further exacerbates poverty in rural areas by isolating rural farmers from needed inputs and profitable markets. Pressure from growing populations also impacts already diminished resources, further threatening food production. Over-farmed land, deforestation, and overgrazing are severe in many parts of the country. Drought has become common in some parts of the north, while erosion and

flooding are significant problems. [2] As of 2012, Nigeria was the world's largest cassava, yam, and cowpea producer, yet it used to be a food-deficit nation and depends on grains, livestock products, and fish imports. [3] However, in recent years (2015 to date), there was a remarkable change in food import policy.

Nigeria currently emphasises domestic food production by implementing various sectoral and macro-economic policies that support household food production and discourage massive food importation. The output of major food grains such as rice has increased significantly in recent years. The current COVID-19 health crises that affect the country have temporarily eroded these gains. Nigeria was amongst the first countries in Sub-Saharan Africa to witness the first case of

the COVID-19, which NCDC reported on 27th February 2020, a situation that had prompted the government to impose several restriction measures to curb the spread of the pandemic. Although the COVID-19 epidemic was a health crisis, its impact had significant negative consequences on all sectors of the economy, particularly household food security. The Cadre Harmonise FNS analyses' recent results indicated the current challenges the country is facing in terms of food and nutrition situation, especially in the NE States. The various implemented restriction measures contracted economic activities that disrupted livelihood activities. Income sources increased unemployment and reduced purchasing power, thus delimiting several households' capacity to maintain minimal/stable food and nutrition security conditions. Estimates of the Regional Task Force on Food Crisis Prevention Network (RCPA) led by ECOWAS, UEMOA, and CILSS reveals that the insecurity and the COVID-19 health crisis could tip over fifty-one million additional people (currently "stressed" – phase 2) into a food and nutrition crisis. Such has called on national and regional governments to take proactive actions to mitigate the negative impacts of the COVID-19 on food and nutrition security in the region.[4]

Information on Food and Nutrition Security (FNS) is vital for developing appropriate policies and interventions to prevent and manage food crises, one of the upcoming issues affecting the Sudano-Sahelian states of Nigeria. To provide such information, stakeholders (governments, civil society, and technical and financial partners) must develop sustainable food and nutrition information systems, especially at the grassroots level. To provide the necessary information needed to analyse the food and nutrition security of households and the population. FNS policies and interventions are currently established using available data and information generated mostly by and or through the relevant state-based structures, particularly the Agricultural Development Programmes (ADPs) and the States Ministries of Health (MoH). Such data and information are generally inadequate and of low quality. This study focuses on analysing the institutions generating the FNS data to provide evidence-based recommendations for improving their functioning to have quality and reliable information for effective decision making and programming in the areas of FNS in the country. The study's overall aim was to assess the state-based institutions' capacities in the Sudano-Sahelian States of Nigeria to generate, analyse, and disseminate Food Security and Nutrition information to FNS analysts, decision-makers other users. [5] The specific objectives of the study include:

- Identify, map and diagnosis major Stakeholders involved in the generation of FNS information,
- Evaluate the different FNS Data Generated by FNS Information Systems in the States,
- Assess the existing Coordination and Linkages among stakeholders of FNS Information Systems in Nigeria, and;

- Analyse the Strength Weaknesses, Opportunity and Threats (SWOT) associated with State-Based FNS Information Systems

CONCEPTUAL FRAMEWORK

The CH framework was based on the three theoretical frameworks that defined FNS. The Cadre Harmonise is a unifying tool that allows for a consensual, rigorous, and transparent analysis of the current and projected food and nutrition situation. The international classification scale classifies food and nutrition insecurity severity by referring to well-defined functions and protocols. The CH was adopted among the ECOWAS member countries as a harmonised and standard framework for FNS analysis and reporting. The CH analysis is currently being implemented in sixteen northern states and the FCT in Nigeria. The CH is the essential tool used to mobilise the ECOWAS Regional Food Security Reserve and support the UEMOA High Committee's decision-making on Food Security. Through a complex analysis, it provides decision-makers with a relevant and coherent basis for strategic decision-making by detailing the severity of the current and projected situation, identifying the determinants of food and nutrition insecurity, estimating populations by the level of intervention priority, and clarifying the types of appropriate measures to be taken based on the identification of limiting factors. Decision-makers are thus provided insights on the severity of the situation based on reliable evidence and a participatory and inclusive approach promoting technical consensus. This critical, complex analysis process ultimately guides response planners in determining priority areas and defining immediate and appropriate actions that suit the reality of essential dietary practices among affected populations. [6] The CH tools carry out situational analysis (current and projected) of acute food and nutrition insecurity of an area, an administrative unit, or household groups. The reliability of the CH analysis results depends on the availability and quality of current data provided by the participating states, which is always lacking since 2015. The study analyses existing data collection structures at the state levels concerning their role in providing the required FNS information for the CH analysis and other stakeholders' demands.

The reliability of evidence is assessed based on a four-level scale; these levels are determined based on the quality and time relevance of the evidence available during the analysis. The different levels of evidence reliability are R0, R1, R2, and R3. Determining the reliability of nutrition evidence must comply with the guidance provided on the quality of data collected through various methods (SMART, sentinel sites, rapid surveys, and screening).

Table 1. Criteria for Reliability Scores of Information for CH analysis

T	V			
V3		T3	T2	T1
V2		R2	R2	R1
V1		R1	R1	Ro
V-Nu		Ro	Ro	Ro
V3 High validity: Evidence from statistically representative surveys using a rigorous and scientifically accepted methodology in which results have been validated consensually. These are those with an "Excellent" or "Good" plausibility score for nutrition surveys.				
V2 medium validity: Evidence from re-analysed data, historical series of survey data, provisional data not yet validated but based on acceptable methodologies, and minimum statistical requirements. These are those with an "Acceptable" plausibility score for nutrition surveys.				
V1 Low validity: Evidence from sources using questionable methodologies or failing to meet representative sampling standards at the analysis level unit. These are those with a "Problematic" plausibility score for nutritional surveys.				
V-nu: Evidence from unconfirmed methodologies, from questionable or unspecified sources				
R 3: high reliability — data can be used to assess outcomes and contributing factors				
R 2: medium reliability — data can be used to assess outcomes and contributing factors				
R 1: low reliability — data can be used only to assess contributing factors				
R 0: not reliable — data can be used only in specific conditions established in special protocols				

Source: CH. Manual 2.0. (2019)

METHODOLOGY OF THE STUDY

A methodology for mapping the information systems was used to analyse the existing food and nutrition security information systems at the state level. The mapping exercise aims at understanding the institutional and organisational aspects, the information they produced, and the methodologies used in carrying out the data collection activities. Besides, structures and systems at the national level generating and or using FNS information were identified and interviewed to understand their linkages with the state's FNS information systems at the state level. The FNS information generated by the States information systems was analysed concerning the CH FNS analysis requirements. A separate set of questionnaires for the states and national FNS structures were developed and administered (attached as annexes). Key informant interviews were held with the FNS information systems' key personnel to analyse the quality of several variables collected. It was carried out to understand what is available to the CH process and partners, including decision-makers, and to find out the gap in using standard methodologies for data collection, analysis, and dissemination. The criteria considered in the system's data quality analysis were in line with the CH framework, as outlined in Table 2. The study employed a hybrid approach involving both quantitative and qualitative data collection methods. The data collection was implemented using different semi-structured questionnaires to interview the key FNS value chain actors identified. Key Informant Interviews (KIIs) Focus Group Discussions (FGDs) consultations were employed. Quantitative data were collected using structured questionnaires from households. The study used multi-disciplinary experts drawn from various fields of agriculture, nutrition, and health as its core team. Additional technical

staff such as enumerators, field assistants, and data analysts were used. Descriptive statistics such as frequency and percentage, mean, minimum, maximum, standard deviation and standard error were used for data analysis.

RESULTS AND DISCUSSION

Mapping and Diagnosis of the Main Stakeholders Identified

The main structures for generating FNS information identified in the States include States Ministries of Agriculture (MoAs) and the Agricultural Development Projects (ADPs), State Ministries of Health and their agencies, States Bureau of Statistics (SBSs), and the States Emergency Management Agencies.

STATES MINISTRIES OF AGRICULTURE (SMA)

Institutional and Organisational Profiles

The Ministries of Agriculture (MoAs) mandate in all the States was similar. The core general areas of responsibility of the State MoAs consist of agriculture, both smallholder and commercial, plantation crops; fisheries; and livestock. In some states, such as Zamfara, Sokoto, and Kebbi, the fisheries and livestock components are managed under a separate ministry called the Ministry of Animal Health and Husbandry. The primary activities of the State MoAs are usually coordinated through the following departments: Administration, Planning and Monitoring, Technical Services, and Extension. In collaboration with the Agricultural Development Programme (ADPs) and donor-funded development projects, the Planning and Monitoring Department is responsible for agricultural information and data generated mostly through routine M&E activities. A

typical organogram of the State Ministry of Agriculture is depicted in Annex1. The Permanent Secretary (PS) is usually responsible for the overall administrative Coordination, and directors and their deputies manage the various departments.

Analysis of Human and Technical Capacities of the MoAs

Number of Technical and Field Staff

The MoAs are generally constrained by a lack of adequate technical personnel for routine generation, analysis, and FNS data dissemination. There were inadequate personnel required for data collection and analysis in most ministries. A

total of 479 Agricultural Technologists/technicians from the 13 states were studied. Taraba, Gombe, Kano and Yobe MoAs have the highest 118, 80, 70 and 60 agricultural technologists/technicians. Other supporting technical personnel such as statisticians, M&E specialists, data analysts and communication experts were generally not adequate across all the states (Figure 1). The ministries' field technical personnel work with the ADPs in data generation and dissemination areas. The ADPs are the agricultural institutions responsible for field activities and are coordinated by the States Ministries of Agriculture.

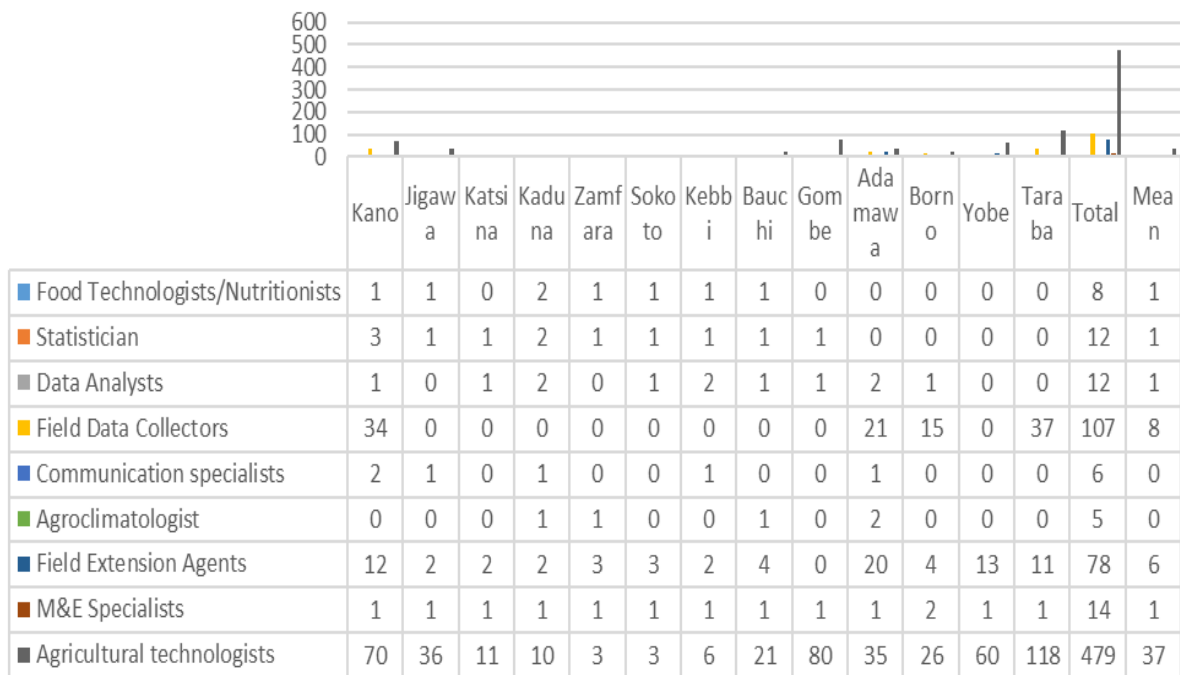


Figure 1. Inventory of Technical Personnel in the NW and NE States Ministries of Agriculture as of December, 2020

Qualification and Years of Experiences of Technical and Field Staff

Most personnel have an Ordinary Level Diploma (OND) as their highest qualification. Only a few acquired special skills or training in data generation activities during their working experiences.

Table 2. Qualification and Years of Experience for 13 States MoAs as of December 2020

Category	Total No.	Mean No.	% with OND/HND	% with B.Sc.
Agricultural technologists/Technicians	479	37	85%	12%
Statistician	12	1	0%	100%
Data Analysts	12	1	100%	0%
Field Data Collectors	107	8	100%	0%
Communication specialists	6	0	0%	100%
Agro-climatologists	5	0.4	0%	100%
Field Extension agents	78	6	75%	20%
M&E Specialists	14	1	0%	100%
Food Technologists	8	1	95%	5%

Table 3. Qualification and Years of Experience for 13 States MoAs as of December 2020

Category	% with Post-graduate qualification	% with data collection and management skills	Mean Years of Experience
Agricultural technologists/Technicians	3%	10%	28
Statistician	0%	20%	17
Data Analysts	0%	0%	20
Field Data Collectors	0%	0%	22
Communication specialists	0%	0%	16
Agro-climatologists	0%	0%	23
Field Extension agents	5%	0%	29
M&E Specialists	0%	50%	25
Food Technologists	0%	0%	27

Analysis of Technical Means and Tools for FNS Data Collection

The tools and equipment for field data collection and related work were grossly inadequate among the states' MoAs. An average of 3 computers per MoA was recorded, Adamawa state has the highest number of eight computers, and the least number of One computer was reported in Sokoto

State. Each MoA reported having a record office where information is kept in hard copies. In terms of mobility, Adamawa State MoA reported having two vehicles dedicated for data collection, while Kano, Borno, and Yobe had one vehicle each. The remaining states do not have a vehicle for data collection activities. None of the states except Adamawa owned an automatic weather station for collecting climate-related information.

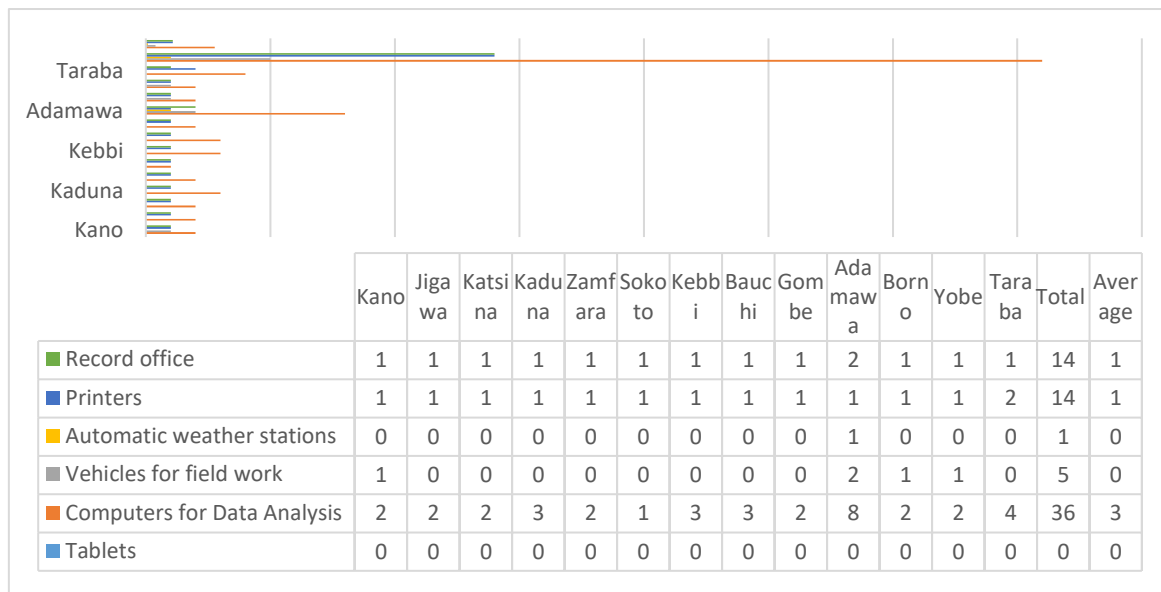


Figure 2. Equipment and Tools Available for FNS data collection Activities at the MOAs level in the NW and NE States of November 2020

AGRICULTURAL DEVELOPMENT PROGRAMMES (ADPS)

Institutional and Organisational Profiles

The ADPs are the institutions with mandates to implement agricultural extension and rural development activities in the States. In all the States, the ADPs are managed by a Programme Manager working under the State's Ministries of Agriculture and Natural Resources Coordination. The ADPs'

planning and monitoring evaluation departments are responsible for monitoring all activities and agricultural data collection across the states. They perform these roles in collaboration with their respective States Ministries of Agriculture and other agencies such as SEMAs. The ADPs provides annual estimates of agricultural production, commodities prices, and other related information through their participation in the APS and other activities. The ADPs cannot contribute to providing adequate information and data

to facilitate decisions and programming at the state level due to inadequate funding and weak Coordination with other stakeholders at the local and national levels. A typical organogram of the ADP is given in Annex2.

ANALYSIS OF HUMAN AND TECHNICAL CAPACITIES OF THE ADPS

Number of Technical and Field Staff

The ADPs' human resource capacity in carrying out the assigned mandate of agricultural extension and rural development is somewhat adequate. The ADPs currently have an adequate number of field staff who usually serve as enumerators and supervisors for its routine M& E data collection activities and other collaborative data collection

activities. The essential human resources for FNS data collection, management, and analysis, such as Agricultural Economists, Statistician, and Data analysts, were not adequate as may be required. The results in Figure 2 indicated that 68 Agricultural Economists were found in the 13 States ADPs, with Borno, Adamawa, Jigawa, and Bauchi having the highest numbers of 22, 15, 7, and 6, respectively. There was only one (1) Agricultural Economist in Taraba, Yobe, and Sokoto ADPs. Five (5) agricultural economists were found in the ADPs. The total number of field data collectors from all the ADPs was found to be 322, with Bauchi (51), Taraba (47), Kano (40), Kebbi (34), Borno (32), and Jigawa (30) having the highest numbers. The least numbers were found in Sokoto (12) and Gombe (11).

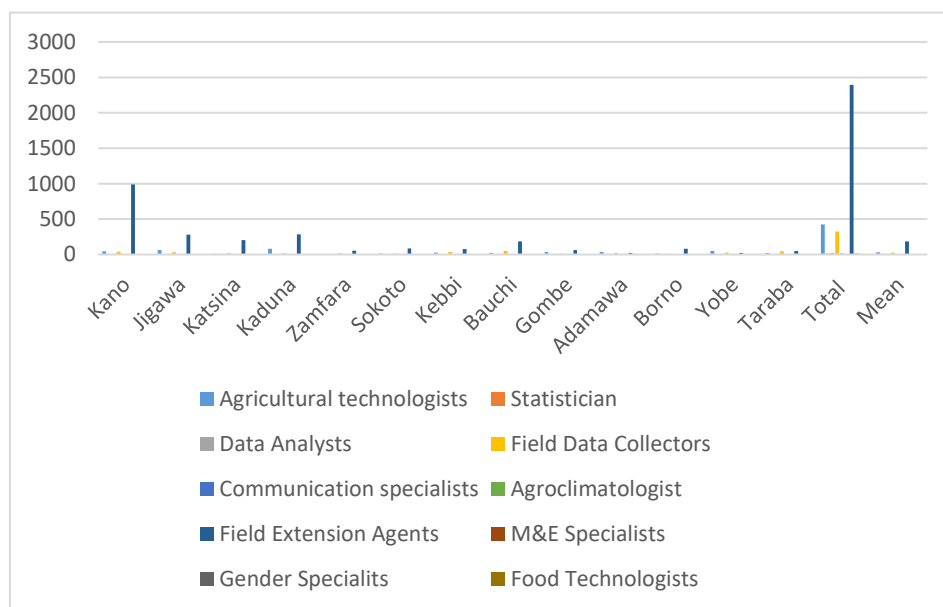


Figure 3. Inventory of Technical Personnel in the NW and NE States ADPs as of December 2020

Qualification and Years of Experiences of Technical and Field Staff

The qualifications and years of experience of the ADPs' key technical staff responsible for generating, analysing, and

disseminating FNS information are summarised in Table 4. The majority of the personnel across all the categories have OND/HND qualifications.

Table 4. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States ADPs as of December 2020

Category	Total No.	Mean No.	% with OND/HND	% with B.Sc.
Agricultural technologists/Technicians	423	33	85%	14%
Statistician	11	0.8	10%	90%
Data Analysts	23	2	95%	5%
Field Data Collectors	326	25	100%	0%
Communication specialists	11	0.8	0%	100%
Agro-climatologists	3	0.2	0%	100%
Field Extension agents	2396	184	65%	25%
M&E Specialists	12	1	0%	95%
Food Technologists	10	0.8	25%	75%

Table 5. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States ADPs as of December 2020

Category	% with Post-graduate qualification	% with data collection and management skills	Mean Years of Experience
Agricultural technologists/Technicians	1%	45%	25
Statistician	0%	20%	20
Data Analysts	0%	70%	15
Field Data Collectors	0%	80%	16
Communication specialists	0%	20%	18
Agro-climatologists	0%	0%	10
Field Extension agents	10%	80%	22
M&E Specialists	5%	70%	26
Food Technologists	0%	100%	22

Analysis of Technical Means and Tools for FNS Data Collection

The ownership of tools and equipment for generating and keeping data among the ADPs is given in Figure 3. The highest number of computers were owned by the Yobe ADP (30), followed by Kano ADP (18), Katsina ADP (16), Kaduna ADP (14), Jigawa (13), and Kebbi ADP (12). Other ADPs have less than ten computers available for data collection and administrative activities. An average of 6 motorcycles and 2 Vehicles were found among the ADPs for data collection and extension activities. Jigawa ADP has the highest number of

motorcycles (50), followed by Kebbi (11), Zamfara (10), Katsina (7), and Kano (6). The remaining State ADPs did not have motorcycles for data collection. Regarding vehicles for data collection, Kano, Katsina, and Bauchi had four each, Yobe had three, Zamfara, Kebbi, and Adamawa with two each. The remaining State ADPs reported having one vehicle each. Most ADPs reported having tablets meant for mobile data collection, but the numbers were not generally adequate. None of the ADPs reported operating a website, electronic database, and social media. The ADPs' FNS data are mostly collected manually, stored, and disseminated in hard copies, limiting access to wider stakeholders.

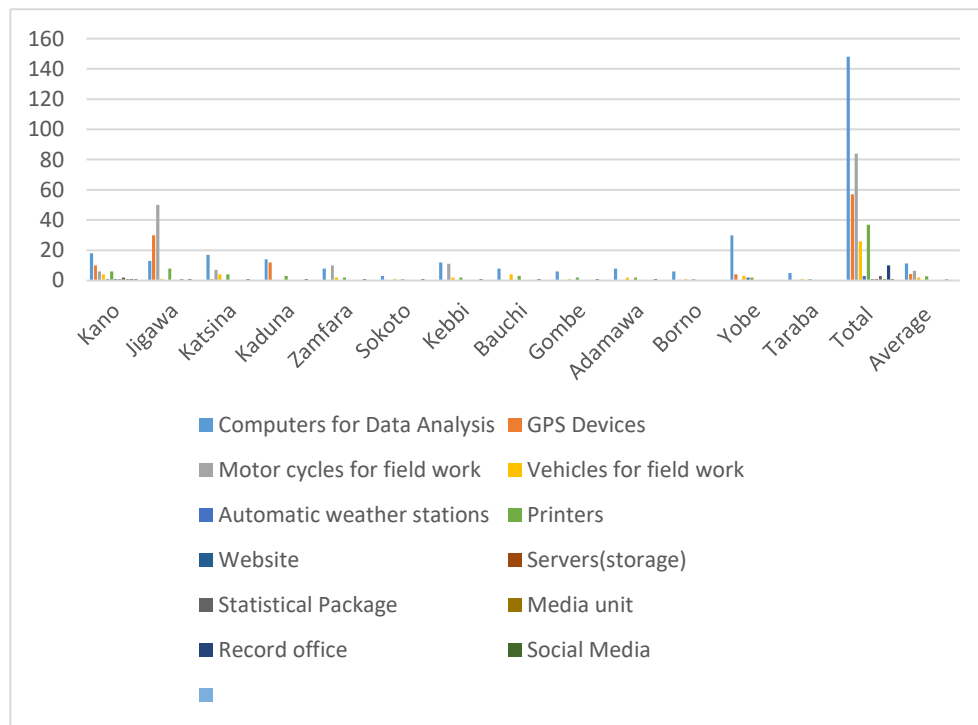


Figure 4. Equipment and Tools Available for FNS data collection Activities at the ADPs level in the NW and NE States as of November 2020

STATES MINISTRIES OF HEALTH (MOHS)

Institutional and Organisational Profiles

The Ministries of Health in the States (MoHs) were established to provide health services to their respective States' citizens. The MoHs are organisations that coordinate policies for regulating Health Practices, Drugs Control, and Personal hygiene, conduct health agencies' supervision, and execute health-related capital projects to ensure quality service delivery. In each MoH across the 13 States, a nutrition unit is established under the Public Health and Diseases Control department. A State Nutrition Officers head the units in each of the states. The nutrition units' objectives are to improve children's nutritional status under five and manage severe acute malnutrition in health facilities and communities by implementing various activities at the community level. The nutrition units collaborate with the State's Primary Health Care Development Agencies in implementing nutrition-related activities across communities in the States. The Planning and Monitoring departments of the MoHs are mainly responsible for articulating operational systems and monitoring & evaluating the ministries' health sector programs to enhance performance efficiency and effectiveness. A typical organogram of a State MoH showing the various departments and units is given in annex2 and

annex3 gives a typical organogram of a State Primary Health Care Development Agency (SPHCDA).

Analysis of Human and Technical Capacities of the MoHs

Number of Technical and Field Staff

The available technical personnel at the MoHs and the SPHDAs is summarised in Figure 5. The average number of community health workers was 189 across the states. Kano State has the highest number of community health workers (1200), followed by Yobe and Kaduna with 160 each, Katsina with 120, and Jigawa with 105. The least number of 55 was found in Taraba. In each state, the community health workers are used to implement the state's nutrition activities and serve as field data collectors for the health information system. Statisticians were only found in Kano, Yobe, and Adamawa, but all other states reported having a few data analysts. The average number of data analysts was found to be two (2), with Yobe having the highest number of seven (7) and Borno with three (3). An average of nine (9) nutritionists was found across the states. Kano state with 56 nutritionists has the highest number, followed by Gombe with 40, Yobe with five (5), and Taraba with 3. The remaining states had around one to two nutritionists. The nutritionists are responsible for implementing the core nutrition interventions at the community level in each state.

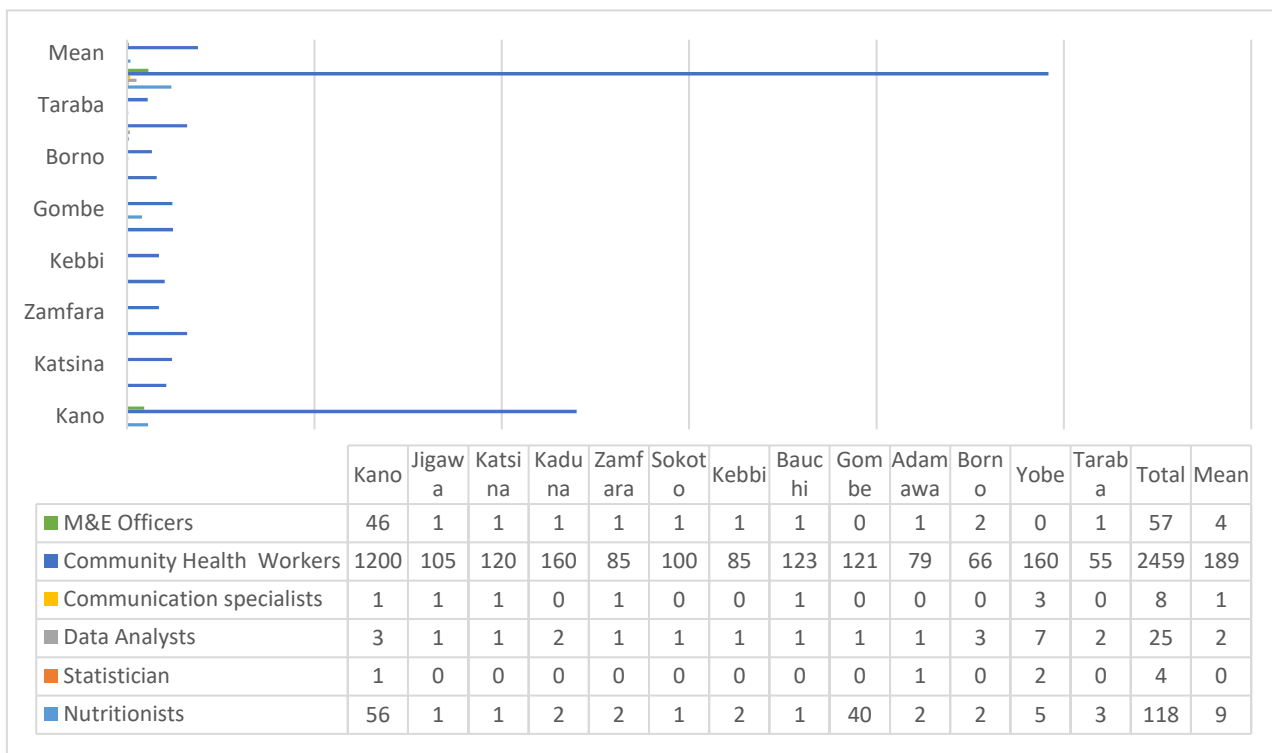


Figure 5. Inventory of Technical Personnel in the NW and NE States MoHs as of November 2020

Qualification and Years of Experiences of Technical and Field Staff

The technical and field personnel's capacity in terms of qualification and years of working experience is level-

headedly adequate. Results in Table5 indicated that 70% and 90% of the nutritionists and statisticians have B.Sc. as their highest qualification, respectively. All the community health workers and data analysts have OND/HND as their highest qualification.

Table 6. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States MoHs/SPHCDA as of December 2020

Category	Total No.	Mean No.	% with OND/HND	% with B.Sc.
Nutritionists	118	9	20%	70%
Statistician	4	0	10%	90%
Data Analysts	25	2	100%	0%
Community Health Workers	2459	189	100%	0%
Communication specialists	8	1	0	100%
M&E Specialists	57	4	0	75%

Table 7. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States MoHs/SPHCDA as of December 2020

Category	% with Post-graduate qualification	% with data collection and management skills	Mean Years of Experience
Nutritionists	10%	85%	18
Statistician			
Data Analysts	0%	75%	15
Community Health Workers	0%	80%	17
Communication specialists	0%	30%	18
M&E Specialists	25%	40%	20

Analysis of Technical Means and Tools for FNS Data Collection

The health system has a relatively adequate number of tools and equipment for data collection and other administrative work. An average of seventeen computers for data analysis and other administrative work were found. Kano State has the highest number of one hundred computes, and the least number of four (4) was found in Gombe and the Sokoto States each. An average of twelve tablets for data collection was found within the health information system, with Kano State having the highest 60. The least number of two (2) was found in Sokoto, Kebbi, and Zamfara each. States

such as Taraba, Adamawa, and Borno do not have Tablets for data collection. An average of one vehicle for monitoring community nutrition activities was found across the states. Borno and Adamawa do not have any vehicle dedicated to monitoring nutrition-related activities. All the states MoHs have a website on which activities conducted are reported, and they also use social media (Twitter) for interacting with the public. Most MoHs have computers dedicated to storing data and reports, but the databases are not accessible to the public. Statistical packages are not used among the MoHs, except for Adamawa State, which reported possessing one statistical package for data analysis.

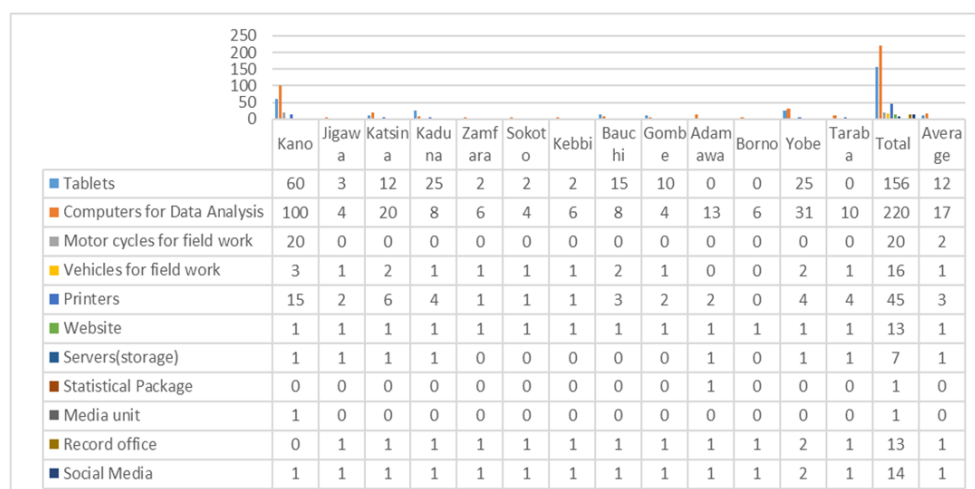


Figure 6. Equipment and Tools Available for FNS data collection Activities at the MoHs level in the NW and NE States as of November 2020

STATES EMERGENCY MANAGEMENT AGENCIES (SEMAs)

Institutional and Organisational Profiles

The SEMA is responsible for implementing disaster management policies and activities at the state level. Such a body is established through state legislation in all thirteen states. A Director-General (DG) heads the SEMA under a governing council headed by the state Deputy Governor. The SEMA DG serves as the secretary to the council. The governing council consists of a representative from all the state ministries and relevant federal ministries and agencies. The monitoring and evaluation units of the SEMAs are responsible for collecting and reporting the agency activities, including reporting on hazards and vulnerabilities occurrences in the states. A typical organogram of a SEMA is given in annex5.

Analysis of Human and Technical Capacities of the SEMAs

Number of Technical and Field Staff

The available technical personnel at the SEMAs are summarised in Figure 7. The total number of Field data collectors was 178, and the average was 14. Taraba and Adamawa states have the highest number of field data collectors of 31 and 20, respectively. Other key staff needed for data collection and processing activities, such as statisticians and M&E specialists, were grossly inadequate among the SEMAs across the states. There are no statisticians and communication specialists in most states, and only an average of one (1) M&E specialists were found among the SEMAs. A total of 16 and an average of two (2) other technical staff not directly involved in data collection activities were found among the SEMAs. Except for Sokoto SEMA having one (1) agricultural technologist, all the states do not have any personnel with bias in agriculture. This may limit the capacity for quality data collection and analysis related to agriculture and food security.

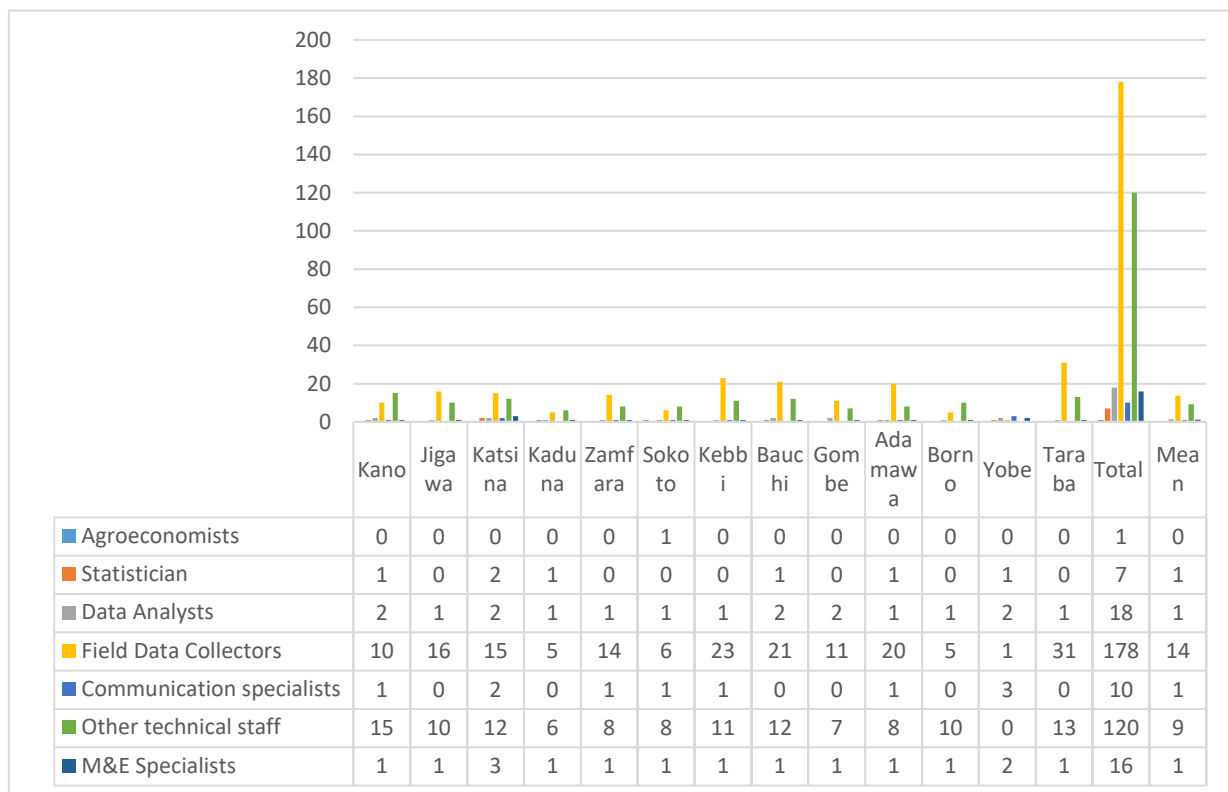


Figure7. Inventory of Technical Personnel in the NW and the NE States SEMAs as of December 2020

Qualification and Years of Experiences of Technical and Field Staff

The technical personnel of the SEMAs across the states have OND/HND and B.Sc. as their highest qualifications. The statistician and Agricultural Technologist, even though very few, all have a B.Sc. Degree as the highest qualification. Data analysts and field data collectors have OND/HND as their highest qualification. Other technical staff work in

various departments with 60% and 40% having OND/HND and B.Sc. Degree as their highest qualifications, respectively.

Table 8. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States SEMAs as of December 2020

Category	Total No.	Mean No.	% with OND/HND	% with B.Sc.
Agricultural Technologists/Technician	1	0	0%	100%
Statistician	7	1	0%	100%
Data Analysts	18	1	100%	0%
Field data collectors	178	14	100%	0%
Other technical staff	120	9	60%	40%
Communication specialists	10	1	0%	100%
M&E Specialists	16	1	0%	100%

Table 9. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States SEMAs as of December 2020

Category	% with Post-graduate qualification	% with data collection and management skills	Mean Years of Experience
Agricultural Technologists/Technician	0%	0%	16
Statistician	0%	0%	18
Data Analysts	0%	0%	15
Field data collectors	0%	0%	12
Other technical staff	0%	0%	15
Communication specialists	0%	0%	12
M&E Specialists	0%	0%	15

Analysis of Technical Means and Tools for FNS Data Collection

There is a limited number of tools for data collection among the SEMAs, as shown in Figure 8. An average of four

(4) computers was found, with Borno having the highest ten data management and storage computers. None of the SEMA reported having Tablets or other mobile devices to collect data. In terms of mobility,

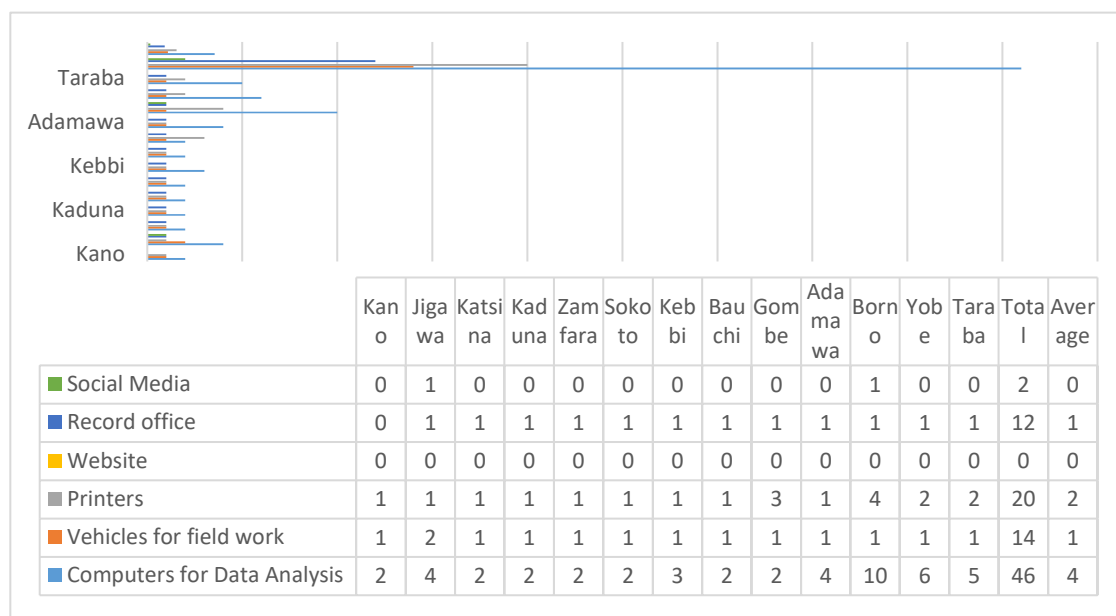


Figure 8. Equipment and Tools Available for FNS data collection Activities at the SEMAs level in the NW and NE States at of November 2020

STATES BUREAUS OF STATISTICS OR UNITS (SBSS)

Institutional and Organisational Profiles

The State Bureau of Statistics (SBS) or its equivalent unit exists in thirteen states. The statistical unit operates under the budget and planning ministry in most states and not as an independent agency. However, in Kaduna, Kano, and Gombe states, the statistical units are well established as the State

Bureau of Statistics (SBS) backed by statistical laws and legislation. Such a process progresses in some other states, such as Bauchi and Jigawa. The state's statistical agencies or units have the mandate to collect and analyse economics, trade, agriculture, and other economic sectors. However, the SBSs across the states have minimal capacities for collecting and analysing data across various sectors. A Statistician-General heads the various states' statistical agency under the State Ministry of Budget and planning supervision. A typical organogram of a state Statistical Bureau is given in annex6.

Analysis of Human and Technical Capacities of the Number of Technical and Field Staff

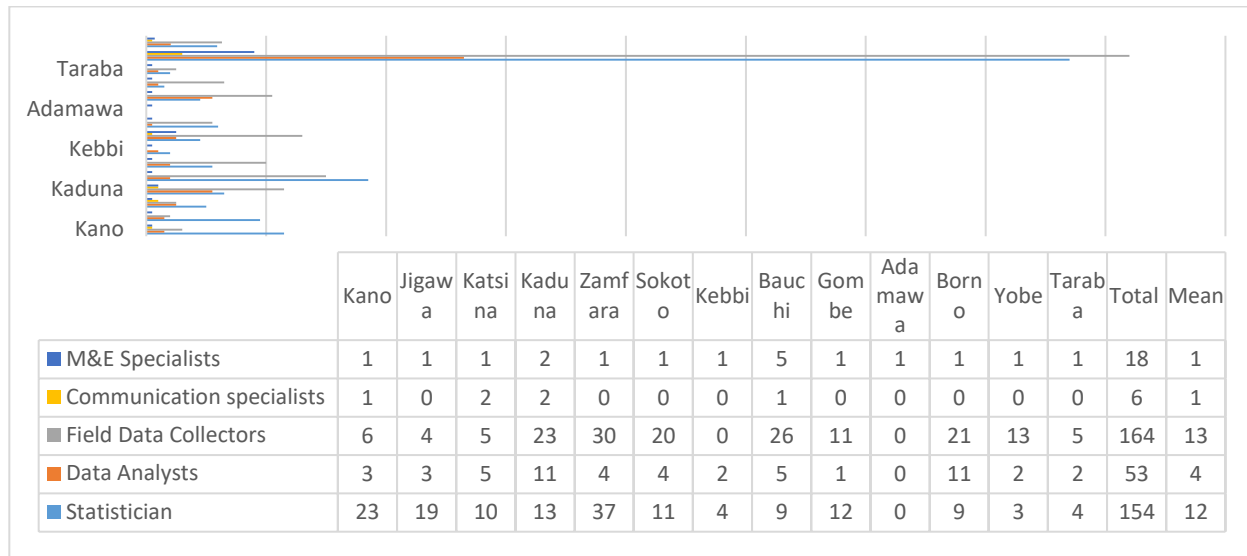


Figure 9. Inventory of Technical Personnel in the NW and NE States SBSs as of December 2020

Qualification and Years of Experiences of Technical and Field Staff

Table 10. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States SBSs as of December 2020

Category	Total No.	Mean No.	% with OND/HND	% with B.Sc.
Statistician	154	12	30%	60%
Data Analysts	53	4	100%	0%
Field data collectors	164	13	100%	0%
Communication specialists	6	0.5	0%	100%
M&E Specialists	18	1.4	0%	100%

Table 11. Breakdown of Personnel According to Qualification and Years of Experience for the 13 States SBSs as of December 2020

Category	% with Post-graduate qualification	% with data collection and management skills	Mean Years of Experience
Statistician	10%	30%	26
Data Analysts	0%	40%	17
Field data collectors	0%	70%	14
Communication specialists	0%	0%	12
M&E Specialists	0%	20%	16

Analysis of Technical Means and Tools for FNS Data Collection

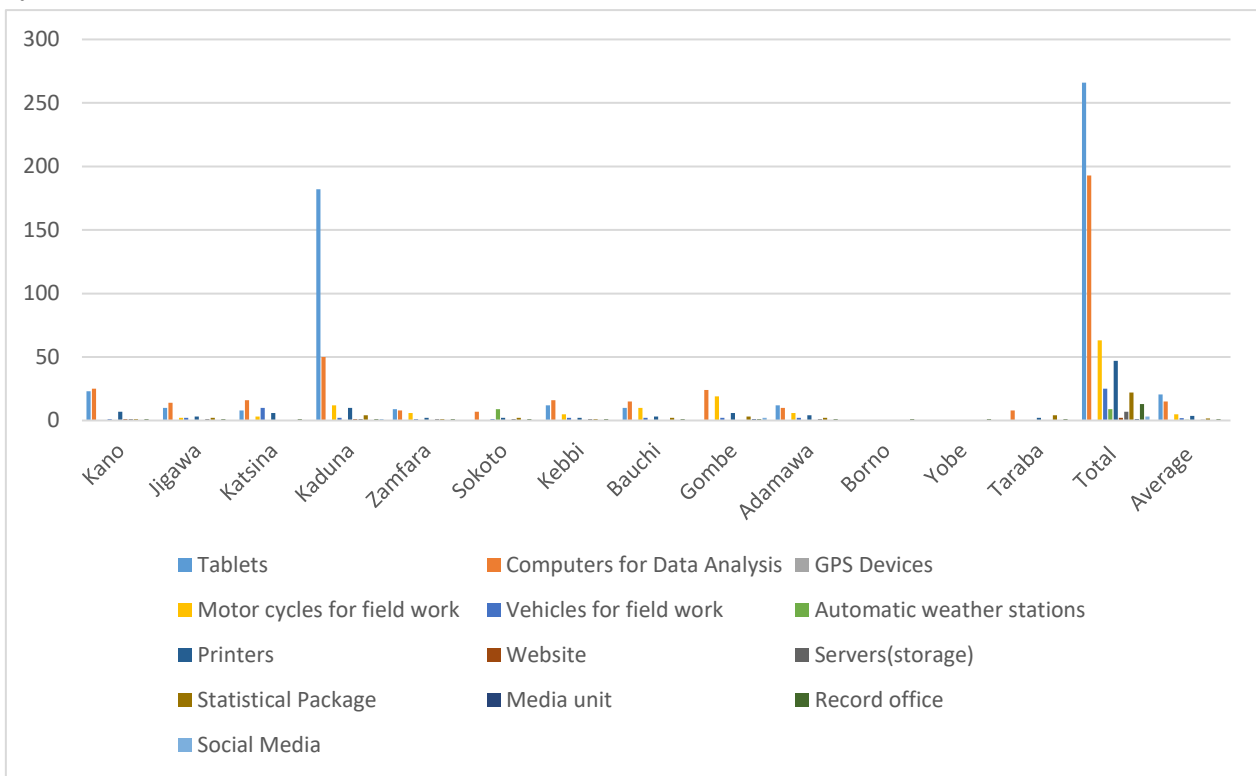


Figure 10. Equipment and Tools Available for FNS data collection Activities at the SBSs level in the NW and NE States at of November 2020

FNS Data Generated by FNS Information Systems in the States

The assessment specifically analysed the types and qualities of information collected by the critical structures constituting the states' FNS information system and the methodologies for collecting and disseminating such information for CH analysis, decision-makers, and development partners. Two types of information systems, Agricultural and Health information systems, collect Food and Nutrition Security (FNS) data in the states. The different FNS information domains supposed to be covered by the systems were Food Consumption and Livelihood, Food Availability, Food Access (Market Prices), Food Utilisation including water, Nutrition and Mortality, Hazard and Vulnerability. The Ministries of Agriculture and Natural Resources (MoAs), the Agricultural Development Programmes (ADPs), and the States Bureau of Statistics are the critical structures making up the agricultural information system in all the States studied. Other structures contributing to the system include the State's Emergency Management Agencies (SEMAs) and Water Resources Ministries. The FNS data collected by the system were mainly in the following domains.

Food Consumption and Livelihood Indicators

The food consumption indicators capture not only the quantity but also the quality and diversity of Food. The ADPs, MoAs, and the SBSs do not have the technical abilities and

funding for conducting formal Food Security surveys to enable the reporting of leading food consumption indicators (e.g., FCS, HDDS, HEA, CSI, and HHS) required by the CH analysis. Such indicators are needed for conducting a robust FNS analysis based on the established CH process. Traditional Food Security surveys that produce such indicators at the state level are mostly designed and conducted at irregular intervals by international partners such as FAO and WFP in collaboration with the states.

Food Availability and Utilisation Information

The States ADPs, in collaboration with the Ministries of Agriculture, collect and report data on some critical food availability information, especially those related to agricultural production and productivity. Agricultural production data are collected annually by all the ADPs/MoAs through an Agricultural Performance Survey (APS) survey. The APS design, funding, and implementation are coordinated by the National Agricultural Extension and Research Liaison Services (NAERLS) across the 36 States and the Federal Capital Territory (FCT) with funding from FMARD and support from International Partners such as FAO and WFP. The APS provides comprehensive information on wet season production and productivity parameters for major crops and livestock in each state. In addition to production data, the APS also reports other parameters such as access to potable water, incidences of pests and diseases, drought, and resource conflicts in the States. The ADPs are responsible for field implementation of

the APS using their field data collectors while reporting and disseminating the results at the national level by the NAERLS. The state-level meta-data of outputs, area cultivated, yields, and prices of primary Food and cash agricultural commodities are kept in the database of the M&E units of the respective ADPs. The APS is the only source of disaggregated agricultural production information used by the FMARD and other stakeholders, including the UN agencies such as FAO and WFP, for policy planning and other decisions.

Market Prices, Hazard and Vulnerability Information

In all the 13 States, the ADPs collect and report primary food and cash commodities prices for selected markets using the Market Price Survey (MPS). In conducting the MPS, the ADPs use their pooled enumerators in the various marketplaces. MPS is designed, implemented, and funded wholly by the ADPs in collaboration with the ministries' technical staff in the various States. In most cases, the market surveys are implemented weekly across some selected markets. The ADPs' M & M & M&E units of the ADPs report the results monthly as administrative reports in hard copies. The State Emergency Management Agency (SEMA) is the main structure in each state responsible for collecting and reporting data on hazards and vulnerabilities. The SEMAs collect the data using standard M&E data capture forms. The ADPs/MoAs collect such information in secondary form from the SEMAs and report it as part of the annual APS.

COORDINATION AND LINKAGES AMONG THE FNS INFORMATION SYSTEMS IN NIGERIA

Firstly, it is noteworthy that there is no system to ensure that FNS data are shared and stored at a single point, whether at the state or national level. The FMARD is currently the lead agency for food security and has the mandate to coordinate food security activities, including FNS information at national and state levels. The PCU/NPFS under the FMARD is the coordinating body that brings all the

FNS information systems in the country together under the Cadre Harmonise Analysis Cells established at National and States and the FCT. The CH analysis is currently conducted in sixteen northern states. The FCT and all the Agriculture and Ministries of Health, the States Bureau of Statistics, and the SEMAs of the seventeen states, including FCT, are involved in the process coordinated by PCU/NPFS. Critical structures taking part in the CH processes at the national level include NAERLS, NBS, FMH, and NEMA. The FNS analysis process is based on the CH framework coordinated by the FMARD and primarily funded and facilitated by CILSS, FAO, WFP, and FEWSNET since its start in 2015.

The national Agricultural Early Warning System set up under the FMARD-PCU is expected to create and manage a central database of agricultural information that could be used to conduct formal FNS analysis. The EWS-PCU is not yet operating such a central database. Such a system is needed to properly coordinate and disseminate the country's FNS-IS data and information. Presently, the CH analysis Cell at the national and state levels is the only body that brings all the structures involved in generating FNS information. Since the beginning of the CH processes in 2015, the participating states' CH cells have brought together data related to FNS from all the relevant sources to conduct FNS analysis in March and October. The results are validated and disseminated to decision-makers and technical partners at the national level. The various State-based FNS information systems are expected to be the leading data providers needed for conducting the FNS analysis. Such systems are technically and financially constrained to perform such a role. Most of the core data required for the FNS analysis since 2015 were obtained from surveys funded by international partners. National partners such as NAERLS provide information about contributing factors such as food availability variables from the APS funded by the FMARD, NIMET, and NIHSA and provide organic data related to climate and hydrology.

Table 12. summarizes the institutions and organizations using and producing FNS information at the country's national and state levels

STRENGTHS (+)	WEAKNESSES (-)
<p>Mandate activities ensure contact with farmers/communities and thus enabling ease of data and information generation.</p> <p>The structures have some technical and field staff with experience. Data gathering can be easily implemented.</p>	<p>Inadequate funding and a lack of alternative funding sources. The system should look for alternative funding strategies.</p> <p>Inadequate data collection and dissemination tools and facilities (e.g. Tablets, websites, databases). The provision of funding to acquire such tools will improve data generation and dissemination.</p> <p>The existing technical personnel are retiring without replacement. Such a scenario creates a vacuum in terms of skill for implementing activities. Recruitment of personnel is necessary.</p> <p>Insufficient skills and capacities among critical technical personnel. Provision of technical support and training is necessary.</p>

OPPORTUNITIES (+)	THREATS (-)
<p>Stakeholder demands at various levels for state-based FNS data to make decisions and develop programming. All data collection activities should be designed and implemented to better meet the requirements of diverse stakeholders.</p> <p>The various structures have unique mandates for carrying FNS related activities in their states. Advocacy for partnership and funding should be implemented.</p>	<p>Low rating (among wider stakeholders) regarding quality and reliability of data generated by grassroots structures. Such perception may limit funding opportunities.</p> <p>Poor and lack of systematic funding from the state governments for carrying out FNS data collection and dissemination activities. Limited funding constrained FNS data collection and dissemination.</p>

CONCLUSION AND RECOMMENDATIONS

Across the 13 States, information systems produced some FNS variables (contributing factors) at a minimally acceptable quality and reliability, fed into the traditional CH analysis conducted at each state, validated at the national level for dissemination to decision-makers and development partners. The core indicators needed for analysing FNS outcomes are obtained through formal surveys implemented at the national level by UN-based organisations in collaboration with NBS and other partners. The study's findings indicated the state-based FNS information systems' low ability to produce the required data, especially the primary FNS indicators for the CH analysis and other policy decisions. Key factors contributing to this situation include (i) limited capacity in human resources and methodological competencies for data collection, management, presentation, and dissemination. (ii) Limited financial support for the implementation of data collection activities. Based on the assessments of the FNS information systems of the 13 states, the need for strengthening the data collection, management, and dissemination capacities within the state's structures to enhance evidence-based analysis and informed decisions is evident. The study, therefore, recommends the development of the technical capacity of the various structures involved in FNS data collection in methodology, data management and dissemination through implementing short courses, Improving the quality and reliability of FNS data generation, sharing and dissemination among state-based information systems; Strengthening of the Coordination of food and nutrition security information systems at the state-level and lastly develop mechanisms and strategies to improve and sustain Food and Nutrition Security Information systems' funding at the states level.

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