



2021 POPULATION AND HOUSING CENSUS

POST ENUMERATION SURVEY (PES)

FIELD OFFICER'S MANUAL

STATISTICAL SERVICE, ACCRA

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LIST OF ABBREVIATIONS

ZPESIC	Zonal Post Enumeration Survey Implementation Committee
DCO	District Census Officer
ZDQMT	Zonal Data Quality Management Team
ZITO	zonal IT Officer
EA	Enumeration Area
FSSR	Final Supervisor's Scrutiny Report
GPS	Global Positioning System
GRATIS	Ghana Regional Appropriate Technology Industrial Service
JHS	Junior High School
IT	Information Technology
ITTU	Industrial Technology Transfer Unit
M&E	Monitoring and Evaluation
NVTI	National Vocational Training Institute
PHC	Population and Housing Census
POI	Point of Interest
RCIC	Regional Census Implementation Committee
RCO	Regional Census Officer
SA	Supervisory Area
PES	Post Enumeration Survey
SFS	Senior Field Supervisor
SHS	Senior High School
TVET	Technical Vocational Education and Training
WASSCE	West African Senior Secondary Certificate Examination

INTRODUCTION

This manual is intended for field staff who will collect data from selected Enumeration Areas for the purpose of 2021 Population Housing Census (PHC) evaluation. It aims to help them to complete the Post Enumeration Survey (PES) questionnaires correctly. To do this, it contains explanations necessary for proper interpretation of the contents of variables to be investigated and measured in the field.

The task of enumerators is essentially to interview heads of households (or eligible respondents), and record responses on questionnaires developed for this purpose. This operation requires a certain quality of physical and moral order, and discretion on the part of enumerators as to what should be regarded as confidential information. Enumerators will be guided in the field by Supervisors to follow the right procedures to ask questions in the questionnaires appropriately and to record responses correctly. They will be assisted by their supervisors in resolving challenges/difficulties that may confront them during the data collection exercise.

This exercise is very important and Enumerators and supervisors should know that the results of this exercise will not only give information on the population and housing structures and their occupants but will above all provide an effective tool for the 2021 census assessment. Accordingly, it is the task of everybody to endeavor to understand the purpose of the Post Enumeration Survey (PES), and to diligently participate actively and willingly.

CHAPTER 1

1. THE CONCEPT OF PES AND OVERVIEW OF CENSUS EVALUATION

1.1 What is a Population census?

A Population census is the official enumeration of all persons in a country at a specific time. This census also implies the collection, compilation, evaluation, analysis, publication and dissemination of demographic, social and economic statistics relating to the population.

1.2 Why are we conducting the Census?

A Population and Housing Census (PHC) have many uses. The PHC will give us the total number of persons and housing types and their characteristics in every locality in Ghana (town, village, community, etc). The information will be of great help to the Central and Local Government, in planning various educational, health, housing and other social services. The information derived from the Census will also help businessmen/private, corporate entities and other policy makers to plan their activities which will be of benefit to the economic development of the country.

Since the last census in 2010, there have been many changes in the structure of the population as well as Districts/Municipals/Metropolitan boundaries. The 2021 PHC will thus assist in updating the socio – demographic and economic data of the country and ascertain changes in the population structure.

Foreign countries and other world bodies also need the PHC information when planning technical and economic assistance for the country.

1.3. Census errors

Errors in censuses can arise from many sources such as field data collection and processing procedures. Census designs can also be a source of error by introducing measurement error through wrong questionnaires, instructions, training materials, and procedures for data collection. It must therefore be pointed out that errors are inevitable in a large scale data collection exercise such as the census.

Coverage error refers to either an under-count or over-count of units owing to omissions of persons/ housing units or duplication/erroneous inclusion, respectively. Content error on the

other hand, pertains to the error in the characteristics that are reported for the persons or housing units that are enumerated. Both errors can affect the distribution of the population with respect to their characteristics.

There are three types of coverage error:

- (a) Omissions
- (b) Duplications and
- (c) Erroneous inclusions

These errors can also occur in the recorded characteristics with respect to enumerated persons such as age, family relations, marital status, etc.

1.3.1. Omissions

This results from missing housing units, households, or persons during census enumeration. In the case of missing the whole housing unit, it implies that all households and persons living in that housing unit will also be missed during the census enumeration.

The major causes of omission of housing units include; failure to cover the whole land area of the country in creating enumeration areas for enumerators in canvassing in assigned areas. The former problem can be caused by unclear boundaries of enumeration areas, wrong maps or coverage error made by field staff in the pre-census listing exercise. The errors associated in canvassing can be caused by ambiguous definition of enumerator assignments, wrong enumeration areas (EA) maps, and laxity of an enumerator. Missing of persons within enumerated dwellings can occur because all or some of the persons were not present on the census date or night. Furthermore, inadvertent or deliberate omission of some household members by the respondent may occur. This often occurs for people loosely connected to dwelling, thus, who sleep there irregularly, etc.

1.3.2. Duplications

Duplications occur when persons, households or housing units are enumerated more than once. They also occur owing to enumerators overlapping of assignments owing to, perhaps, errors done during pre-census listing and EA delineation including failure by enumerators to clearly

identify boundaries of EAs on the ground. In practice, the number of omissions usually exceeds the number of duplications. Thus, it is common to have a net census undercount.

1.3.3. Erroneous inclusions

This includes housing units, households, and persons that are enumerated in the census while they should not have been or were enumerated in the wrong place. For example, including in a census of people who died before the census date and births after the census date.

1.3.4. Gross versus net error

Gross coverage error represents the sum of three components of coverage error namely, duplication, erroneous inclusions and omissions. Net coverage error is the difference between over- counts and under- counts. In most cases net coverage error is negative because under-counts exceed over-counts. With respect to coverage error, gross census coverage error would consist of: All persons omitted PLUS all erroneous enumerations.

In measuring net census coverage error we have to recognize that omissions result in underestimating the population while duplication and erroneous inclusions results in the overstatement of the total population, therefore this has to be taken into account in the analysis. This implies that the net census coverage error would be measured by the excess or deficit of errors resulting in population underestimates over the errors resulting from population overestimates. In this regard a net census under-count exists when the number of omissions exceeds the number of duplicates and erroneous enumerations. On the other hand the net census over-count exists when the number of duplicates plus erroneous enumerations exceeds the number of missed enumerations.

1. 4. Overview of census evaluation methods

There are a number of methods used to evaluate censuses including: demographic analysis; interpenetrating studies used in conjunction with a current census; record checks and comparison of census data with results of existing household surveys; post enumeration surveys (the focus of this manual). Evaluation methods differ with respect to technical sophistication, data requirements and quality of results. An analytical framework can be created by grouping methods on the basis of three criteria:

- (i) whether the method uses a single source of data;

- (ii) methods requiring multiple sources of data for matching or those that do not;
- (iii) the type of error to be measured (e.g. coverage and content error).

If the information for evaluating the census is from the census itself, thus a single source of data, there are two methodologies which can be used, namely:

- (i) demographic analysis and
- (ii) interpenetrating subsamples which may be carried out as part of the census operations.

As indicated later the evaluation methods on a single source, in this case, from the results of the census itself are limited.

If the information for evaluating the census comes from sources independent from the current census there are possibilities of a wide range of evaluation methodologies to use. Methods which depend on two or more sources of data are more powerful in assessing the different contributions of different types of error. The following methods fall into this category: post enumeration surveys; record checks; comparisons using results of existing household surveys. These methods are in the category of matching studies. Non-matching studies will include: demographic analysis using previous censuses; comparison with administrative records; and comparison with existing households survey results.

1.5 What is Post Enumeration Survey?

As earlier stated, the primary objective of a census evaluation exercise is to determine the sources and magnitude of coverage error and content error (for some selected variables). For many developing countries the Post Enumeration Survey (PES) has become a plausible independent evaluation programme. This is partly because other independent sources of data with relevant, comprehensive and reliable information are not that common (ECA, 1999).

According to the United Nations Principles and Recommendations for Population and Housing Censuses, Rev.2, PES is a complete re-enumeration of a representative sample of a census population followed by matching each individual enumerated in the PES with information from the census enumeration (UN, 2008). The results of the comparison are mainly used to measure coverage and content error in the context of the census. Some countries only confine the PES to evaluating coverage error. Coverage error refers to housing units, households and people missed in the census or those erroneously included. On the other hand content errors evaluate the response quality of selected questions in a census and are also a basis for evaluating reliability of some characteristics reported in the census.

1.6 Objectives

The PES has the following specific objectives:

- (a) To measure under-coverage and over-coverage of persons and in some cases households/housing units. Thus, the PES can indicate to census data user's specific coverage problems inherent in the census data and such errors can be quantified.
- (b) To measure levels of agreement for responses to questions on selected characteristics, such as sex, age, marital status, relationship to reference person or head of household;
- (c) To evaluate the comprehensiveness and definition of area primary sampling units (PSUs), such as EAs, as suitable units to be used in frame(s) of inter-censal surveys. One of the main objectives of the census is to develop a complete, accurate and up to date frame for use in inter-censal surveys, therefore through the PES the selected EAs can be evaluated;
- (d) To offer the opportunity to learn from procedural and conceptual limitations in the census which need improvement in future censuses and large-scale surveys. A PES can identify erroneous procedures used in a census. In conducting subsequent censuses, some lessons learnt from the PES would be used to improve implementation and methods of future censuses.
- (e) To provide a statistical basis for adjustment of census results. On the basis of net coverage rates adjustments may be made to population census results. Using results from a carefully designed and implemented PES, under or over counts can be converted into adjustment factors and the census population increased or decreased accordingly by such factors. The adjustment is done at national and at times at other large domain levels. We should point out that there are many countries that do not adjust census figures, for various reasons, on the basis of PES results.

1.7 Implementation of PES

A number of factors contribute to errors in executing a PES, among them: use of wrong maps defining enumeration areas and unclear addresses especially in rural areas; poor publicity; shortage of transport facilities and limited communication during the data collection exercise; poor planning for data collection and data processing activities coupled with resource constraints. For a successful PES the above-mentioned causes of error need to be avoided or mitigated. In implementing the PES, there are stages or processes that one needs to go through. These are as follows: pilot test, listing and enumeration, matching of data from PES and PHC, reconciliation visits and estimation or data analysis.

1.7.1. Pilot test

A comprehensive test of all PES procedures is advisable. This can be a dress rehearsal of the actual PES just as the pilot census is a dress rehearsal of the census. The pilot test can cover some selected administrative divisions. The aim is to test the adequacy of the entire PES plan and the PES organization. The PES pilot test should preferably be undertaken in conditions similar to the actual enumeration. This implies that the Pilot PES should immediately follow the census pilot test.

The purpose of the pilot PES is to prepare for the main PES; however, while it is not a source of usable substantive data, it provides lessons pertaining to the operational aspects of data collection that can be implemented in the current census. For example, if it is found that some EAs are not clearly demarcated or defined to act as good elements of the area frame, the EAs updating exercise can be mounted before the actual census and PES. Ideally, the pilot should be taken a year before the actual PES just as the Pilot census is taken one year before the planned census (United Nations Principles and Recommendations for Population and Housing Censuses, Rev. 2, 2008). In the 2021 PES, two pilot test has been carried after the 2nd and 3rd trial censuses.

1.7.2. Data collection

The method commonly used in data collection with respect to the PES is the personal interview method. The method entails enumerators going to households, in selected EAs, and interviewing the respondents, thereby collecting information by asking questions from the PES questionnaire. The main advantage of this approach is that the enumerator has the potential to ask probing questions. Additionally, enumerators are in an interactive mode with respondents such that they can explain to respondents the objectives of the PES when asked. The data collection is in two folds, thus household listing and enumeration.

Questionnaire design

Questionnaires for the PES should be designed based on the final census questionnaire in order to facilitate an objective evaluation of the census.

A good questionnaire should have the following qualities: (a) Enable the collection of accurate data to meet the needs of potential data users in a timely manner; (b) Facilitate the work of data collection, data processing and tabulations; (c) Ensure economy in data collection avoiding the collection of non-essential information; (d) Permit comprehensive and meaningful analysis and purposeful utilization of collected data. The PES questionnaire, therefore, must be developed so as to yield data of the highest quality possible with emphasis on relevance, accuracy and timeliness.

Selection and training of enumerators

As earlier stated, enumerators are at the interface with the respondents. Their work is critical to the success of the PES field work. It against this background that the selection of an enumerator should be given great attention and should be undertaken with care and objectivity. In general, an enumerator should be able to effectively communicate with respondents and should have qualities needed to collect accurate information from respondents in a timely manner. An enumerator for the PES must have an adequate level of education and should be able to record information honestly. It is important that the selected enumerators should follow instructions and use definitions and concepts as provided in the enumerators' manual.

Field data collection

The field data collection will adopt procedure C (refer to Section 1.8) which is commonly used and suggested here, the PES questionnaire should allow for the classification of each listed person in a particular household as non-mover; out-move, in-movers or out-of scope.

The above population parameters are defined or described as follows:

- (a) **Non-mover:** a person who resided in a particular household as of the census date and still do at the PES time;
- (b) **Out-movers:** refer to persons who lived in the household on the census date but did not live in the household by the PES date;
- (c) **In-mover:** a person who lived in the household on PES date but did not live in the household on the census date. Such a person arrived in the household after the Census;
- (d) **Out-of-scope:** a person who does not belong to the target population as of the Census date, for example, a child born after the census date and/or in a de facto census a person who lived outside the country on census date but lived in the household on PES date.

1.8 Procedures in PES data collection

There are three basic procedures that can be used in PES to evaluate coverage in censuses. The major difference in the procedures is the treatment of movers. This refers to the people whose location at the time of the PES differs from their locations at the time of the census.

1.8.1. Procedure A

This procedure reconstructs the households as they existed at the time of the census. A respondent is asked to identify, during a PES, all persons who were living in the sample household on census date. These persons are then matched against names address or location on the census questionnaire. From such information estimates of the number of and the per cent matched for no-movers and out-movers can be made.

1.8.2. Procedure B

Procedure B identifies all current residents living or staying in the sample household at the time of the PES. The respondent is asked to provide the address (es) or location(s) where these persons were living or staying on census date. They are then matched against names on corresponding census questionnaire(s). Estimates of the number and per cent matched for non-movers and in-movers are calculated.

1.8.3. Procedure C

Most PES questionnaires collect basic demographic characteristics, as in the census, such as age, sex, relationship to the household head, and marital status. The questionnaire has to be unique to the procedure adopted. For procedure C, for example, the questionnaire is designed to obtain a

listing of all persons currently living at the sample address or location and all possible locations (as in procedure B) of the members of household on a census day including a listing of persons who belonged to the sample address on census day, but were not resident at the time of the PES. The location where the latter might have been enumerated in the census (as in procedure A). Mention should be made that, one purpose of addresses is to enable in-movers to be matched to the census.

Note that estimates of non-movers and movers come from procedure B and match rate estimates come from procedure A. It is clear from the above that procedure C is a combination of procedures A and B. It maximizes the features of the above two procedures thus, minimizes matching difficulties and improves the estimation of movers. The difference between procedures A and B relates to primarily to movers.

1.9 Attributes of a good PES data collection programme

With reference to procedure C the collection of data in a P Sample (refer to Section 1.10) focuses on identifying all residents at the time of the census in addition to those as of the date of the PES.

The PES data collection should take place as soon as possible after the Census to minimize matching difficulties related to changes in the composition of the household between the census and PES dates. On the other hand enough time should be given to allow for retrieval of all census materials from the field to avoid possible contamination between the census and PES operations.

1.9.1. Independence

The Dual System Estimation methodology is based on the assumption that the PES is an independent from the Census. Independence, therefore, requires that the PES must not be influenced by what took place in the census. For example, in theory, the frame should be independent from that of the census; the planning of a PES must be done by and independent group of people; in addition the PES implementation should be independent from that of the census. This implies that different enumerators and supervisors are supposed to be selected and deployed for the PES. However, what is maintained is operational independence, from the census at every stage of the PES such as enumeration, data. If census enumerators are used in the PES data collection, they should not be allowed to work in the area they worked during the census enumeration. This is done to avoid a possible bias on the side of the enumerator.

1.9.2. Quality assurance

Just like in a census and any good sample survey, quality control measures are essential to ensure the quality of the operations. This should ensure the completeness of enumeration, control of response error and non-response when classifying enumerated cases. It should be mentioned that pre- tests help identify control measures necessary to ensure quality enumerations at the time of the PES. A concerted effort must be made to identify all households; and it is necessary to make follow-ups of non-respondents and obtain complete interviews without, preferably, any item non response.

1.9.3. Control of non-sampling error

In all surveys there are bound to be non-sampling errors, the focus should be to minimize them. Both sampling and non-sampling errors should be controlled and reduced to a level at which their presence does not compromise the usefulness of the PES results. Non-sampling errors are particularly harmful when they are non-random, because they introduce bias in PES estimates. Such bias is complicated or difficult to measure. The best way to control non-sampling error is to follow the right procedures, in all PES activities including planning, sample design, and processing and analyzing results. Emphasis is laid on careful and intensive training of field staff.

The following are some of the factors which contribute to non-sampling errors in PES:

- (a) Vague objectives resulting in inadequate and/or inconsistent specifications with respect to objectives;
- (b) Duplication or omission of units in the PES due to imprecise definition of the boundaries of the EAs;
- (c) Inappropriate methods of interviewing, observation using ambiguous questionnaires, definitions or enumerator or supervisors instructions;
- (d) Lack of trained and experienced field interviewers including lack of good-quality field supervisors;
- (e) Incomplete identification particulars of sampling units or wrong methods of interviewing;
- (f) Errors occurring in data-processing;
- (g) PES respondent doesn't know census occupants or remembers incorrectly;
- (h) Information for movers is inadequate or not available;
- (i) Other identifying information is poorly remembered for out-movers.

1.10. The P and E Samples

The PES basically involves two samples, namely, P sample and the E sample.

The population (P) sample: consists of a sample of EAs (clusters) drawn from the same target population but independent from the census, for the purpose of estimating census omissions when compared to census records. The estimate of erroneous inclusion provides a correction factor needed in the Dual System Estimate (DSE) of the true population.

The E sample is an enumeration sample drawn from cases already enumerated in the census, but selected for independent re-interview for the purpose of estimating census erroneous inclusions when compared to original census records.

In practice, the E sample can overlap completely with the P sample in order to reduce costs. It, therefore, consists of the same EAs selected for the PES. Omissions, however, are not the complete story in the art of census evaluation. Errors can and are made in a census itself that affect the overall under-and over-count measurement. As indicated earlier the following are some of the other errors:

- (a) the census can contain duplicate or multiple enumerations;
- (b) the census could have people or housing units designated to the wrong geographic area therefore cannot match the PES interview; Post Enumeration Surveys
- (c) People could be less than perfectly enumerated, thus, there could be insufficient information for matching to the PES interview;
- (d) The census can erroneously enumerate someone who should have been enumerated elsewhere or the enumerator could make fictitious persons.

1.11. Matching Operations

After the process of data capture is finalized and all census data prepared for an EA, the next step is to match the two (PHC&PES) sets of results. The matching can be accomplished by computer assisted matching, followed by clerical matching of the remaining non-matches and possible matches.

In general, the basic process of matching involves comparing addresses, names and demographic characteristics between census and PES results. It is, therefore, an operation whereby households, housing units, and persons enumerated during a census and PES are compared for similarities. The operation is done in the office. The advantages of the computer matching include speed and assurance of objectivity by using matching algorithms which are mathematically sound. A two-way matching is used to identify census erroneous enumerations and omissions. Under Procedure C the matching is attempted for non-movers and out-movers.

Cases which cannot be classified on the basis of available information should be referred to the field for reconciliation visits. This enables the collection of additional information which may facilitate proper classifications of match status.

After analyzing the results of reconciliation visits, matching can be finalized.

CHAPTER 2

2. LEGAL AUTHORITY AND CONFIDENTIALITY

2.1 Introduction

The 2021 Post Enumeration Survey (PES) will be conducted in accordance with the Statistical Service Act, 2019 (Act 1003). As a PES official, the law allows you (the enumerator) access to any premises, compound or house for the purpose of enumerating persons and structures. However, the law forbids you from conducting yourself inappropriately. It allows that you only ask such questions as are necessary to complete the questionnaire or check entries already made. Penalties are specified for members of the public who fail to furnish enumerators with the required information or enumerators who fail in their duties. The law particularly stresses on confidentiality of the information collected from individuals.

2.2 Legal Authority for the Census

The Legal Authority for conducting Post Enumeration Survey is the Statistical Service Act 2019 (Act 1003). This Law empowers the Government Statistician to conduct statistical surveys and any Census in Ghana.

2.3 Legal right to enter premises to conduct the Census

Any person authorized by the Government Statistician in writing is empowered to enter any premises within reasonable hours (e.g. between the hours of 6 a.m. and 6 p.m.) for the purpose of enumerating persons. This does not mean that you must work only within these hours. It may be necessary for you to work outside these hours on many occasions depending on the respondent's time schedule. Any person who hinders or obstructs any Census Officer in the execution of his/her duties is guilty of an offence with the penalty of a fine or a term of imprisonment or both.

2.4 The Act requires the public to respond to Census enquiries

The Act also stipulates penalties for failure to furnish information and for making false statements. The penalty is a fine or a term of imprisonment or both (Statistical Service Act, 2019, Act 1003).

2.5 The Act demands careful handling of documents and logistics

It is important to note that there is a penalty for the destruction, defacing or mutilation of forms or other documents and logistics connected with the Census. The relevant section reads as follows:

“Any person, who, without lawful authority, destroys, defaces or mutilates any schedule, form or other document containing particulars obtained in pursuance of the provisions of this Act shall be guilty of an offence and liable on summary conviction to a fine or to imprisonment for a term not exceeding twelve months or to both fine and imprisonment”.

2.6 Confidentiality of Census information

It must be emphasized that the information you obtain is **CONFIDENTIAL** and shall only be used to compile statistics. The law places a restriction on publishing particulars on individuals and that all data are published as numerical tables, summaries and general conclusions. You are not permitted to disclose any information to anyone who is not an authorized officer, nor should you leave the information where others may have access to it. Disclosure of any information obtained in the Census without lawful authority is an offence liable to a fine or a term of imprisonment or both. You will administer the questionnaire using the Computer Assisted Personal Interviewing (CAPI). On no account should you allow any unauthorized person(s) to use your tablet or any of the Census forms.

All the Census information you receive must be kept confidential. Under no circumstance must you reveal any information to anyone unless he/she is a sworn employee of the Ghana Statistical Service (GSS) and needs it for official purposes.

2.7 Taking of Oath of Secrecy

To enforce this confidentiality, you will be required to take an oath of secrecy (see Appendix 10). In the oath taking, you will promise to fulfil your duties as a field officer faithfully and honestly and you will promise not to disclose any information which comes to your knowledge by reason of your engagement as an enumerator/supervisor. This oath is prescribed by the law and is administered to all the staff of the Statistical Service as well as all other persons engaged to perform a duty under the Statistical Service Law. If you break your oath, you will be guilty of an offence and liable to punishment. Any person who fails to take the oath will not be allowed to work as an enumerator/supervisor for the PES.

CHAPTER 3

3. YOUR BEHAVIOUR AS A FIELD OFFICER

3.1 Your behaviour is important

The success of the whole PES operation depends to a large extent on how well the people you interview co-operate in giving you the information you ask for. By the time you approach the people, every effort will have been made to publicize the PES through all the important means of publicity and education such as the Press, Television, Radio, Chiefs, Assemblymen, Unit Committee Members and Schools in order to obtain the co-operation of the people. Nevertheless your success depends greatly upon the manner of your approach.

3.2 How to approach people

Whenever you are about to enter a house for the interview, remember that you are a stranger to the house and must, therefore, observe all the rules and customs governing visits to other people's houses:

- (a) Knock before you enter;
- (b) Greet the people in the customary way
- (c) Look cheerful
- (d) Ask for an elder of the house and explain to him briefly the object of your visit.
Example: - "Good Morning Sir/Madam, I am sure you have already heard about the Population and Housing Census which was conducted about one month ago. I am an Officer from the Ghana Statistical Service and my work is to enumerate every member of your household. This information is needed to check the correctness of the information that was collected during the Census so that the Government and other policy makers can plan for a better Ghana". The information you give me will be treated with the utmost confidentiality and will not be disclosed to anybody.

Many of the people you will visit may know already the nature of the work you are engaged in. However, if some of the people you visit do not appear to know anything about the PES, you must explain briefly the nature of the operation to them. You must emphasize that the PES operation will check the correctness of the information collected in the Census such that realistic development plans e.g. provision of pipe-borne water,

construction of roads, schools, hospitals, etc. can be formulated. You must also stress that the PES has nothing to do with taxation. In fact the Statistical Service Law (2019) forbids the disclosure of any information acquired under the act to any Ministry, Department or other Government organization for the purposes of taxation.

- (e) Immediately after your brief explanation you must proceed to obtain the information required. Do not spend more time than is necessary with any one person.

3.3 Language of the interview

You must as much as possible conduct your interview in a language that is understood by the person who is answering your questions. Occasionally, you will come across individuals who do not understand any of the languages you speak.

If substantial portion of persons in your EA do not understand your language you must, with the approval of your field Supervisor, engage a regular interpreter. This regular interpreter must take the oath of secrecy so that he is also bound by the Statistical Service Law.

In certain cases, too, you may find a person in the same house or a neighboring house to interpret your questions. This person must be told he must not add anything to the questions you have asked nor must he volunteer any explanations. Before a person from the same or neighboring house is asked to do your interpretation, make sure your respondent agrees to it. If the respondent raises any objection to the presence of the interpreter you will have to change him/her. You may also rely on school children who can sometimes interpret your questions to their parents. If you cannot get anybody to do so, make a note of this household and your Supervisor must report the issue to the PES Team as soon as possible.

3.4 The Clothes you put on matters

Do not do anything to frighten the people whose co-operation you are seeking. It is important therefore, not to dress like a policeman, a soldier, fire or prison officer, customs or immigration officer or a scout. Also, avoid the use of paraphernalia of any political party. Put on simple but decent clothes. The golden rule is that dress to blend with the environment of the interview. Remember to put on your Field Jacket, ID Card and Nose mask at all times.

3.5 Patience and tact are needed

Remember that your potential respondent might also be one of the respondents of the just ended PHC and may be suffering from fatigue. Hence, you must be very patient however provocative a

respondent may be. This is very necessary in order to obtain the co-operation of all kinds of people. You must not under any circumstance lose your temper because this can disrupt the entire operation and make it difficult for you to proceed further. You must also be courteous and friendly.

3.6 Some Interviewing Skills

Field Officers must utilize the following interviewing skills:

- a. Striking a good rapport with the respondent
- b. Being mindful of their sitting posture during interviews
- c. Obtaining respondents' consent before starting interview
- d. Maintaining neutrality throughout the interview period
- e. Refraining from suggesting answers to the respondents
- f. Not changing the wording or sequence of questions
- g. Handling difficult/reluctant respondents tactfully
- h. Not forming opinions
- i. Not rushing through the interview
- j. Being courteous, patience and tactful
- k. Answering questions from the respondent frankly
- l. Keeping to appointment times on the call-back card and never keeping the respondents waiting

3.7 How to deal with difficult cases

Occasionally you may come across people who show a suspicious or uncooperative attitude. In such cases:

- (a) You may obtain help from neighbours whom you have already enumerated. If you are able to find another person known to the uncooperative respondents to help you in the purpose of your visit, you will often obtain a favourable response;
- (b) You may obtain help from the local chief or headman or Assemblyman/Unit Committee member if you approach him in a proper manner. For this reason, it is always advisable to pay a courtesy call on the chief or headman or Assemblyman of any town, village or hamlet you visit before you start your work. You must explain your mission to him/her and let him/her know the important part to he/she will play in ensuring that your mission is successfully carried out.

If you cannot get help from any of the above-mentioned persons, you must point out to the uncooperative person that all the information you are collecting is confidential and will not be

disclosed to anyone. If this approach fails, then tell him the law requires him to give answers to your questions. If he still refuses to co-operate, report the issue to your Field Supervisor.

3.8 Things you must do

- (a) As far as possible, only sound adults must be interviewed. Information must be obtained from children only when there is no alternative;
- b) Wear your PES Officer's Badge, and carry your Identity Card, and your Enumerator's Manual at all times when working on the PES;
- (c) Study your Manual thoroughly in order to do your work efficiently;
- (d) Discuss all your problems and uncertainties with your Field Supervisor;
- (e) Be patient, tolerant, and courteous at all times when dealing with respondents;
- (f) Visit again and again households where enumeration has not been completed;
- (g) Always conduct the interview in such a way that the respondents get the feeling of "confidentiality".

3.9 Things you must not do

- (a) Do not interview people in a group except when they are members of the same household;
- (b) Do not permit any unauthorized person to accompany you on your visits. If in an exceptional case, you have to depend on a guide to locate a hamlet or house, do not allow him to listen to the interview;
- (c) Never discuss politics or religion, nor must you allow yourself to be involved in any controversial arguments while engaged in enumeration;
- (d) Do not argue with your respondents;
- (e) Do not discuss to anyone, except to PES Officials, any of the information you receive in the course of your duties as an Enumerator
- (f) Do not permit any unauthorized person, not even a member of your family, to see the completed questionnaires;
- (g) Do not delegate your work as an Enumerator to another person;
- (h) Do not combine your PES work with any canvassing for any personal gain, your church, political party or any other organization.

3.10 The success of the PES depends on you

The success of the PES depends on how well you carry out your tasks as an Enumerator. Among other things, you must be conscientious and honest. Do not hesitate to bring to the notice of your Field Supervisor anything which seems doubtful to you. Note that your entries will be scrupulously checked by your Field Supervisor and if there are any mistakes you will be asked to go back to the field and correct them.

CHAPTER 4

4. PRELIMINARY OPERATIONS BEFORE THE ENUMERATION PERIOD

4.1 Training programme for all Enumerators

Every person who is recruited for training as a Field Staff for the PES is expected to attend a training programme. During this training, lectures will be given covering all aspects of your work. In addition to the lectures you will do both home and field exercises. The training would adopt a participant-centred approach which involves lectures, face-to-face interactions, mock interviews, field practice, small group discussions (using English and local languages) and assessments to ensure that concepts, definitions and procedures for collecting PES data are well understood. You must treat both the lectures and other activities seriously because it is only after the training course that the best trainees will be finally selected as Supervisors and enumerators.

Note that Field officers would be selected for fieldwork based on the criteria below:

- a) Performance in assessment
- b) Contribution made during training sessions
- c) Performance during field practice
- d) Fluency in one or more local language(s) spoken in the district
- e) General appearance, attitude and behaviour
- f) Punctuality and attendance

Hence, you must also conduct yourself well during and after training periods.

4.2 Documents and materials, you would receive after training

For a successful execution of your duties as a field officer, you will be provided with the following documents and materials:

- a) Tablet and accessories
- b) SD Card
- c) SIM Card
- d) Tablet Case
- e) Power Bank
- f) Jacket
- g) Field Bag
- h) Identity Card
- i) Letter of introduction
- j) Lister's Materials Receipt Form (Photocopy)
- k) Raincoat
- l) Wellington Boots (in rural and marshy areas)

Field officers should complete the appropriate part of the Materials Receipt Form (refer to Appendix 2) whenever they receive any documents or materials from the Field Supervisor, and

the latter will do the same whenever they hand over any documents or materials to him/her. Some of the items like the tablet, power bank, and ID card should be returned at the end of field work. You need to take note of this information because failure to submit a returnable item would attract a penalty.

4.3 Plan well before setting off to field

4.3.1 Draw your itinerary

The supervisor will lead the team member to draw up your itinerary for the field visit and submit this to your Field Monitor/PES team. The purpose of this itinerary is to fix the approximate date when you expect to visit each locality or area. Your visits must be systematic and orderly. The team is in the best judge how it can cover all the areas. But if you get ahead of your schedule, do not stop.

This itinerary will not show the order of visiting specific houses in each locality since it is drawn up before you visit the localities. You could work out an agreement with the Assemblyman/chief so that the inhabitants of your EA are instructed to stay at home on the day scheduled for visit. This will make your field movement easier.

4.3.2 Contact Chiefs and Community Opinion Leaders

In the rural areas it may be necessary to find the contact the chief or the Odikro or community leader and inform him of your mission before you even get to the community to start your enumeration. Briefly explain to him the objectives of the PES. You must impress upon him that the information collected will be treated as confidential. Do not forget to mention the fact that the data will be used to check the correctness of the information collected in the PHC for the planning of economic and social services such as provision of water, health services, schools, housing, feeder roads, etc.

4.4 Community and Household entry

4.4.1 Community entry

Community entry refers to the process of initiating, nurturing, and sustaining a desirable relationship with the purpose of securing and sustaining the interests of members of a locality in all aspects of the field work. It involves recognizing the locality, its leadership and people, and adopting the most appropriate processes in meeting, interacting, and working with them to enhance cooperation of the members during field work. The EA Maps are classified based on

the size of the locality and therefore, the community entry should be strategized based on the size of the locality.

In both rural and urban areas, it is necessary to contact the Chief or “Odikro” and opinion leaders such as Assemblymen/women, Unit Committee members to inform them of your operation before you start the fieldwork. Briefly explain to them the objectives of the Listing. Do not forget to mention that the Listing will provide the basic data required for the planning of economic and social services, e.g. the provision of water, health services, schools, housing, feeder roads, etc. In organizing such meetings:

- Teams should visit all localities within their jurisdiction and meet with the power brokers and gate-keepers (Chief and Elders, Assemblyman/woman, religious leaders, etc.).
- Introduce the team and the Field staff who will work in that locality;
- Talk about the importance of the exercise; and
- Communicate the need to encourage their subjects and residents to cooperate by providing accurate data and information.

In a large locality which happens to have more than one team, the teams working in such locality should meet as a group and arrange to meet the chiefs and opinion leaders.

Advantages of community entry

- It helps to observe community protocols;
- It helps to gain support;
- It ensures the establishment of good working relationship; and
- It ensures that objectives are achieved.

There will be no need to engage the entire membership of the locality but when the opinion leaders request for such gatherings, the team leader(s) should not hesitate to speak on the subject to the entire locality. Field officers need to be tactful in this regard and be prepared to answer all questions accurately and consistently to avoid ambiguity or doubts in the minds of the people.

Skills and attitudes required in undertaking effective community entry

- Maintain good eye contact;
- Talk only about things you can substantiate;
- Listen and show interest in the questions and comments presented by the people; and
- Be tactful, consistent and straight forward in your responses.

4.4.2 Household entry

This process starts with the community entry, properly locating structures where people live and correctly identifying households within the structures using appropriate definition.

Guidelines for Household Entry

It is important that Field Officers observe all the rules and customs governing visits to other people's homes on each visit. These rules and customs include the following:

- Knock, ring the bell and/or announce your presence (with agoo, gafara etc.) and wait for response to usher you in.
- Observe all the COVID-19 protocols
- Cheerfully greet the people in the customary way and introduce yourself:
Good Morning/Afternoon/Evening Sir/Madam. My name is I am one of the PES Official (SHOW YOUR ID CARD) assigned to enumerate every person and living quarter in this area. I am sure you have already heard about the PES which is now taking place in selected parts of the country after the census. The information you provide is strictly confidential. The PES data will be used to check the quality census information collected to support national development activities and general decision making.
- Briefly explain the purpose for your visit.
- Always seek to speak with an adult first when available. Otherwise, if an adult is not available find out when an adult may be available and make an appointment accordingly (including leaving a call-back card).
- Do not engage in any conversation that would not be relevant to your work or any controversy or argument relating to the PES process.
- Emphasise on the confidentiality. Explain that the Census Law prohibits disclosure of any personal information provided by the respondent to a third party (individuals or institutions). Any official who breaches the Law shall be punished accordingly.
- Emphasise the benefits of the PES to the households and communities.
- Immediately after your brief explanation, read out the confidentiality statement before proceeding with the interview.
- Alert them of a possible re-visit should there be the need.

Remember to thank the household for their assistance and cooperation at the end of the interview.

4.5 Basic security and safety guidelines for Field Officers

4.5.1 Introduction

As a Field Officer, you are going to operate within complex, remote and dynamic socio-political contexts as well as hazardous environments to collect data. The quality of data collected and the security of the Field Officers and logistics are key towards the success of the entire field work. This section provides a set of guidelines to equip Field Officers (including Monitors, Supervisors, Enumerators, etc.), with the requisite knowledge in identifying hazards, assessing and/or mitigating/de-escalating threats or situations to ensure safety of their lives and all properties in their possession.

4.5.2 Identifying hazards and assessing the risk

At each step of the work, you are expected to identify all possible threats to your safety and properties in your custody. Hazards include diseases/illnesses, attacks by animals including snake bites, theft, harassment (i.e. sexual and verbal), assault, etc. For each of the hazards identified, the Field Officer should be able to determine the likelihood of the event happening and its consequences on his/her life or properties. The assessment should be done using personal judgment or perception.

4.5.3 Mitigating potential risk

Decide quickly what action is needed to better manage the suspected risk. It is important to note that the Field Officer should avoid panicking in whatever situation they find themselves as this could scale the risk posed. In mitigating the identified risk, it is important to emphasize that apart from ensuring your own safety, you are also responsible for whatever equipment that are in your custody. The under-listed guidelines are to prepare field officers to prevent or effectively handle such security situations. These guidelines, though not exhaustive, but if adhered to, could limit significantly risks in the field.

1. If possible, keep a clean filled water bottle on you at all times.
2. Always keep minimal cash when stepping out.
3. Keep all equipment and gadgets (i.e. tablets, power banks, etc.) inside your bag at all times except when administering a questionnaire.
4. Avoid shortcuts, dark routes, suspicious neighbourhoods etc. while moving from one place to the other.
5. Avoid indulgence in any kind of arguments with natives.
6. Leave behind expensive articles such as jewellery, etc.
7. If possible, avoid working during odd hours i.e. night, dawn.
8. Identify multiple safe points (open space) within the EA to converge with your Supervisor. Try as much as possible to rotate the meeting points.
9. Ensure your luggage has a good lock to keep items safe after relocation into communities
10. If you become suspicious, consider changing the 'key cylinder' in lock on the door of room where you reside.
11. Where necessary, report the incidence to the police.

CHAPTER 5

5. KEY CONCEPTS AND DEFINITIONS

5.1 Census Night (27th June, 2021)

In order to meet one of the essential requirements for a modern Census, 27th June, 2021 was designated as the Census Night. All enumeration must relate to the CENSUS NIGHT. Thus, it is a reference point to which all enumeration must relate. Note that only persons alive in Ghana at midnight of this day must be enumerated. Census Night was publicized in advance throughout the country so that it would be easily remembered by everyone. Remember that all the questions you ask (e.g. Age, Sex, Marital status, Religious affiliation, etc) must relate to Census Night unless you have specific instructions in this manual to the contrary.

Note that between the Census Night and the time of enumeration, the composition of a particular household may have changed. If somebody died after Census Night you must enumerate him as living on Census Night but under OUT-MOVERS (section D);

5.2 Concepts of structure, housing unit and dwelling unit

All living quarters would be identified during the exercise. Therefore, it is important to know the type of structure to be listed and enumerated so that you do not miss out any of them. Thus, the principal units of enumeration in the Listing of structures in these three regions (Northern, Savannah and North East) are living quarters, whether occupied or vacant. Note that they may (a) have been constructed, built, converted or arranged for human habitation, provided that they are not at the time of the Listing used wholly for other purposes and that, in the case of improvised housing units and collective living quarters, they are occupied or (b) although not intended for habitation, actually been used for such a purpose at the time of the Listing.

5.2.1 Concept of a structure

For purposes of the PES Listing exercise, a structure is defined as a separate and independent building or an enclosure, either completed or uncompleted with any of the following characteristics:

1. Fully completed
2. Fully roofed but uncompleted
3. Partially roofed
4. Roofing level (with improvised roof)
5. Lintel level (with improvised roof)
6. Roofing level (without roof)
7. Lintel level (without roof)
8. Window level
9. Concrete/metal pillars level

A structure could be at any location and may be used for any activity such as residence, business, school, hospital, public toilet, etc. A structure may be constructed with different materials such as concrete, brick, mud, metal, plastic, cardboard, wood, glass, grass, straw, bamboo, etc. A structure may be immovable or movable. A residential structure may contain one or more housing units (e.g., single house or apartments). Note that a structure need not be surrounded by a fence wall or a hedge. For example, multiple houses, a house, kitchen and toilet may be on one compound, whether or not surrounded by a wall, should be considered as separate structures. In the same way, a group of huts walled or not walled should be considered as separate structures.

For purposes of the Listing exercise, information on both completed and uncompleted structures would be collected. The inclusion of uncompleted structures would help identify those structures that have the potential of being added to the housing stock within the short to medium term period.

Note that for uncompleted structures, only those that have reached window levels and beyond should be listed. Table kiosks or structures under construction that are below window and footing or at foundation levels should not be considered as structures. However, lotto Kiosks and Mobile money containers are to be listed.

5.2.2 Concept of housing unit

Households usually occupy a whole or part of, or more than one housing unit or they may be homeless. A **housing unit** is defined as separate and independent place of abode that is intended for habitation by one household, but that may be occupied by more than one household or by a part of a household.

5.2.3 Concept of dwelling unit

A **dwelling unit** is a single unit that could provide living facilities for a household or households. The unit could be part of a structure or an entire structure serving as a home or residence. A dwelling unit may have one or more rooms which may or may not be occupied at the time of the Listing. It includes, units within compound house, apartment building, detached, semi-detached house and kiosk.

You will notice that in some cases, the dwelling unit and the structure are the same and in other cases, the two are distinct and different. For example, a ‘metal container’ as a structure could be

a dwelling unit for a particular household. However, within an ‘apartment building’ structure, the apartment units could be dwelling units for different households.

Note: The concept of a structure should not in any way be confused with dwelling unit as explained. A dwelling unit is an occupied housing unit while a housing unit is a structure used or intended for residence.

5.3 Concept of a household

5.3.1 What is a household?

The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be:

(a) A one-person household - this consists of a person who makes provision for his or her own food or other essentials for living without combining with any other person;

(b) A multi-person household - this consists of a group of two or more persons living together who make common provision for food or other essentials for living.

The persons in the group may have a common budget and/or pool their incomes for common expenses. They may be related or unrelated persons or constitute a combination of persons both related and unrelated.

For purposes of the Listing, three important criteria help to define a household. These are:

- 1) The individual(s) should live alone or together and provide for food and other essentials as one unit;
- 2) The individual(s) should make common decisions for the provision for food and other essentials;
- 3) In the case of multi-person household, the individuals must acknowledge one person as the head.

The persons in the group may be related by blood or marriage or unrelated or a combination of persons both related and unrelated. It is important to emphasise that not all related persons living in the same house or compound are necessarily members of the same household. For example, two brothers who live in the same house with their wives and children may or may not form separate households depending on their catering arrangements. The same applies to a

father/mother and his/her married children. Thus, in many cases, a house or compound may be divided into separate households.

5.3.2 Dividing a house into households

Dividing a house or compound into households may require a lot of probing. The following examples must guide you to identify a household:

- a) In large family houses where you have more than two generations of people living in the same house, first, find out which members share common catering arrangements and regard each unit as a household. He/she may, for example, have four sons, each of whom has a separate arrangement for the preparation of food for their own "family". Each of these units must be treated as a household. If the father shares meals with one of his married children, he must be classified as part of that household. An exception to this principle is where in a house or compound, a man has several wives with each wife and her children occupying their own set of rooms in the house. The man eats successively with each of his wives. In such a case, the man, his wives, their children, etc. must be treated as one household.
- b) A lodger who sleeps and eats at least one meal a day with the household must be considered as a member of that household.
- c) A house-help and his/her nuclear family who live in a house or in an out-house (Boys' Quarters) on the same compound as the employer but prepare their own food and eat separately must not be considered as members of the employer's household. They must be classified as forming a separate household. However, a house-help who eats and sleeps with the family of the employer must be considered as a member of the employer's household.
- d) If two or more unrelated persons, live together in one flat or in one room, they may or may not be regarded as one household depending on whether or not they have a common catering arrangement. Probe to find out.
- e) Two or more friends who share accommodation but have separate catering arrangements should be classified as separate households. However, if they have common catering arrangements then they should be treated as one household. In this case, one of them should be identified as the head.
- f) One person may constitute a household if that person lives alone in a house or part of a house. If the person lives with others in one room but prepares and eats his/her meals separately, he/she forms a one-member household.

5.3.3 Who is a usual member of a household?

A usual member of a household is a person who (whether present or absent on Census Night) has spent at least the last six months with the household or intends to spend at least the next six months with the household.

The following, however, must also be considered as usual members of the household, even though they do not satisfy the residential requirements:

- a) Persons who have not spent the last six months with the household but who have the intention of staying there for at least the next six months, e.g. workers on transfer.
- b) Seasonal workers who return home after a season. If such workers spent Census Night with the household, they should be considered as usual members present. However, if they were absent on Census Night they should be recorded as usual members absent.
- c) Students in boarding schools or hostels. If a student spent Census Night with the household, he/she should be recorded as usual member present; if not he/she should be classified as usual member absent. However, students who have spent six months or more before Census Night outside the country and those who were outside the country on Census Night and intend to stay outside the country for the next six months or more, should not be regarded as usual members.
- d) Soldiers in barracks/camps where they are catered for as a group. In this category, treat any person who did not spend the Census Night with the household as household member absent. Those who spent the Census Night with the household should be regarded as household members present.
- e) Construction workers camped at sites. If any of such workers spent the Census Night with their household, they should be considered as usual members present

5.3.4 Who is the head of household?

The head of household is the person who is specifically recognized and acknowledged by the other members of the household. The head of household is primarily responsible for making major decisions on the household's living arrangements and so acknowledged by the household members as the head. The head could either be a male or female and may not necessarily be the main income earner of the household. Your main guide as to who is the head is the one who will be pointed out to you as such based on:

1. Who takes key decision making?

2. Who is acknowledged by other household members as head?

Note that the household head:

1. Could either male or female
2. May not necessarily be the main income earner

5.4 Group Quarters (non-household) population and Outdoor Sleepers

5.4.1 Group Quarters (non-household) population

These are persons who live as a group in an institution but do not form a household. This group of people would be identified as group quarter (institutional) population.

Note that these category of the population will not be included in the PES exercise. The reason being that these population are not stable and can move out so easily. The following are examples of population living in Group Quarters:

- a) Educational Institutions, e.g., students in boarding schools, hostels, universities halls of residence, training colleges, blind schools, seminaries, convents, monasteries, etc.
- b) Children's Homes, Orphanages, Nurseries, Old People's Homes, etc.
- c) Hospitals and Healing Centres including Mental Hospitals, Maternity Homes, Divine Healers' Camps and Herbalists' Establishments, Rehabilitation Centres and similar institutions for the sick, as well as those who are physically and mentally handicapped.
- d) Hotels, motels, hostels, guest houses, bed and breakfast, etc.
- e) Prisons including Borstal Institutions, Remand Homes, Industrial Schools and Police / Immigration / Military Cells.
- f) Security training institutions such as Military Academies, Police Training Schools, and Immigration training schools etc., Army Camps are also including in this category.
- g) Construction workers camped at construction sites should also be treated as members of group quarters/institutional population

5.4.2 Outdoor sleepers

These are person(s) who usually are located at 'fixed locations' and continually live in the street. They usually live around structures and are not protected from animals and bad weather, notably rain, heat, wind and sunlight. These people are classified as homeless households and they may be identified as individuals or groups forming one unit. This includes persons who sleep at lorry parks, markets, in front of stores and offices, public bathrooms, petrol filling stations, railway

stations, on verandas, pavements, hideouts and all such places which are not houses or compounds. A typical example of the homeless households are the people who sleep in open spaces in identified locations in Bus terminals.

Note: For purpose of PES, Outdoor Sleepers as well as Group Quarters or institutional population are NOT TO BE ENUMERATED. However, staff members living in private houses in the institutions form household population and must not be considered as Group Quarter population.

5.5 Locality

A locality is defined as an inhabited geographical area with a distinct name. It could be a hamlet, mining camp, ranch, farm, village, town, city or part of a town or city. A locality may contain one or multiple EAs. For example, Kaneshie in Accra is a large locality which has more than one EA. Locality names are pre-populated in CAPI, however, where locality names have to be recorded, write exactly what the inhabitants themselves call it. Do not write any locality name which is different from what is known in the area.

5.6 Enumeration Area

An Enumeration Area (EA) is the smallest geographical area with a well-defined boundary and features that is created for fieldwork and can easily be canvassed or traced and structures and population enumerated during the data collection period. It is a term mostly associated with census data collection but synonymous to ‘cluster’ as in a survey. It is normally designed to be assigned to a field officer for the purpose of enumeration but can also be assigned to more than one field officer for reasons of efficient coverage.

5.7 Definition of a map

A map can be defined as the representation of either an entire earth surface or a part of it in a reduced form showing physical and/or man-made phenomena existing on it. It is a graphical representation of whole or part of the earth’s surface on a piece of paper or any other drawing media. It may be drawn to scale or not.

5.8 Enumeration Area (EA) Map

The country has been divided into small geographic units called Enumeration Areas (EAs) during cartographic mapping for purposes of enumerating all people within Ghana. Owing to other factors, mainly population density, geographic terrain and distances to be travelled, EAs have been conveniently demarcated to facilitate effective canvassing by an enumerator during

census or survey. Enumeration Area (EA) is a map showing the EA of interest. The purpose is to ensure that Enumerator or Interviewer does not miss out or double count any structure or person in the EA.

The EA map shows localities, roads, streets, rivers, streams, railways, houses and other major features within the boundaries of the EA. An EA has an estimated average population of 750, even though it can be more or less per GSS definition.

CHAPTER 6

6. USE OF ENUMERATION AREA MAP

6.1 Importance of EA Map

The PES can only succeed if every person who is in the selected EAs across the country have been enumerated accurately. Your map will be your most important aid in achieving complete enumeration of your area. It is important that you know the area assigned to you in order to cover it systematically as any omission of households and dwellings will have a definite impact on the PES results.

Field Officers are to be conversant with the procedures for using maps to accurately identify enumeration and areas. In the case of the PES, Enumeration Maps serve as the basis to plan for the effective enumeration of the assigned area. The Maps help enumerators to locate the boundaries of their assigned area, identify all localities, list and enumerate all structures and persons in the assigned areas. They also serve as a basis for recruitment and distribution of logistics. However, the mapping instructions you are to follow are determined by the type of enumeration area.

6.2 Type of Enumeration Area Map

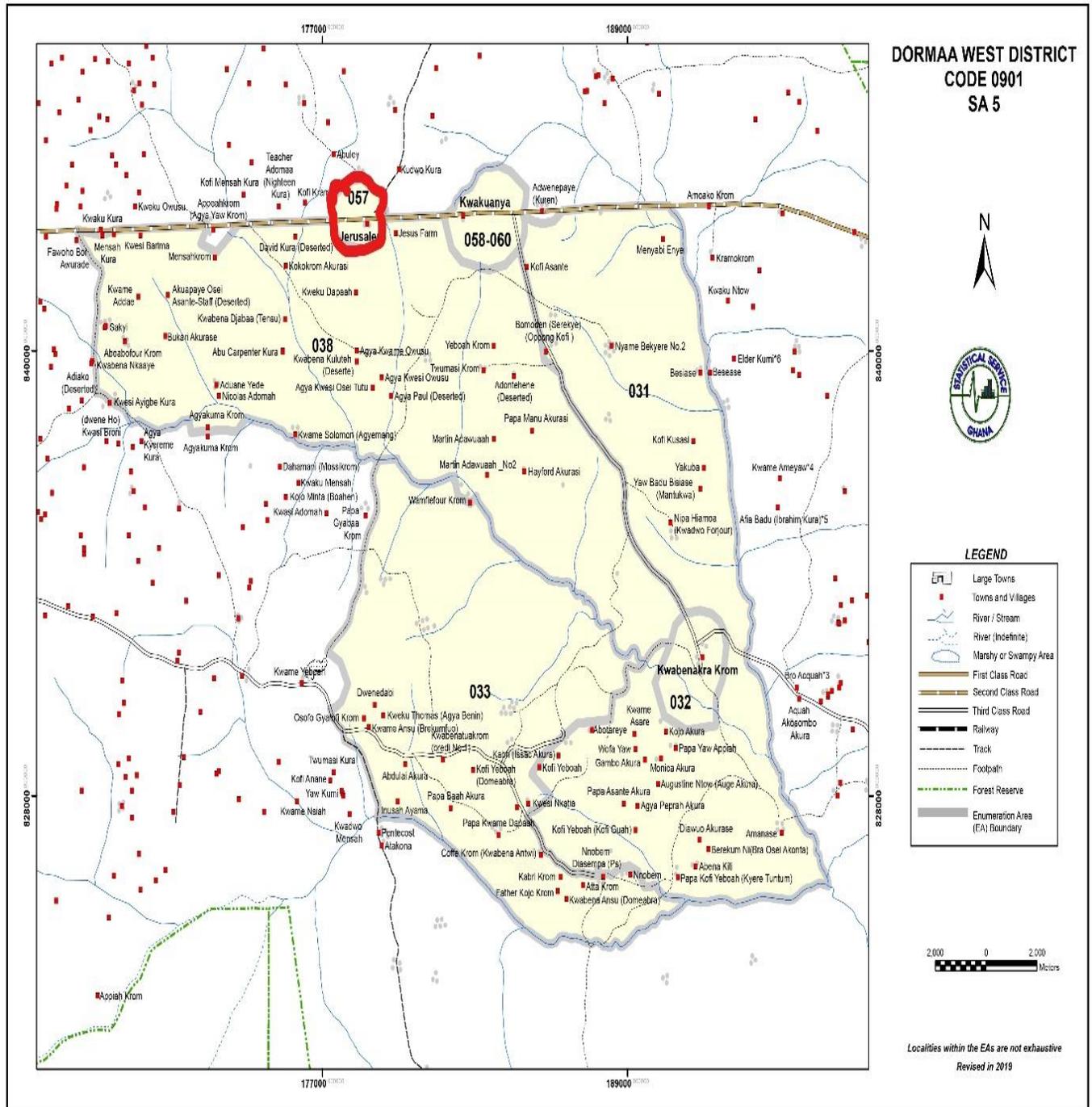
There are three (3) main types of Enumeration Area Map. These are Type 1, 2 and 3 EA maps. The following information are usually found on an EA map irrespective of type.

- a) Locality Name and Code
- b) Region and District name and their codes
- c) Name and number of Supervision Area (SA)
- d) Name/Base of Enumeration Area
- e) Enumeration Area Number

6.2.1 Type 1 Enumeration Area (EA) Map

The Type 1 EA map shows an enumeration area which is formed out of one locality (i.e. One Locality = One EA). This type of EA is normally referred to as an island and is found in a rural area (See Figure 6.1).

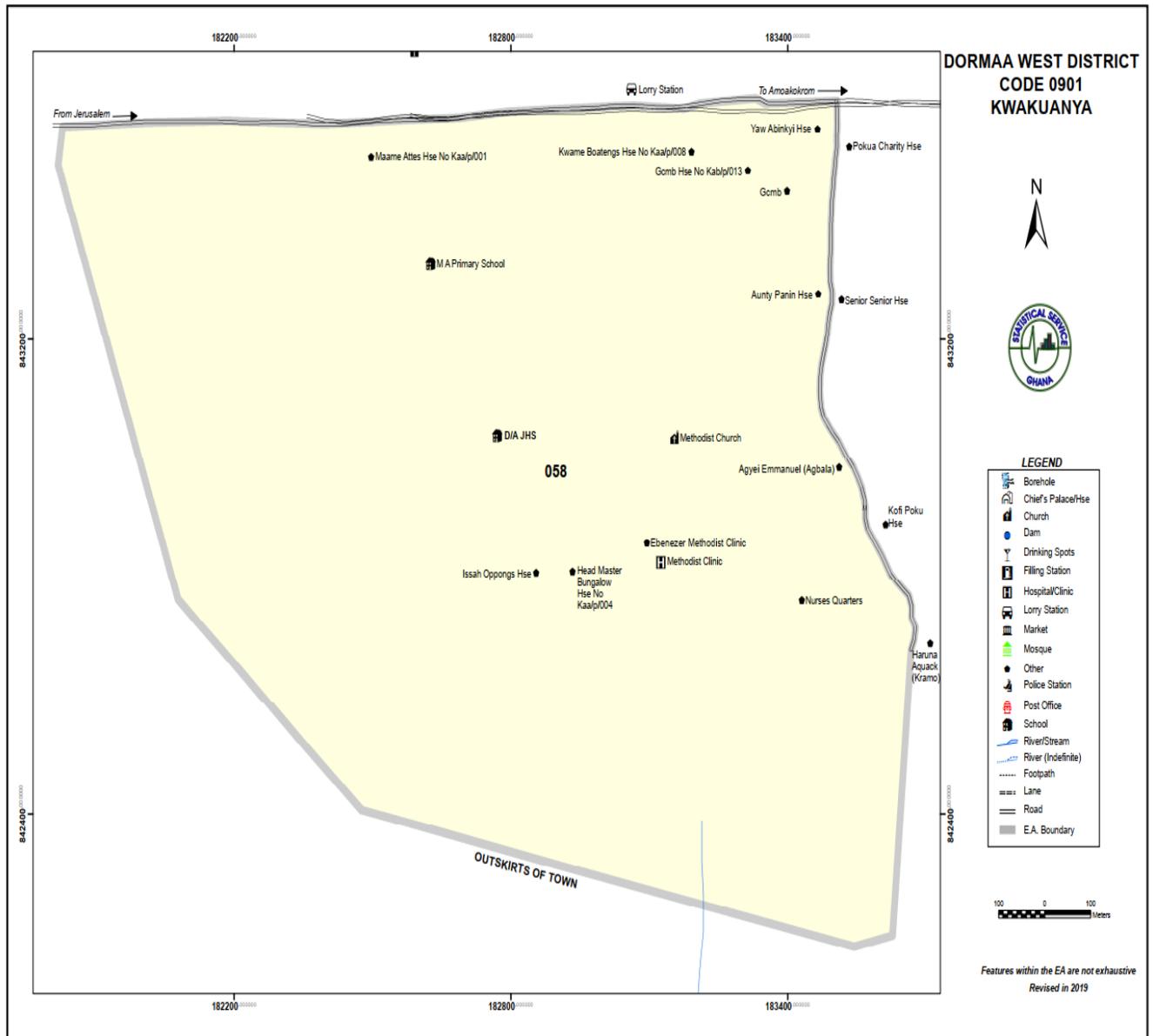
Figure 6.1: Example of Type 1 EA (EA numbers 057)



6.2.2 Type 2 Enumeration Area (EA) Map

Type 2 EA map represents a part of a locality. Here, one locality is divided into two or more EAs (i.e. two or more EAs in one locality). The Type 2 EA map below (Figure 7.2) shows names of points of interest including Pentecost Church, Presby Church, Lorry Station, etc. In Type 2 EAs, boundaries are mostly formed by features like streets, buildings, lanes, drains, railway lines, etc

Figure 6.2: Example of Type 2 EA (EA numbers 058, 059 and 060)

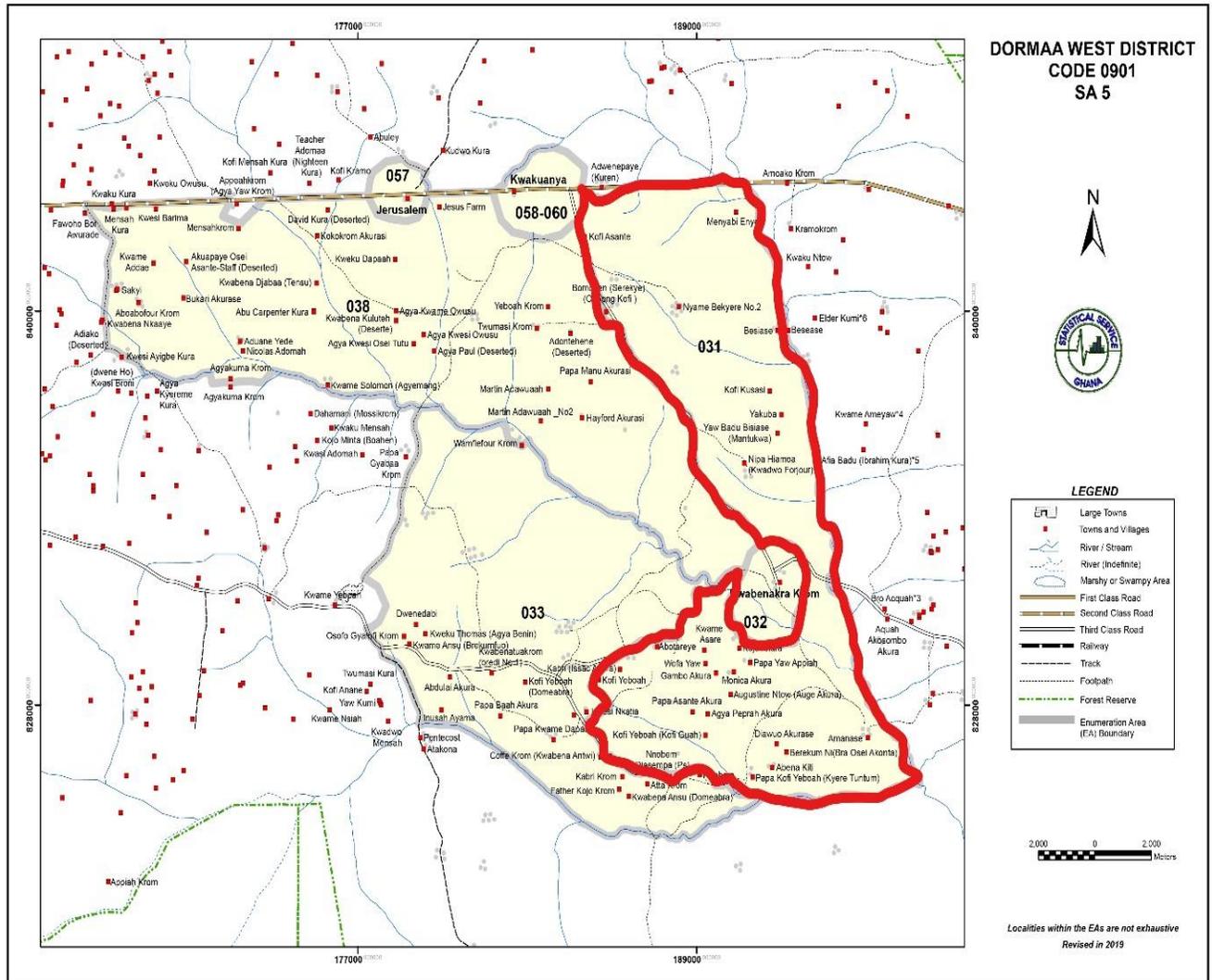


6.2.3 Type 3 Enumeration Area (EA) Map

Type 3 EA map represents two or more localities put together to form one EA (one EA for many localities).

These EAs are the rural type. A type 3 EA is usually made up of two or more localities and its boundaries are marked mostly by natural and artificial features such as streams, rivers, mountains, roads, and foot paths (See Figure 6.3).

Figure 6.3: Example of Type 3 EA (EA numbers 031)



6.3 EA Boundary Description (PHC 2)

The boundary description of the EA assigned to you will be attached to your map and is called EA Boundary Description (also referred to as PHC 2). The following details are provided on all the EA maps:

- | | | |
|----|--|------------------------------|
| a) | Name of Region | Region Code |
| b) | Name of District | District Code |
| c) | District Type | District Type Code |
| d) | Sub-District | Sub-District Code |
| e) | Base locality Name | Base locality code |
| f) | Locality Type | Locality Code |
| g) | 2010 EA Number | 2021 EA Number (provisional) |
| h) | Ghana Post Digital Address | |
| i) | EA Name | |
| j) | Other settlements in the EA, their estimated population and code | |
| k) | Boundary Description | |

6.3.1 How to read the EA map?

Below are some general steps to reading EA maps:

- i) Understand and acquaint yourself with the map symbols;
- ii) Use the EA description alongside the land marks / localities on the map as a guide to locate the assigned EA;
- iii) Locate the EA name (base) for Type 2 EA and for Type 3 EA, look for the base locality
- iv) Orient your map correctly with the help of the north arrow symbol on the map;
- v) Identify the starting point of the EA as indicated on the PHC 2.
- vi) With the aid of the PHC 2, use the map to trace the EA boundary;
- vii) Canvass the EA for Types 1 & 2 by systematically moving within and around the entire EA segment by segment;
- viii) For Type 3 EAs, canvass the base locality by systematically moving from one locality to the other based on proximity;
- iv) Familiarize yourself with the EA and identify key features that will help facilitate the process of listing and enumeration.

6.3.2 How to read Type 1 EA Map and locate Type 1 EA

Type 1 EA map represents the entire locality. This means that the enumerator is supposed to cover the whole locality including outskirts.

The enumerator has to:

1. Check the PHC2/ Description form to ensure that it matches with the map.
2. Locate the EA with the help of the locality name on the map and other information on PHC 2.
3. Canvass (move within and around) the EA to identify the boundary, major landmarks and positioning of structures.
4. Start the listing at one corner to the end of the EA.

Figure 6.4: Example of PHC 2 - Description Form for Type 1 EA (057)

18-Oct-19

GHANA STATISTICAL SERVICE



GPS: 0.0
0.0

REPUBLIC OF GHANA
PHC2
2020 POPULATION AND HOUSING CENSUS
GHANA AUTOMATED ENUMERATION AREA INFORMATION SYSTEM [GAEA-INFO]

1a. Region	BONO	1b. Region No.	09
2a. District	DORMAA WEST	2b. District No.	0901
3b. District Type	District	3b. District Type No.	1
4a. Sub District	DORMAA WEST	4b. Sub District No.	00
5a. Base Locality Name	JERUSALEM	5b. Base Locality No.	01
6a. Locality Type	RURAL	6b. Locality No	2
7a. 2010 EA Code	0724100028	EA Number	057
GhanaPostGPS	-	EA Base	JERUSALEM
EA Type	1		

2020 EA Code (Prov.).....: 0901100057

No. Localities	2010 PHC		2018 GCA		2020 Estimated.		2020 Enumerated	
	Enum.Pop	Enum.HseHd	Enum.Pop	Enum.HseHd	Est.Pop	Est.HseHd	Enum.Pop	Enum.HseHd
01 JERUSALEM								

Boundary Description

The entire locality of Jerusalem constitutes the enumeration area.

6.3.3 How read Type 2 EA Map and locate Type 2 EA

The locality consists of two or more EAs. This means that the enumerator is supposed to cover the assigned EA which is a segment of the locality.

Steps:

- a) In order to locate a type 2 EA, the map user must first locate the EA Name. The EA has been named after a prominent feature within the EA such as Churches, Mosques, Schools, Police Stations, Chief's Palaces, etc., called the **EA Base**. In a few instances where no such prominent features could be found in the area, house numbers (may come with the owners' name) are used as the EA Name.
- b) The first step is to lay/hold the map flat so that the features on the map and those on the ground are clearly visible and in alignment (map orientation). It is usually preferable to begin the orientation at a major street or road intersection as this can be easily located both on the map and on the ground.
- c) The map should be held in such a way that major features are lined up (or oriented) parallel with the ground features, then the map and ground features will be in their correct relative positions.
- d) The other nearby features such as houses, churches, railways, roads, rivers and other physical features should be checked against the symbols shown on the map. Take note of the fact that certain man-made features might have sprung up or no longer still exist. Despite any such changes, the map should still be useful.
- e) Canvass the EA (move along the boundaries of the EA) to familiarize yourself with the features within the EA. Trace the EA boundaries using features provided on the map. Do this activity with using the description form (PHC 2) attached EA Map.
- f) Start the listing from one corner of the EA. List and enumerate all the structures and the households in the EA

Figure 6.5: Example of PHC 2 - Description Form for Type 2 EA (060)

16-Oct-19

GHANA STATISTICAL SERVICE



GPS: 0.0
0.0

REPUBLIC OF GHANA
PHC2
2020 POPULATION AND HOUSING CENSUS
GHANA AUTOMATED ENUMERATION AREA INFORMATION SYSTEM [GAEA-INFO]

1a. Region	BONO	1b. Region No.	09
2a. District	DORMAA WEST	2b. District No.	0901
3b. District Type	District	3b. District Type No.	1
4a. Sub District	DORMAA WEST	4b. Sub District No.	00
5a. Base Locality Name	KWAKUANYA	5b. Base Locality No.	04
6a. Localitv Type	RURAL	6b. Localitv No	2
7a. 2010 EA Code	0724100031	EA Number	060
GhanaPostGPS	-	EA Base	PRESBY CHURCH
EA Type	2		

2020 EA Code (Prov.).....: 0901100060

No. Localities	2010 PHC		2018 GCA		2020 Estimated.		2020 Enumerated	
	Enum.Pop	Enum.HseHd	Enum.Pop	Enum.HseHd	Est.Pop	Est.HseHd	Enum.Pop	Enum.HseHd
04 KWAKUANYA	492				603			

Boundary Description

Start from the Presby Church (Incl) and Maame Atta (Excl). Proceed along the Amoakokrom road by-passing the lorry station (Incl), Yaw Abinkyi and Gcmb (Both Excl). Move further along the road to by-past Elder Ayamba Cornmill (Incl) and Dwankobea Church (Excl), Confidence Academy (Also excl). Turn left and proceed along the outskirts by-passing Sister Hawa and Pentecost Church (Both Incl). Move further along the outskirts to by-past a refuse dump and Asante Kwabena (Amajaro) (Both incl) to meet Jerusalem .road. Turn left finally and move towards the road to meet Presby Church (Incl), your starting point.

6.3.4 How to read Type 3 EA Map and locate Type 3 EA

A number of localities constitute the EA. This means that the enumerator is supposed to cover all the localities that make up the EA.

Steps:

- a) Because of the large area usually covered by Type 3 EAs, tracing the boundary can be challenging. And so it is not advisable to canvass this type of EA.
- a) Identify the EA boundary on the map using the landmarks such as streams, footpaths, roads, localities, etc.
- b) Check the number of localities constituting the EA on the PHC 2.
- c) Visit all localities.
- d) Additional information can be obtained from the local people.
- e) Start the listing from the Base locality (i.e. the locality with the highest population – the most populous locality). When listing is completed in the base locality, find out from the local people how best the other localities in the EA could be accessed easily and conveniently for complete coverage.

Figure 6.6: Example of PHC 3 - Description Form for Type 3 EA (031)

18-Oct-19

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REPUBLIC OF GHANA

PHC2

2020 POPULATION AND HOUSING CENSUS

GHANA AUTOMATED ENUMERATION AREA INFORMATION SYSTEM [GAEA-INFO]

GPS: 0.0
0.0

1a. Region	BONO	1b. Region No.	09
2a. District	DORMAA WEST	2b. District No.	0901
3b. District Type	District	3b. District Type No.	1
4a. Sub District	DORMAA WEST	4b. Sub District No.	00
5a. Base Locality Name	NYAME BEKYERE No.2	5b. Base Locality No.	01
6a. Locality Type	RURAL	6b. Locality No.	2
7a. 2010 EA Code	0704200008	EA Number	031
GhanaPostGPS	-	EA Base	NYAME BEKYERE No.2
EA Type	3		

2020 EA Code (Prov.).....: 090110031

No. Localities	2010 PHC		2018 GCA		2020 Estimated		2020 Enumerated	
	Enum.Pop	Enum.HseHd	Enum.Pop	Enum.HseHd	Est.Pop	Est.HseHd	Enum.Pop	Enum.HseHd
01 NYAME BEKYERE No.2								
02 KWAME SRE NYAME (OUANSAH)								
03 KABRE (ISAAC AKURA)								
04 ASOTARE YE								
05 KWAME ASARE								
06 WOFA AKURA								
07 GAMBO AKURA								
08 KOJO AKURA								
09 MONICA AKURA								
10 PAPA YAW AKURA								
11 AUGUSTINE NTOW (AUGEY AKURA)								
12 AGYA PEPRAH								
13 PAPA ASANTE								
14 KOFI YEBDAH (KOFI GUAH)								
15 PAPA KOFI YEBDAH (KYERE TUNTUM)								
16 ABENA KETE								
17 DIAWUO AKURA								

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6.4 New localities and other changes in the EA

Do not assume that the list of localities on the PHC 2 Form is complete because there may be other localities which do not appear on the list or the map. Though the EA Map and PHC 2 Form must indicate all localities in the EA, it is possible that some of these may not have been captured during the demarcation exercise or may no longer be in existence or new ones may have been established since the completion of the demarcation exercise. Enumerate such localities and notify your Zonal Coordinator of any changes.

6.5 Deserted or Collapsed Localities

If a locality listed on the PHC 2 is deserted or collapsed, confirm with the neighbouring localities if indeed the locality is deserted and then take the GPS reading. In addition, make a brief description of the locality and the possible reason(s) why the locality has been deserted or collapsed. Finally, report to your Zonal Coordinator who will in turn report to the DQMT

6.6 Geographic Identification Codes (Geo-Codes)

Enumeration Areas (EAs) have been assigned consecutive numbers within the administrative division and in conformity with the geographic coding of the country that uniquely identifies each EA. It is a ten (10) digit code system which contains geographic identification codes of each administrative area and EA numbers associated with them (Table 6.1).

Table 6:1: Geographic codes

Geographical Area	Digit Location	Code	Range	Remarks
Region	First Two	2-Digits	01-16	From Western = 01 to Upper West =16
District	3 rd and 4 th	2-Digits	01- 47	Ashanti has the Highest = 47
District Type	5 th	1-Digit	1- 3	District=1, Municipal = 2, Metropolitan = 3
Sub-Metro	6 th and 7 th	2-Digits	01- 05	KMA has the highest = 5
EA Number	8 th , 9 th & 10 th	3-Digits	001-999	To be numbered sequentially within district/municipal/sub-metro

- a) **Region name:** There are 16 regions in Ghana. Each region has its own code, based on the serpentine ordering recommended by the United Nations for Listing.
- b) **District:** Within these Administrative Regions are districts (MMDAs) and there 260 Administrative districts in Ghana.
- c) **Statistical District:** There are 271 Statistical Districts have been created, including all the existing Metropolitan, Municipal and District Assemblies in Ghana.
- d) **District Type:** District type refers to the existing administrative District or Municipal or Metropolitan Area.
- e) **Sub-Metro:** Is a geographically defined urban jurisdiction or centre performing governance and administrative functions at the sub-metropolitan level. It is represented in the Geo-Code by a 2-digit code. Kumasi Metropolitan Assembly has the highest number of 5 sub-metros.

Table 6.2: List of Sub-metros within the Metropolitan Assemblies

Name of Metropolitan Assembly	Name of Sub Metros	Number of Sub Metros
STMA	Takoradi, Sekondi and Esikado-Ketan	3
Cape Coast	Cape Coast North and Cape Coast South	2
AMA	Ablekuma South, Ashiedu Keteke and Okaikoi South	3
TMA	Tema Central and Tema East	2
KMA	Nhyiaeso, Subin, Manhyia South, Manhyia North and Bantama	5
Tamale	Tamale South and Tamale Central	2
Total		17

- f) **EA Number:** EA number is a 3-digit number assigned to each Enumeration Area in the district.
- g) **Locality Code:** This is three-digit code for localities listed on PHC 2
- h) **Point of Interest (POI)** It is a specific point location that someone may find useful or interesting. It is a feature on a map (or in a geo dataset) that occupies a particular point. An example is a point on the map used to represent a school or a church, etc.
- i) **Map Orientation:** For using any map, it is important to know how to align it on the ground correctly so as to be able to identify and locate certain features on the ground that are shown on the map in relation to ground features. The process of aligning a map with ground features is known as “map orientation”
- j) **Legend** - In cartography, the information on a map that explains which symbols are used for the features and variables that are represented on the map. This includes the symbol key required to interpret the map, for example, the shade colours and corresponding value ranges of a population density map.
- k) **Administrative unit** – It is a geographic area that serves administrative and governmental functions. They are usually defined and established by legal action.
- l) **Boundary** - a line that defines the extent of an area unit or the location where two areas meet. A boundary is represented in a GIS as a line feature, which may define a side of a

polygon. The boundary may or may not be visible on the ground; i.e., it can follow real-world features such as roads and rivers, or it can be defined solely by geographic coordinates.

- m) **Contiguity** - if two or more geographical features are neighbours or adjacent.
- n) **Geographic code** - unique alphanumeric identifier that is assigned to a legal, administration, statistical reporting unit. This is a unique numeric identifier that is assigned to a legal administrative, statistical reporting unit.
- o) **Outskirts** - It is the outer part of a locality. The concept of outskirts must be clearly understood by all users of E.A maps. In most cases outskirts apply to type 1 and type 2 E.As. It is usually the uninhabited area of the locality after the last structure/dwelling. It should be noted that when 2 or more localities are contiguous and are almost joined together, this concept of outskirts no more holds.

6.7 Things to know about your Enumeration Area (EA)

- a) Always work within the EA Map that is given to you. Never cover any structure because of proximity if the area falls outside your EA.
- b) For Type 3 EA, always start with the base of your EA which is the largest locality in your EA or the most prominent feature in your EA, then proceed to the other localities or structures in your EA.
- c) You are not required to go around the boundary of your EA if you have an EA Map with many localities (Type 3 EA).
- d) Make use of the boundaries and ask the local people of the settlements already listed in the EA and about others which may not be listed but are still found within the EA.
- e) For type 1 and 2 EAs canvass your boundary before starting your Listing. Consult opinion leaders for information on localities within your EA. Rely on the information provided by your Supervisor.
- f) The boundary of two localities should only be determined using the maps that have been provided. Do not rely on opinion leaders to determine them. If in doubt consult your Supervisor.
- g) The individual EA Maps and the Descriptions (PHC 2) complement one another; hence Supervisors/Enumerators should use them together. If the boundary descriptions or maps are not clear, consult the zonal cooordinator for a thorough understanding.

6.8 Identifying Overlaps and Gaps in EA Map reading

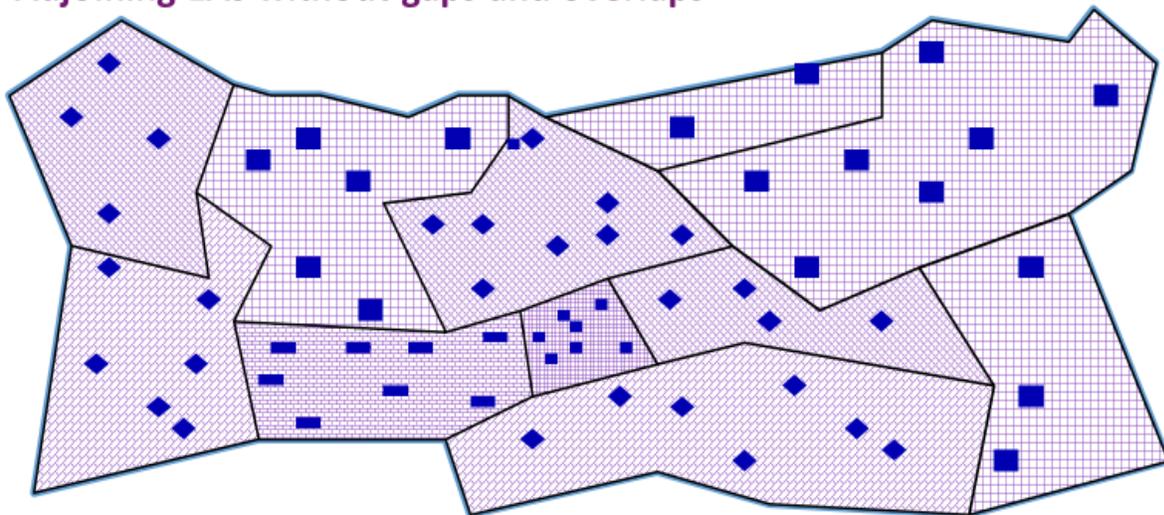
Steps have been taken to ensure that there are no overlaps and / or gaps:

An overlap occurs, when one EA boundary crosses into another EA. On the other hand, if some structures within the boundary of your assigned EA are chalked (have the census numbering) anytime during the period of listing or enumeration, this gives an indication of a possible overlap with another EA. A gap is a part of the land area (space) that does not belong to any EA or simply unaccounted for as part of any EA.

If some structures around the boundary of your assigned EA are not chalked (are without the census numbering) when listing period is ended, this gives an indication of a possible gap. Should you encounter any overlap or gap, report to ZC, who should also report to the ZDQMT.

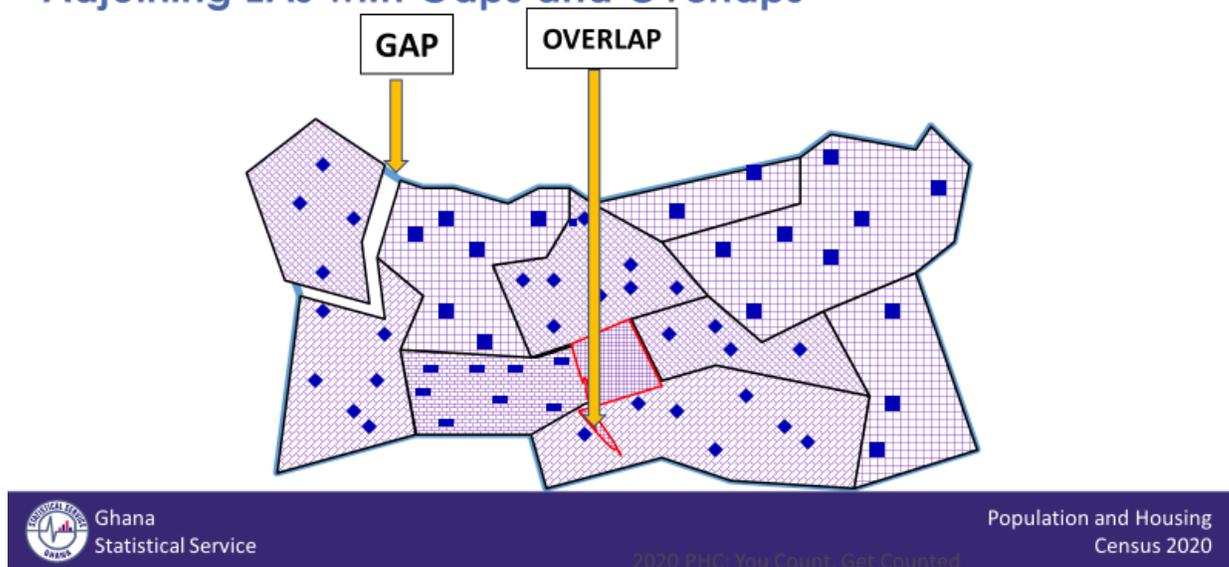
Identifying Overlaps and Gaps in EA Map reading

- Adjoining EAs without gaps and overlaps



Identifying Overlaps and Gaps in EA Map reading

Adjoining EAs with Gaps and Overlaps



6.9 Boundary Disputes

Boundary disputes can be sensitive and must be handled tactfully. These are disputes relating to boundaries between localities and districts. All boundary disputes in the EAs, localities and districts should be reported to monitor, who will in turn report to the DQMT or GIS.

6.10 New settlements and localities and other changes in the EA

Do not assume that the list of localities on Form PHC 2 is complete because there may be other localities in the EA which do not appear on the list or the map. Though the EA map and Form PHC 2 must indicate all villages and hamlets in the EA, it is possible that some of these may have been overlooked, some may no longer be in existence and new ones may be founded since the completion of the geographical field work.

If a boundary street name has been changed, alter it on the map and on the PHC 2 form. Also, if the location of a locality in the field is not the same as that given on the PHC 2 or on the map make the necessary correction on the EA map and PHC 2 form. You must also inform your monitor of any other difficulties in the course of your PES duties.

If you come across a village or hamlet which falls within your EA but which is not on your list, add it to the list of localities on Form PHC 2. Write the name in the first column headed “Name”

on the PHC Form 2. Then make a brief but meaningful description of this “new locality” in the last column headed “Position”. You must also make a rough indication of its location on your EA map. This must apply to a locality listed on PHC 2 for which no description of location has been provided or which is not plotted on the map. If on the other hand you find that a locality listed on Form PHC 2 is no more in existence, you must write in the space marked “Position” the reason for the non-existence of this particular locality, e.g. inhabitants moved to another locality. You may get this information from any reliable person in the area preferably the chief or *odikro* of the neighboring locality. Finally, report the matter to your zonal monitor.

CHAPTER 7

7 LISTING OPERATIONS

7.1 Introduction

Before recording particulars about persons who qualify to be enumerated, Serial numbers would be assigned to structures in every Enumeration Area (EA) for the purpose of identifying the structures for actual filling of the Listing Form. The procedure for undertaking this exercise is termed **Listing Operation**. This is aimed at ensuring complete coverage of all structures as well as the households and populations in the structures. The Listing operation involves visiting every structure in your EA and assigning a 4-digit serial number to the structure. This 4-digit number, together with other information, is then recorded on the Listing Form. Thus, the Listing serves as an operational control document.

During the Listing exercise, inform every household that after the Listing phase, there will be a follow up to collect detailed information about the households.

7.2 *Listing of structures in the EA*

Prior to enumeration, you must list all structures irrespective of level of completion, material used for construction, whether occupied or not, purpose for which it is used or intended to be used. These structures include houses, containers and kiosks used as dwelling units or for other purposes during the Listing period. As well, list all uncompleted structures during the Listing exercise. As mentioned earlier, table kiosks and structures under construction that are below window and footing or at foundation levels are **NOT** to be listed because they do not qualify as structures by the Listing definition.

To ensure that all living quarters (both occupied and vacant) are listed, all independent structures on a plot or compound should be listed separately. Thus, each living quarter should be listed separately and the required information should be separately recorded. In the Listing of structures, you must take note of the following procedures:

- a) You must identify each structure as a separate unit and for each, assign a separate 4-digit serial number.
- b) Assign different 4-digit serial numbers to different structures that are distinct but are on a plot or compound (whether walled or not), even if they have the same house number. By

distinct structures we mean each structure should be separate and independent. In doing so, additional descriptions should be provided to distinguish one structure from the other. Note that there could be one or more households occupying these different and separate structures. E.g. House No. F/11, One-storey building and House No. F/11, boy's quarters, occupied by Opanin Mensah.

- c) Semi-detached houses bearing the same house number must be regarded as two separate houses and be given two different 4-digit serial numbers. In addition, give some other descriptions to distinguish one structure from the other, e.g. House No. B 42, owned by Kwasi Adomako and House No. B 42, occupied by Mr. Kodjo Amedume.

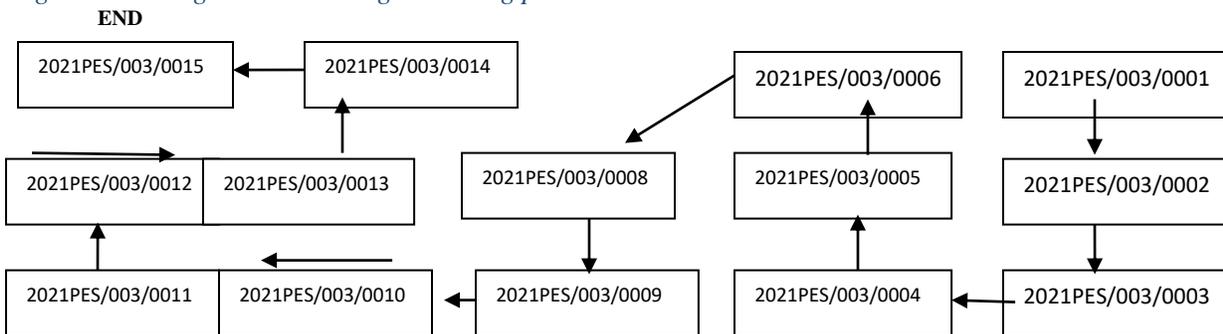
7.3 Listing procedures

Your Team should visit every house/structure in your EAs and write in a 4-digit serial number starting from 0001 directly or on a sticker on the front door or on the wall near the front door or at any conspicuous spot on the building. The 4 digit number must be preceded by PES (i.e. PES) and EA number e.g. **2021PES/168/0001**, **2021PES/168/0002**, **2021PES/168/0003**, etc. where 168 is the EA number of the assigned EA. An arrow (→) should be put under the 4-digit serial number to indicate the direction of the listing operation during the listing period, you are to administer questions L01 to L15 of the Listing Form.

7.3.1 Listing in serpentine order

The listing operation must be carried out systematically. You must be extra careful in areas where houses are built haphazardly so you do not miss any house. The best way to list houses/structures in such cases is to divide your enumeration area into segments, then proceed to assign 4-digit serial numbers to each house/structure in an orderly manner. Finish with one segment and move on to the next segment until all segments are completed.

Figure 7.1: Diagram illustrating the listing procedure



Similarly, in congested urban areas you can, for example, take a small area bounded on all sides by streets and starting from one corner, proceed to list all the houses on one side of the street until you come to the end of that street. Start again from the other end of the street and then proceed to list the houses adjacent to the first row of houses you have listed inside your EA. Continue in this manner until you covered the whole area. This procedure is generally referred to as the "Serpentine Order" of listing.

List all structures whether occupied or vacant except **Embassies/High Commissions** which by definition are not part of Ghana's territory. For blocks of flats, list each block separately.

If after the house-listing operation you come across houses/structures which were missed, the team must list these "new" houses/structures at the end of your list for the locality. As stated earlier, the listing operation should be recorded in the Listing Form.

Note: In case an un-demarcated area is discovered, report to your zonal monitor or the zonal GIS team for directives.

7.3.2 Listing of kiosks, containers and other makeshift structures

Due to the increasing number of **kiosks, containers and other such makeshift structures** being used as sleeping places and for other purposes, it is important that information is gathered about these structures. In order to ensure that these structures are captured during the listing period, there is a need to have guidelines for listing them. Remember that table kiosks are not to be listed as structures.

- a) If a kiosk or container is placed inside the compound of a house with access (a door or window) through the wall of the main house, a separate 4-digit serial numbers should be assigned to cover both the house and the kiosk/container.
- b) If a kiosk or container is placed in front of the wall of the structure and not attached to the house or structure, you should assign separate 4-digit serial numbers to the house/structure and the kiosk/container.
- c) In situations where a lot of kiosks or containers are lined up or placed haphazardly, on a plot or compound, you should assign each kiosk or container a separate 4-digit number. Some kiosks/containers are used as sleeping places and as such should be listed carefully in order not to leave any of them out.

During the listing exercise, do well to inform the households that after the listing phase, you will be visiting the households again for the actual enumeration of the population.

7.3.3 How to List different type of structures?

The 12 pictures below show the different types of structures:

<p>01. Single building (Detached) house A detached house is any housing unit that stands alone and is not attached in any way to another house. During listing, each detached house should be assigned a separate 4-digit serial number.</p>	<p>02. Single-storey (Detached)</p>
	
<p>03. Two-storey (Detached)</p>	<p>04. Multiple-storey (Detached)</p>
	
<p>05. Single building (Semi-detached)</p>	<p>06. Single-storey (Semi-detached)</p>



07. Two-storey (Semi-detached)



08. Multiple-storey (Semi-detached)



09. Terrace



10. Metal Container

This is also an enclosure which could be used as a dwelling unit or for other purposes and made of a metallic material.



11. Wooden Structure



12. Kiosk

A kiosk is a small enclosed structure usually made of wood, polyplastic, etc. and is movable. It could be used for various purposes ranging from dwelling to store keeping, etc.



7.4 Listing of EAs with several localities

In rural EAs which have two or more localities (i.e. Type 3 EAs), listing and enumeration should be completed in one locality before moving to another locality. Serial numbers assigned to structures should continue from one locality to another within the EA. For instance, if locality ‘A’ ended with serial number 0016, locality ‘B’ should start with 0017 and the numbering should continue till the last structure is assigned (e.g. 0045). Serial numbering then continues in locality ‘C’ and should start with serial number 0046. It is advisable you should start listing and enumeration of houses/structures in the base locality (which is the largest locality in the EA).

7.5 Listing of institutional buildings

For purposes of the PES, institutional buildings or structures that house group quarter population such as hospitals, boarding houses in educational institutions, prisons, etc, are **NOT** to be part of your EA. However, remember that structures for doctors, nurses, teachers, lecturers, etc. which are houses or flats of these institutions and are separated from the blocks or halls should be listed separately and treated as non-institutional population – these are household population.

CHAPTER 8

8. TABLET AND CAPI USE

8.1 Introduction

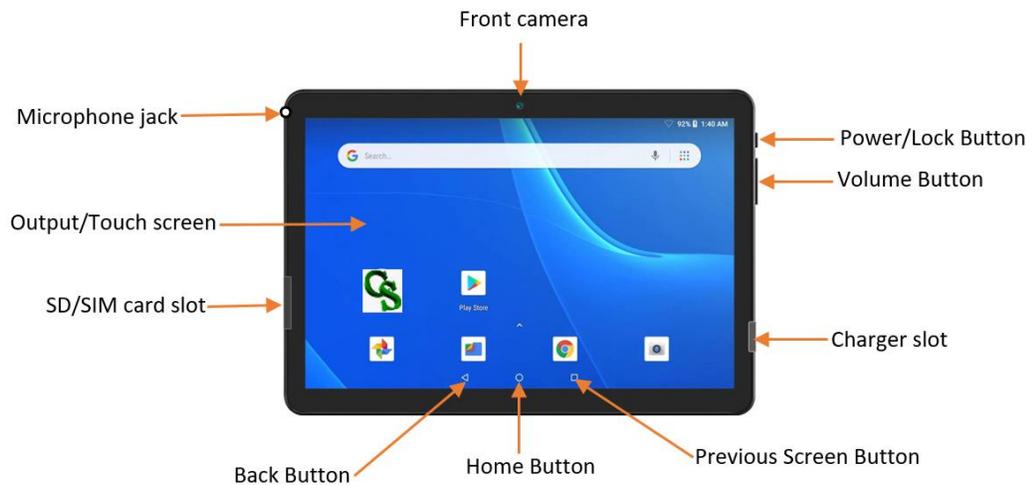
Advancement in Information and Communication Technology have brought up new approaches for data collection which are faster and of higher quality than the traditional paper-based methods. Mobile electronic devices, such as laptops, tablets, smartphones and Personal Digital Assistants (PDAs) have proved to reduce data capture and processing time. This method also minimize errors, ensures real-time data transmission and monitoring thereby improving data quality over the Paper Assisted Personal Interviewing (PAPI) method. This section is in two parts; tablet handling and safety and the use of the CAPI Application.

8.2 General overview of a tablet

8.2.1 What is a tablet?

A tablet is a wireless portable personal computer with a touchscreen as a primary input/output interface. It is typically smaller than a notebook computer, but larger than a smartphone. Tablets use android, windows or mac (IOS) operating systems. The 2021 PHC tablets use android operating system.

Features of a tablet



8.2.2 Tablet Accessories

These are items that are added to the tablets to aid its functionality. E.g. SD card, charger, power bank and android cable.



- **Android charger:** It is an accessory that is attached to the tablet to enable you recharge the tablet's battery whenever the battery life is low or exhausted.
- **SD card (Secure Digital card):** It is a type of memory card slotted into the tablet purposely for backups.
- **Power bank:** It is a portable power storage device designed for recharging the battery of mobile phones, tablets and other such electronic gadgets.

8.3 Key functions of the tablet required for 2021 PHC CAPI application

There are key functions of the tablet that the Enumerators and Supervisors would be using throughout the field exercise. These functions are Location (for GPS taking), Bluetooth (for syncing data between field officers) and Mobile Data or Hotspot (for syncing data to HQ). The features having these functions are located on the status bar of the tablet.

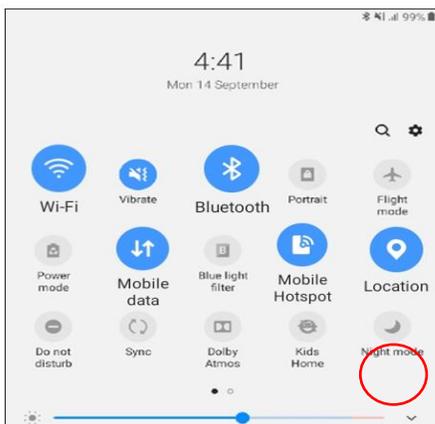
8.3.1 Location (for GPS taking)

Global Positioning System (GPS): This is a global navigation satellite system that determines the location of structures in the form of coordinates. These are unique identifiers of a definite geographic location on the earth. They are usually expressed as a combination of Latitude, Longitude, Altitude and Accuracy level. GPS Accuracy level refers to how close a device's calculated position is from the actual, expressed as a radius. The lower the value, the higher the accuracy. For the purpose of 2021 PES the acceptable accuracy level is 5 meters or less. Turn on the Mobile Data for internet to enhance the accuracy of the GPS coordinates taken.

To take the GPS coordinates with the CAPI, turn on the location function on the tablet to enable it to read the GPS coordinates of every structure during listing. CAPI will prompt you if the location function on the tablet is off when taking the GPS coordinates of a structure.

How to turn on Location (GPS):

- Swipe down from the top of the Tablet Home Screen to view the status bar
- Tap on the Location icon to activate it. The icon will change colour when activated.



Picking accurate GPS Coordinates

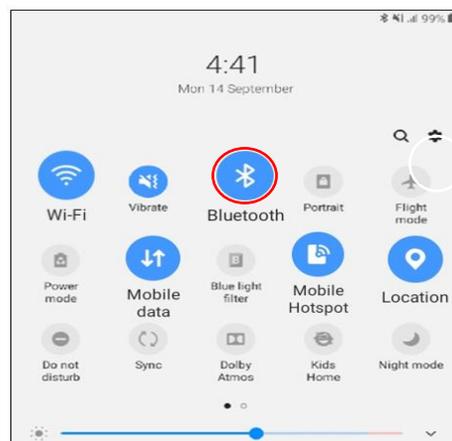
- Do not pick GPS coordinates under cloudy/dark weather
 - Do not move the tablet while GPS is reading
 - Always stand in the middle or in front of the structure to pick the GPS coordinate
 - Never pick GPS coordinates under a shade, shed or roof
 - Stretch out the tablet with the screen fully exposed to the sky when taking the GPS
- 1.

Location Accuracy Settings

- Open your device's Settings
- Tap on **Location**.
- Tap on **Advanced** >> **Google Location Accuracy**.
- Turn on **Improve Location Accuracy** on

8.3.2 Bluetooth

Bluetooth is a wireless function that connects one tablet to another in a short-range (10m). This function allows first level data transmission (synchronization) between the Enumerator and Supervisor. It is also used to sync assigned EA from the Supervisor's tablet to the Enumerator's tablet.



Using Bluetooth to pair your Tablet

- Use the status bar to turn your device's Bluetooth on. From the Home screen, swipe down from the top to access the status bar.
- Tap on the Bluetooth Icon to turn it on.
- Firstly, it scans for nearby Bluetooth devices and displays them for pairing.
- Make sure the target device is discoverable on the tablet.
- Tap on the name of the target device when displayed in the Bluetooth devices section on the tablet. The tablet automatically tries to pair with the target device.
- The Bluetooth communication range is approximately 30 feet (about 10 metres).
- Both the sender and the receiver should be ready concurrently.
- Without pairing the two devices, Bluetooth data transfer from Enumerator to Supervisor will not be successful .

8.3.3 Mobile data

Mobile data is an internal internet content delivered to the tablet over a SIM Card inserted into the tablet. This enables the field officer to connect to the internet for syncing data to the Central Server at HQ.



How to turn on mobile data

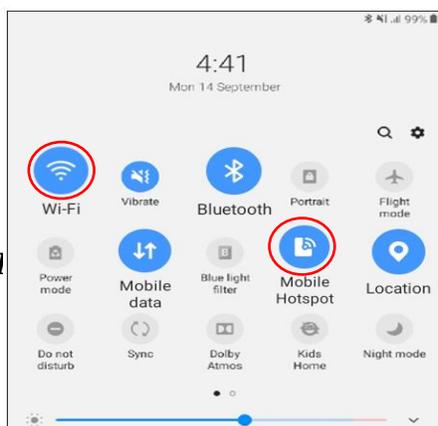
- From the Home screen, swipe down the status bar to display the notification panel.
- Tap on the Mobile Data Icon to turn it on. Note that a SIM card is required in order to have an internet connection. Check if you have enough internet data bundled (use *124# on all networks to check). Always check the strength of the network service signals (e.g. Edge, 2G, 3G, 4G). Network signal strength of 3G or 4G is appropriate to enable you send the data.
- The strength of the internet connection varies depending on the type of network service available to the tablet.
2.

8.3.4 Wi-Fi /Mobile Hotspot

The Wi-Fi function allows computers, smartphones, or tablets to connect to the internet being broadcasted within a particular area i.e. a facility that allows the tablet to connect to an external internet source.

Mobile Hotspot is a function that allows tablets or mobile phones to share internet with other devices (laptop, tablets, and mobile (smart) phones).

In order to access internet that is being shared by another mobile phone or tablet, turn on the Wi-Fi function, identify and tap on the name of the mobile phone or tablet sharing the internet. Request for the password from the one sharing the internet if required.



1. From a Home screen, swipe down the status bar to display the notification panel
2. Tap on the Wi-Fi icon to turn it on and identify available networks to connect to.

Troubleshooting Samsung/Huawei Tablet Internet Connection:

1. Samsung Tablet

- From **Settings** >> **Connections** >> tap on the **Wi-Fi** to turn it on.
3. **Or**
- Swipe the Status bar down to display the notification panel.
 - Tap on **Wi-Fi** to turn it on Wi-Fi.
- 4.
5. *When Wi-Fi is turned on, the tablet automatically scans for available network (internet sources) and displays them.*
 - i. Tap on the network you want to connect to.
 - 6.
 7. *When you select an open network, you are automatically connected to the network. Otherwise, enter a password to connect.*

1. Huawei Tablet

- Swipe downward from the status bar to open the notification panel.
- Tap on Wi-Fi to turn it on.

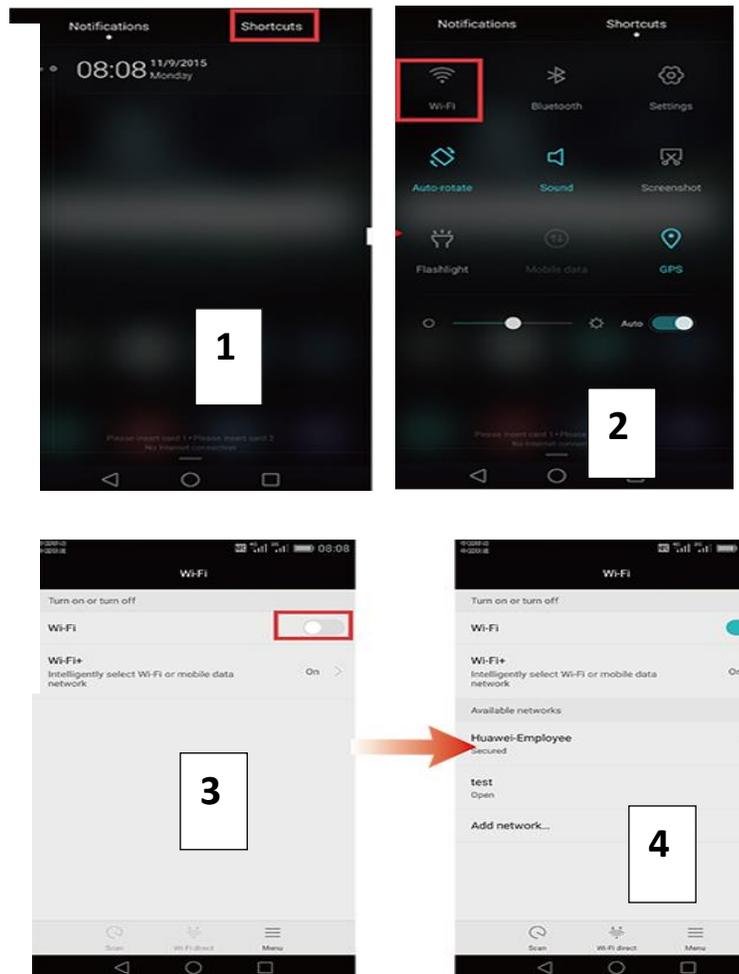
Or

- Swipe downward from the status bar to open the notification panel.

Tap on the **Settings**



- Tap on Wi-Fi to turn it on.
- Identify available network, to connect to and tap on it.
- Type in the password if required.



8.3.5 Date and time

Date and Time of interviews are automatically recorded. All age and other computations are linked to the system date and time. The Date and time can be checked from the **logout screen, Home Screen** or at the **Top right** of the screen.

Setting the correct date and time

Setting the correct date and time on the tablet is related to complete and accurate data collection.

How to Set Date and Time (Steps Below)

1. Samsung Tablet:

- i. From a Home screen, tap on **Settings >> General Management**
- ii. Switch **automatic time zone** off or uncheck
- iii. Select **Date & Time >> Switch off Automatic Date & Time**
- iv. Select **Set Date >>** Set the date on the Calendar that pops up.
- v. Select **Set Time >>** Set the time on the clock that pops up.
- vi. Select **Region >>** set time zone to **Ghana (GMT) / Azores**

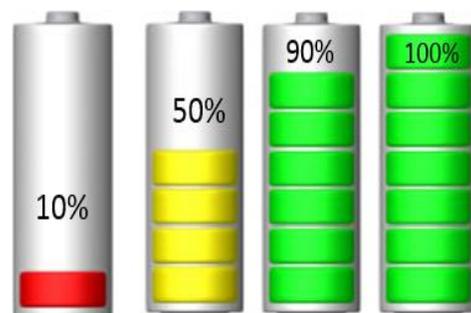
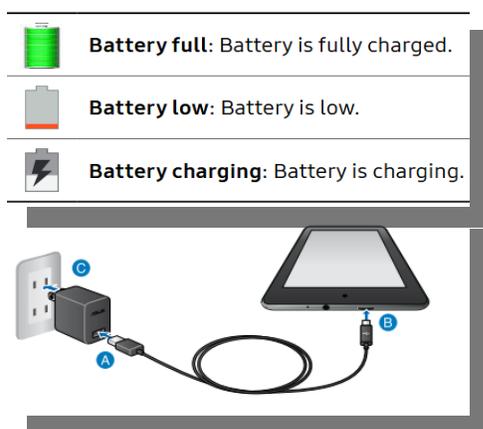
2. Huawei Tablet:

- i. From a Home screen, tap on **Settings >> Advance Settings >> Date & time**
- ii. Switch **automatic date & time** off
- iii. Select **Set Date >>** Set the date on the Calendar that pops up >> **OK**
- iv. Select **Set Time >>** Set the time on the clock that pops up >> **OK**
- v. Tap on **Select time zone >>** select **Greenwich Mean Time (GMT+00:00)**

8.3.6 Recharging Tablet Battery

Battery Power/Life is measured by the amount of power stored in the **battery** at a point in time. How long the tablets battery lasts depends on the amount of power stored in the battery. Field officers should ensure that the tablets are fully charged before work starts.

Levels of battery charge



- Unplug the charger from the electric socket when it is fully charged
- Use the AC power supply defined in the specifications of the charger (220 Volts).
- Do not use damaged or faulty power cable or charger head to recharge the tablet.
- Do not leave your tablet plugged all the time or throughout the night.

8.

How to Save the Tablet Battery Life

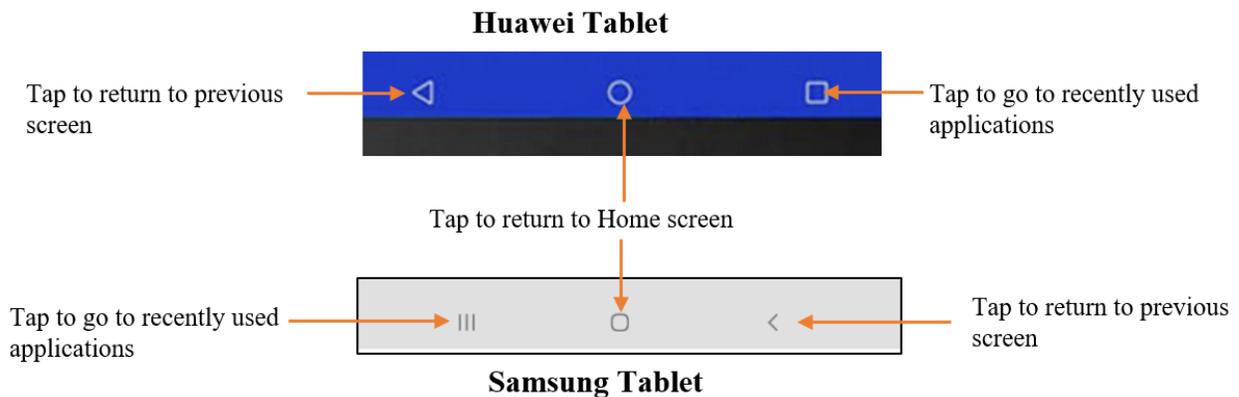
The following are ways to improve the tablet battery performance.

- Fully charging your tablet each evening will improve battery performance during the workday.
- Put tablet into sleep mode or turn it off when not in use.
- You can also reduce the screen brightness to save battery life.
- Switch off Bluetooth, Wi-Fi, Mobile Data and Hotspot when not in use.

9.

8.3.7 Navigation Icons

The following icons are commonly used on the Home screen or other application screens. Touch the icons to perform the following operations.



8.4 Rules Governing Tablet Use

8.4.1 Tablet and Accessories care and Use

Field officers must adhere to GSS acceptable tablet use policy.

- The Tablet and its accessories are properties of GSS, and you are responsible for taking care of them.
- The purpose of the tablet is for 2021 PES field data collection. Using the tablet for any other purpose is strictly prohibited.
- Each tablet has been prepared for one enumerator only, and should be used by that enumerator alone. Sharing the tablet with unauthorized persons is strictly prohibited.
- Never create a password to lock the tablet screen.
- Do not attempt to upgrade, update, or download/install any application on the tablet.
- Field officers are not allowed to repair or authorize repair of a damaged tablet.
- Do not delete any folder or file from the tablet.
- Keep the tablet away from children.

- Promptly report lost or stolen tablet or any of its accessories to the supervisor or Zonal Data Quality Management Team (ZDQMT).
 - Do not copy data off the device since it is a breach of the Data Protection Law.
- 10.

8.4.2 Things to avoid when handling tablet and accessories

- Do not expose the tablet to any liquid substance; e.g. water, cooking oil, petrol and kerosene.
- If any liquid enters the tablet, stop using it immediately, turn it off, remove all cables connected to it and contact the supervisor and the ZIT.
- Do not:
 - Place the tablet on the floor to avoid stepping on it.
 - Place the tablet on a bed to avoid lying on it.
 - Place the tablet on a chair to avoid sitting on it.
 - Expose the tablet to dust or dirt which may damage it.
 - Place heavy objects on the tablet to avoid breaking the screen.
 - Expose the tablet to excessive heat (above 40 °C).
 - Throw or slide the tablet when putting it down.
 - Place or slide the tablet on rough surfaces to avoid scratching the screen.
 - Use the tablet where there are inflammables or explosives to prevent the tablet from catching fire. **E.g.** *In a gas stations, fuel pumps, or chemical plant.*
 - During thunderstorms, put off the tablet and disconnect the charger from the socket if charging to prevent it from getting damaged.

11.

8.5 Introduction to CAPI

8.5.1 What is CAPI?

CAPI (Computer-Assisted-Personal-Interviewing) is a technology that uses mobile devices (such as personal digital assistants, laptops, tablets and smartphones) and internet or cellular networks to enable field officers to collect data on the field. Interview Data is collected using electronic questionnaires on mobile devices and transmitted to a central server (Database) for real-time quality control and analysis. CAPI also offers active data collection management tools such as progress reports, which allow project managers to monitor and organize fieldwork efficiently.

8.5.2 Why use CAPI in 2021 PES Data Collection?

Use of CAPI eliminates several operational and data processing steps in traditional face-to-face paper interview data production (such as printing, data entry and physical management of the questionnaires). This reduces the time lag between data collection and analysis. Overall data quality is improved because the use of electronic questionnaires enables automatic skip patterns to check entry quality during the interviews. Data validation can be done during data collection, as the information is ready for statistical analysis as soon as an interview is completed.

8.5.3 Benefits of CAPI Over Paper Questionnaire for Data Collection

A. Quality

- Computes skip & codes automatically.

- Incorporates Multimedia.
- Enables use of GPS functionality.
- Survey progress monitoring in real time for quality control and analysis.
- Automatic filters and range checks.
- Real time prompts for errors made.

B. Timeliness

- Reduces the time lag between data collection and publication of results.
- Reduces data entry time.
- Enables real time data access.
- Enables real time monitoring of coverage

C. Cost

- Space for Data Entry Office resolved
- Saves paper cost
- Eliminates data entry cost
- Save cost of storage for paper questionnaire

8.6 Data flow in 2021 PES CAPI application operations

There are two ways of which data will be transmitted to HQ (Servers)

- The first level is between the Enumerator and Supervisor, where the data is transmitted (synced) via Bluetooth connectivity to the Supervisor’s tablet for review.
- The second level is where the Supervisor sends the **Team’s Data** to **HQ** (2021 PHC Main Server)

8.7 Structure of 2021 PES CAPI Menu System

8.7.1 Introduction

The 2021 Post Enumeration Survey will engage Supervisors and Enumerators to conduct the enumeration. These field officers will play unique roles which were factored into the development of the 2021 PES CAPI application. The role and operations expected of a Supervisor is organized under the “Supervisor Menu” and that of the Enumerator is organized under the “Enumerator Menu”. The 2021 PES CAPI Menu is the only “KEY” used to access or launch all other actions of the CAPI Application. It organizes the operations of the Enumerators and Supervisors. It also simplifies the work and sets up identifiers for the data through the login ID of the Supervisor or Enumerator.

The login ID is a unique identification number of a field officer that makes reference to the Enumeration Area number (for enumerators only) and Supervisory Area number. It is made up of 12 digits. The composition of the login ID is explained in the following section.

8.7.2 Login ID Composition

In 2021 PES application usage, login is required to get access to the main system or application.

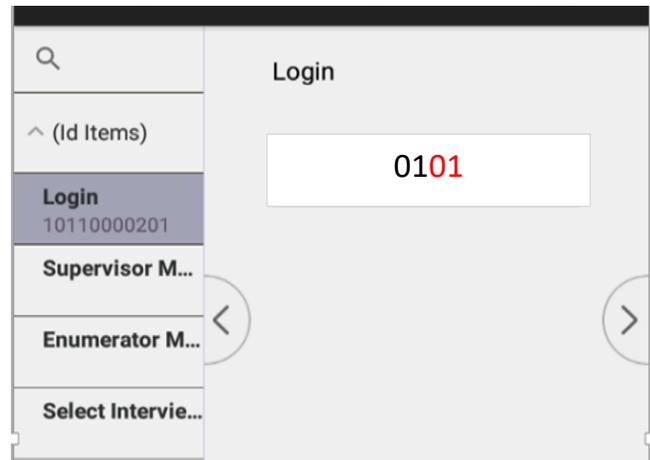
Supervisor Login ID

Every Supervisor is assigned a unique login ID, a **4-digit code** which is required before proceeding to use the CAPI Application. This is to control the actions of the Supervisor in a designated Supervisory Area (SA) and ensure accountability.

The composition of the Supervisor ID is made up of:

^
Sup Team number 1 = 01
Status = 01

NOTE: All together make the Supervisor's login ID. For



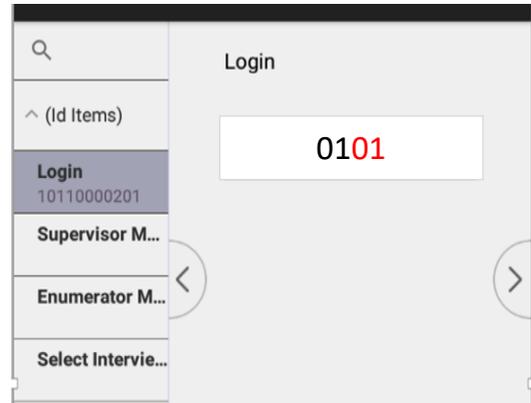
Enumerator Login ID

Every **Enumerator** is assigned a unique ID, a 4-digit code which enables the Enumerator to use the CAPI Application. This is to control the actions of the Enumerator in a designated Enumeration Area (EA) and ensure accountability.

The composition of the ID is:

Enum.1 Team1 = 01

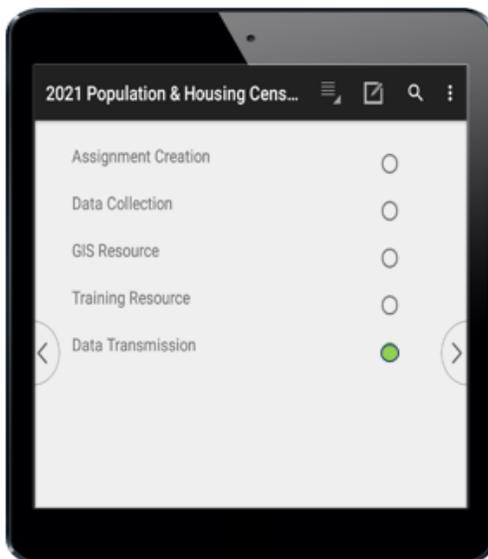
Status = 01



8.7.3 Supervisors' Main Menu:

The Supervisor logs in with the ID to access the Main Menu. An example of a Supervisors' login ID is 0101. There are five broad options in the supervisors' main menu. These are "Assignment Creation", "Data Collection", "GIS Resource", "Training Resource", and "Data Transmission" as indicated in Figure 1. Each broad group has submenu options.

Figure 1: Supervisors' Main Menu



The items on the **Supervisor Main Menu** are:

Data Collection: Grants the Supervisor access to run reports on data collected and conduct re-interview for completed listing and PHC 1A questionnaires.

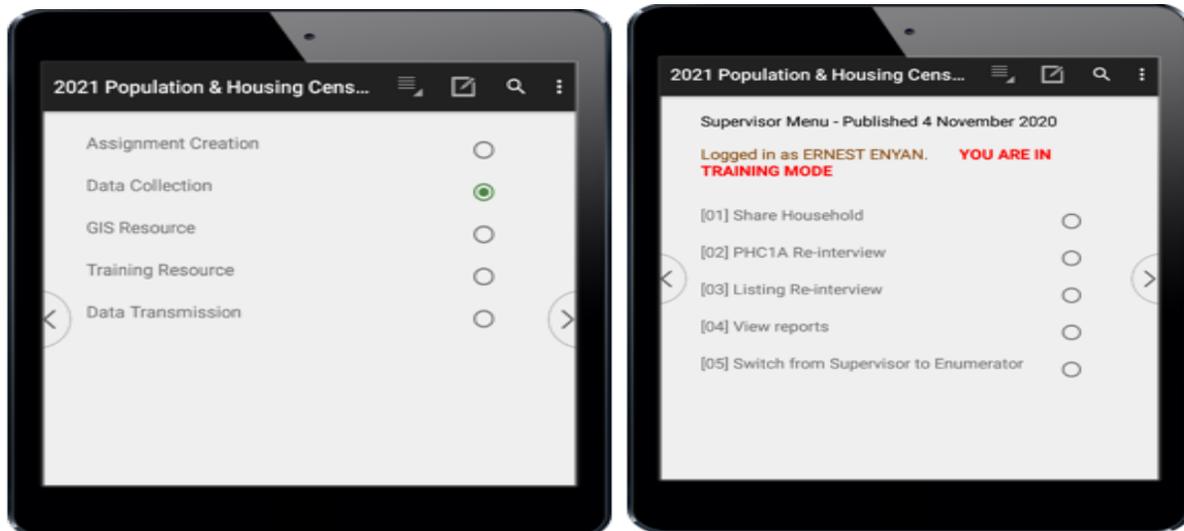
GIS Resource: Contains interactive maps, pdf maps and the EA boundary description (PHC 2) sheets.

Training Resource: Contains copies of the 2021 PHC questionnaires, field officers manual, presentations and a link to take exams during training.

Data Transmission: Allows the Supervisor to sync with Enumerator to transmit assignment to the Enumerator or receive data from the enumerator, and sync data to HQ.

I. Supervisors Menu: Data Collection

Data Collection: There are five (5) items under the data collection option in the supervisors menu. These are listed as follows.



- **Share Household:** This is used to share listed households among several enumerators to conduct enumeration in an EA. It is used when support enumerators have to assist the primary enumerator to accomplish the task in an EA.
- **Re-interview:** This is used to launch the PES main re-interview application for the supervisor to conduct re-interview during enumeration. This application has sampled questions from the main questionnaire for the re-interview. Supervisor will randomly selects five (5) completed households to conduct re-interview. The final report compares the responses recorded by the Supervisor with that of the Enumerator to identify differences.
- **Listing Re-interview:** This is used to launch the Listing Re-interview Application for the supervisor to conduct re-interview during listing. This application has sampled questions from the listing form for the re-interview. CAPI randomly selects five (5) listed structures for the Supervisor to conduct re-interview. The final report compares the responses recorded by the Supervisor with that of the enumerator to identify differences.
- **View Reports:** This takes you to the next page where you choose among three reports (i.e. completion, duplicates and gaps reports).
- **Switch from Supervisor to Enumerator:** This allows the supervisor tablet to switch from being a Supervisor to login as an enumerator. This is used during training of all field officers. Supervisors must not switch to become Enumerators and vice versa during main field work.

II. Supervisors Menu: GIS Resource

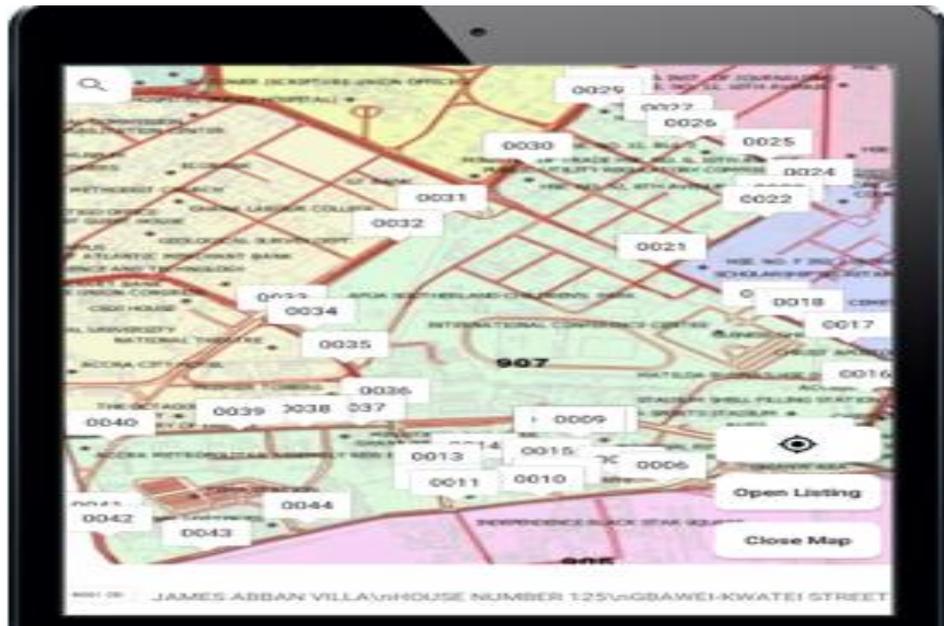
Select GIS Resources to have access to all GIS resources for the Supervisor.



The GIS resources are:

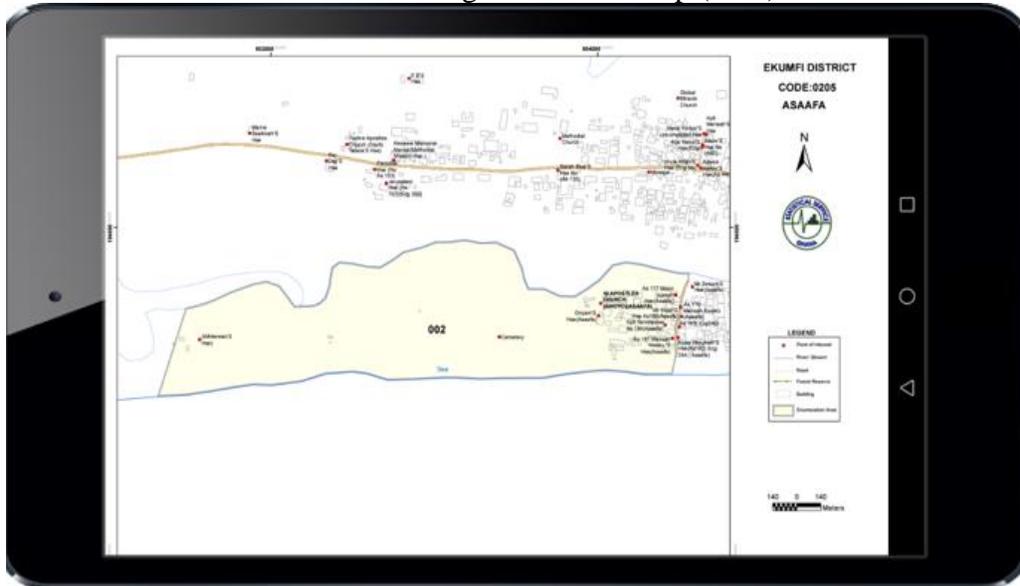
- **EA Map (Interactive):** This plots the GPS points and addresses of the listed structures on the SA map. It shows the coverage of work by the enumerators working in that SA. Interactive EA map interface showing listed structure numbers in the EA is shown in Figure1.3

Figure1.3: Interactive EA map showing listed structure numbers in the EA



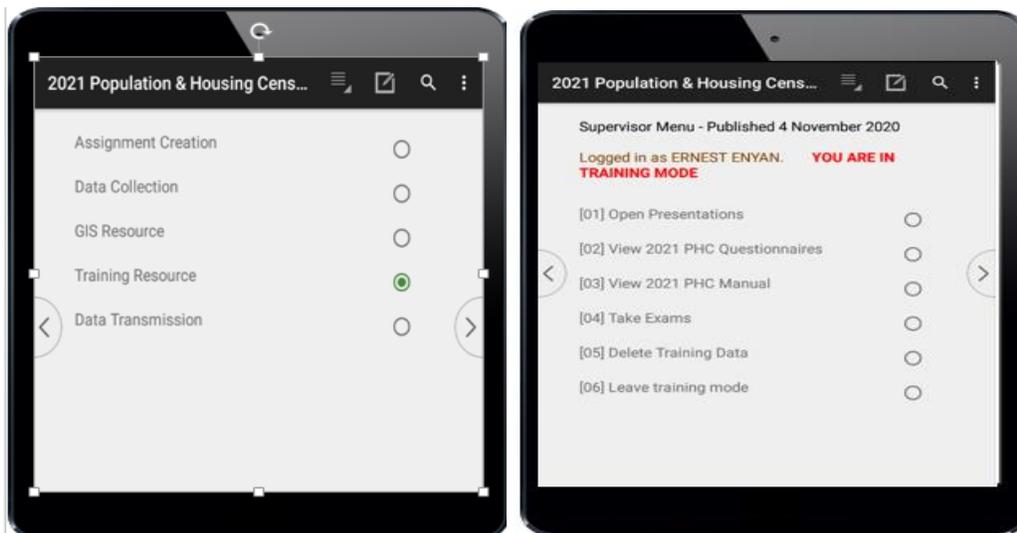
- **EA Map (pdf):** This is a static map showing the features in each EA in the SA to guide the enumerators during EA boundary canvassing. Figure 1.4 show the interface of the SA Map (PDF) on the tablet.

Figure1.4: EA Map (PDF)



III. Supervisors Menu: Training Resource

“Select Training Resource” to have access to the following materials.



- **Open Presentation:** This gives the Supervisor access to all the presentations relating to the 2021 PHC. Field officers can select one presentation at a time.
- **View 2021 PES Questionnaires:** These are soft copies of all the 2021 PESquestionnaires for training and field data collection.

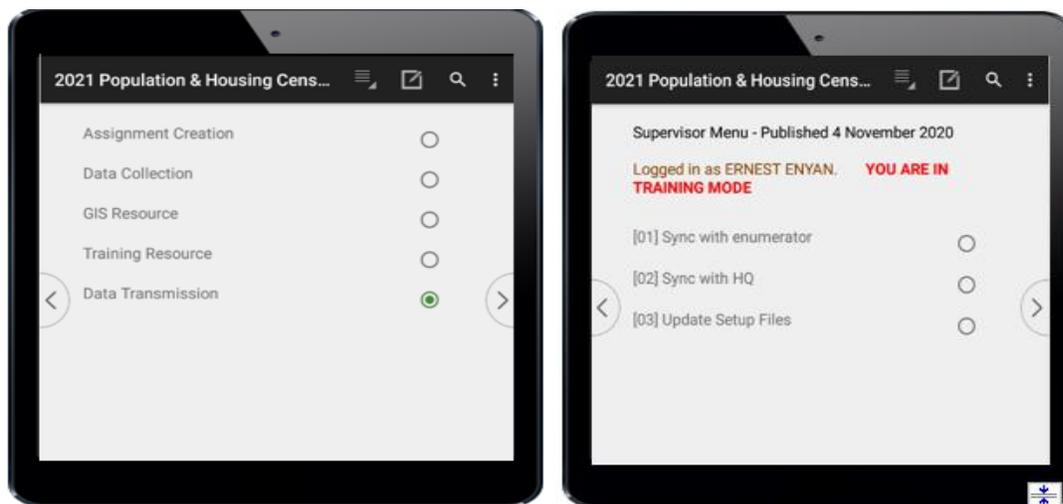
- **View 2021 PES Field Officer’s Manual:** This is a soft copy of the field officers’ manual included in the CAPI.
- **Take Exams:** Field officers would be assessed on everything learnt during training. “Take Exams” grants the Supervisor access to the examination platform to participate in all 2021 PES training exams.

12.

- **Delete Training Data:** This allows the Supervisor to delete data entered during training to prepare the tablet for the main field work.
- **Leave Training Mode:** This enables the Supervisor to switch the CAPI Application from Training Mode to Census Mode. This option is used when the Supervisor is ready for the main field work.

IV. Supervisors Menu: Data Transmission

There are three (3) items under the Data Transmission option in the Supervisors Menu.



- **Sync with enumerator:** This allows the Supervisor to transmit EA assigned to the respective Enumerators tablet. It is also used to receive data from the Enumerators tablets.

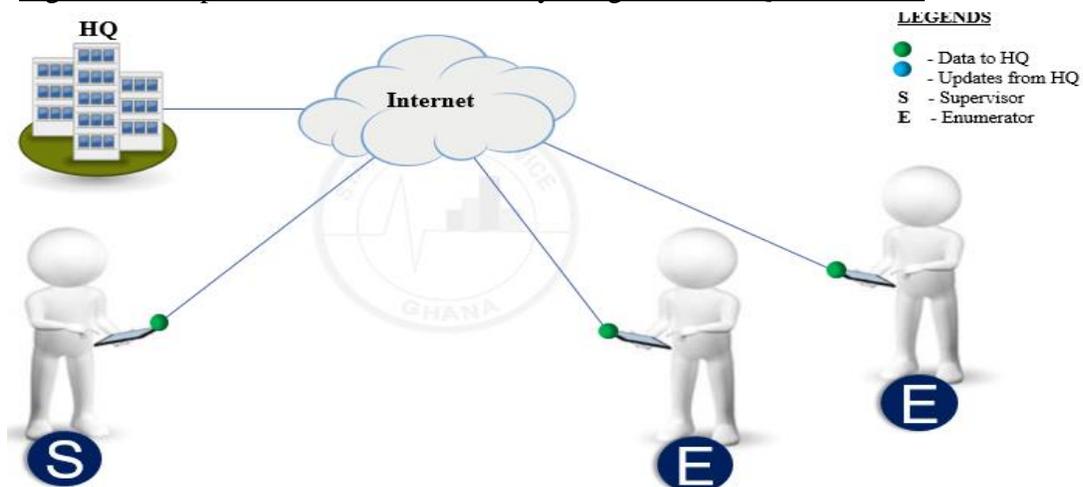
The Supervisor selects “**Data Transmission**” in the main menu and then selects “**Sync with enumerator**”. The Enumerator also selects Data Transmission on his/her main menu and then selects Sync with supervisor. These actions on both tablets activates the Bluetooth pairing to pair both tablets. As a result, the EA assigned will be transmitted to the Enumerators tablets or the data on the Enumerators tablets will be transmitted to the Supervisors tablet.

Figure 1.4: Supervisor Syncing with Enumerator via Bluetooth



Sync with HQ: This allows the Supervisor/Enumerator to sync data to HQ server as in figure 1.5. This data serves as a backup for the both Supervisor and Enumerator. Hence field officers must sync data to HQ each day after close of work or early morning before work starts. Data syncing can also be done occasionally during the day, after some enumeration have been conducted in order to secure the data collected.

Figure 1.6: Supervisor and Enumerator syncing data to HQ via internet

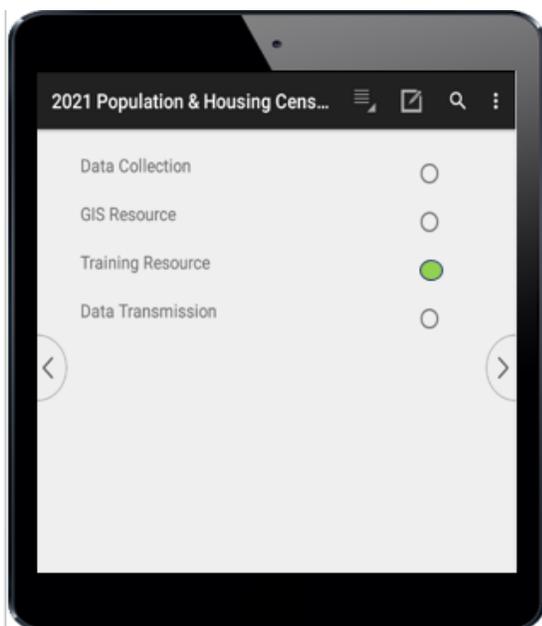


- **Update Setup Files:** This allows the Supervisor to update the CAPI Application files where necessary so that syncing with the enumerators for data will also update the CAPI Application files on their tablets.

8.7.4 Enumerators' Main Menu

The **Enumerators' Main Menu** is accessed through the login ID. Example of such login ID is 020420000101. There are four broad options under the Enumerators' main menu. These are "Data Collection", "GIS Resource", "Training Resource", and "Data Transmission" as indicated in Figure 2. Each broad group has submenu options.

Figure 2: Enumerators' Main Menu



The items on the **Enumerator main Menu** are:

“Data Collection” - This gives the Enumerator access to all data collection resources and reports.

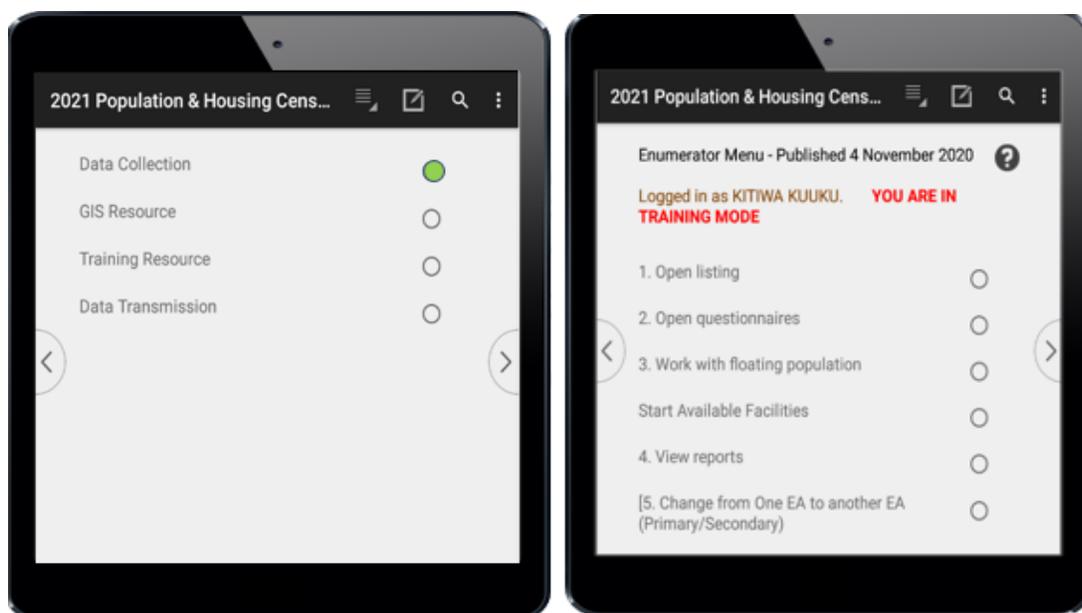
GIS Resources – This gives the Enumerator access to all GIS resources; pdf maps, interactive maps and EA description form

Training Resources – This allows the Enumerator to access all training resources. E.g. questionnaires, manual, power point presentations and take exams.

Data Transmission – This grants the Enumerator access to data transmission (Data Syncing) resources.

I. Enumerator Menu: Data Collection

The items under the Data Collection option on the Enumerators Menu are described as follows.



“Open Listing” gives the Enumerator access to the listing Application.

“Open Questionnaire” gives the Enumerator access to the questionnaire Application.

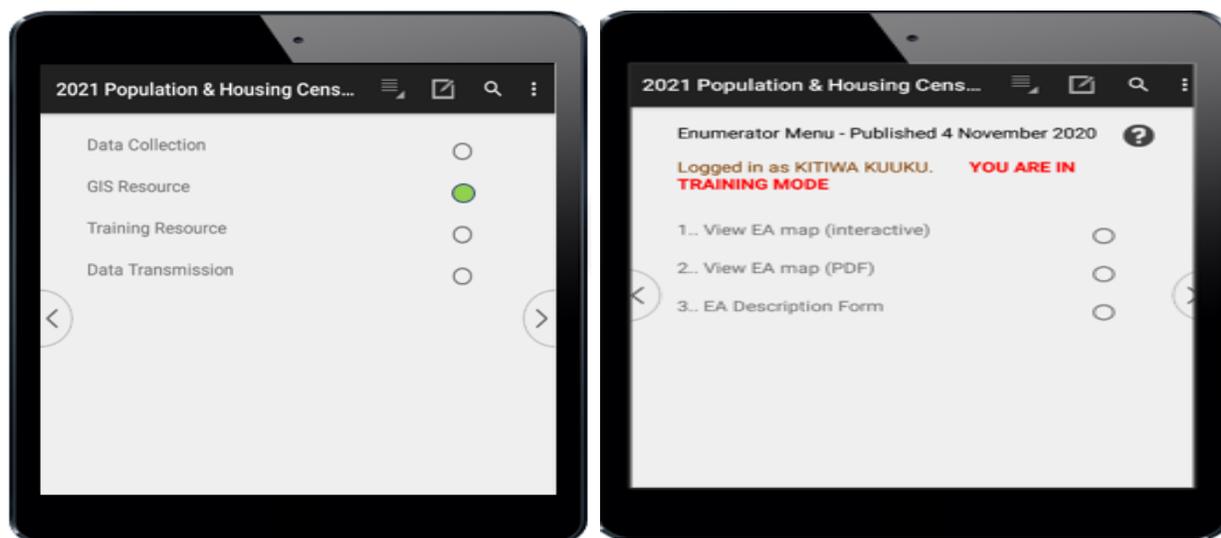
“View Report” gives the Enumerator access to items to run report on Progress of work (Completion report), Structure numbers skipped (Structure Number Gaps report) and report on

structure numbers that are repeated in the EA (Duplicates reports). Note that the CAPI Application will prevent an Enumerator from recording a structure number more than once on the same tablet. CAPI automatically records household numbers in a structure serially.

“Change from One EA to another EA (Primary/ Support)” Allows Enumerator to change status from a Primary Enumerator to a Support Enumerator.

II. Enumerator Menu: GIS Resources

“Select GIS Resources” to have access to all GIS resources in the CAPI.

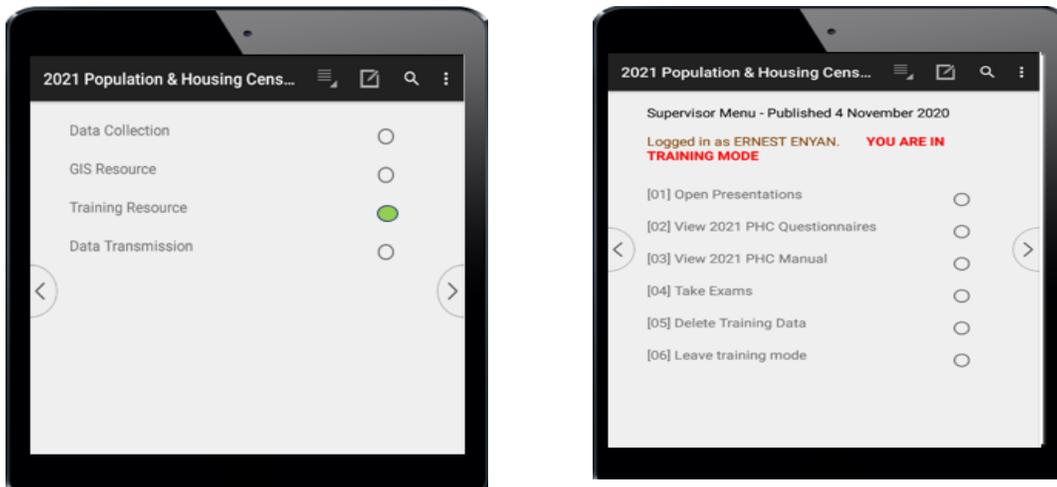


The GIS resources are:

- **EA Map (interactive):** The interactive map plots the GPS points and addresses of the structures listed on the map. This guides the enumerator to work within the EA boundary and ensure complete coverage.
- **EA Map (pdf):** This is a static map showing the features in the EA on the map to guide the enumerator during EA boundary canvassing.
- **EA Description Form (PHC 2):** This is a form describing the EA boundary and showing some important features in the EA on the pdf maps. This map is not interactive i.e. it does not show the GPS points taken for the structures in the EA.

III. Enumerator Menu: Training Resource

The content is the same as that on the supervisor menu



“Select Training Resource” to have access to the following materials.

- **Open Presentation:** Gives the Enumerator access to all the power point presentations for the 2021 PES field officers training. Field officers can select to open one presentation at a time.
- **View 2021 PES Questionnaires:** These are soft copies of all the questionnaires for 2021 PHC field officers training. One questionnaire can be opened at a time.

13.

- **View 2021 PES Manual:** This is a soft copy of the field officers’ manual included in the CAPI.
- **Take Exams:** Field officers would be assessed during training. “Take Exams” 8.8 2021 *PES CAPI Application Features and Navigation*

CSPro software was used to develop the CAPI Application for the 2021 PES field data collection. There are two versions of CSPro – Windows and Android versions. The android version, which is called CSEntry is the base software on which the CAPI Application for the 2021 PES runs.

The CAPI Application is user-friendly with features that field officers can easily control. Its user-friendliness makes it easy to use to collect accurate information from the respondents. The features of the CAPI Application are explained in this section.

A. Predictive text functionality:

14.

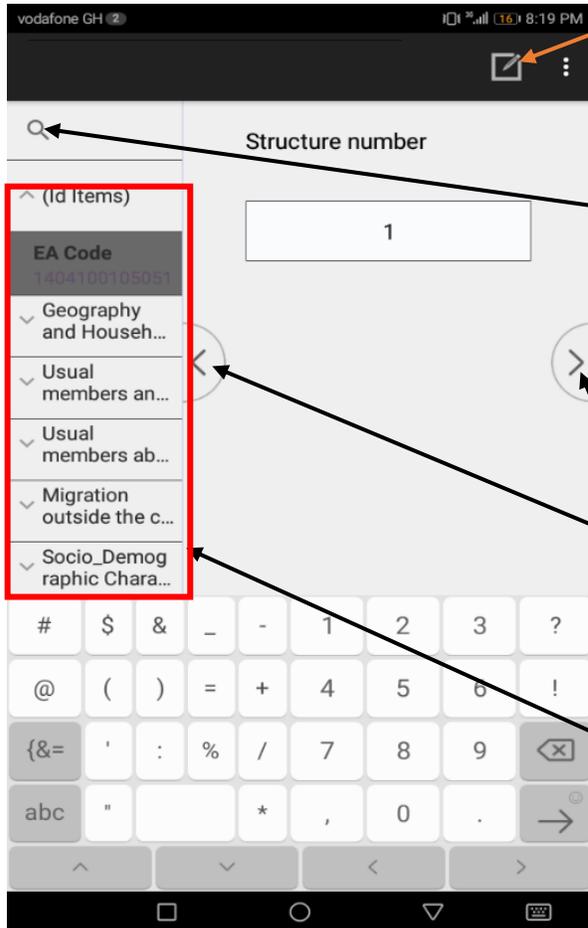
Predictive Text suggests words that match your text entries and can automatically complete common words. Predictive text can learn your personal writing style from your application. The CAPI application has this functionality for the spaces provided for writing text.

B. Application versioning:

A particular release of the CAPI application that is slightly different from other forms of the same CAPI App. Or a copy of CAPI Application that has been changed so that it is slightly

different from the current one. The version helps you to know if there is a new upgrade or changes in the application.

8.8.1 CAPI Features

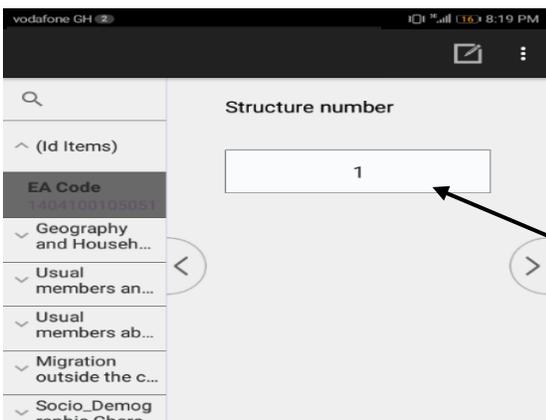


Note Box
 Clicking on the pencil and paper icon, you will have the opportunity to type a field-specific note. If you do not want to add a new note, you can press the

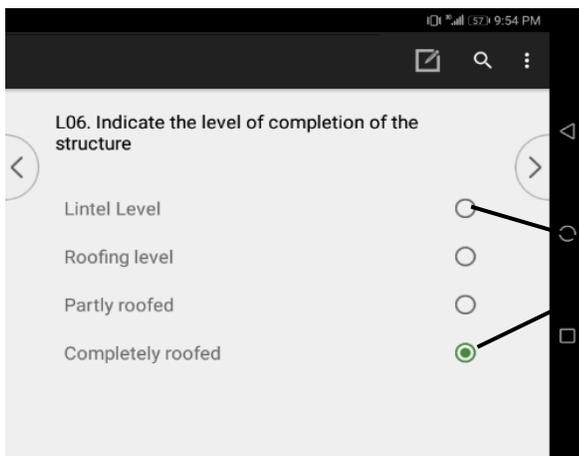
Search Box
 After clicking on the search icon, a space will appear where you can type a search query. The list of responses will automatically filter based on your search query. The full text of each response is searched, not necessarily starting from the first

Navigation Buttons
 These are the left and right navigation buttons, which correspond to moving backwards or forwards in the data entry application. Clicking on the Android back button will close out of adding

Case Tree
 Clicking on the show case tree icon brings up the case tree. The case tree displays all fields that have been entered in the data entry application, showing the field label as well as the field response. If you click on a field, you will be taken to that field. This allows you to quickly move from one part of the questionnaire to another. Once the case tree is shown, clicking on the CS icon again will take you

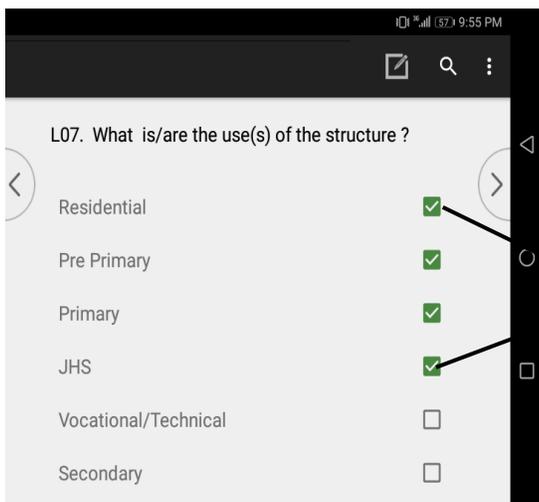


Text Box
 To enter data in a text box field, simply type the response using the keypad on the screen. If a keypad does not appear automatically, tap on the field and a keypad will appear to start entry.



Radio Buttons

When presented with a list of radio buttons, you must select **one**, and **only one**, response. Click on the response label, or the corresponding radio button, to make your selection.



Check Boxes

This will allow you to select one or more (multiple selection) responses. Click on the response label, or the corresponding checkbox, to make a selection. Once you are finished making all selections, you can proceed to the next field.

The CAPI application is user-friendly, with features and navigations that enumerators and supervisors can easily control.

Navigation: It is the movement between pages and features of the CAPI to access tools and materials, administer the 2021 PES questionnaires and record responses. CAPI navigation features enable field officers to move through the application effectively.

Features: These are attributes or objects of the CAPI which make it user-friendly for the field data collection. These features include:

Radio button; Check box; User bar; Text boxes; alphanumeric keypad; Search icon; Question mark icon.

Skip patterns: These are conditional and consistency checks included to ensure field data collected make logical sense. CAPI does these checks and skips over the non-applicable

question(s) to the next applicable one. E.g. If a person has never been to school then the person cannot respond to a question on highest level of education.

Filters: CAPI automatically selects particular household members to answer questions on certain modules leaving out other members who are not eligible to answer these questions. E.g. Education module is for household members 3 years or older.

8.8.2 2021 PES CAPI Navigation

User Bar 1
It is usually named by the function it is expected to perform. Eg, Get Device ID, **Clear Training Data**

2 Search
Image of a magnifying glass located at the top-right corner of the CAPI window.

3 Navigation Button: Previous Page
Enables movement to the preceding page

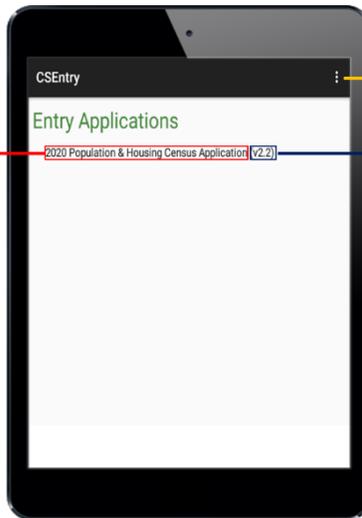
4 Navigation Button: Next Page
Enables movement to the next page

5 Home Button
Takes one to the home screen of the tablet

6 Back Button
Enables termination, temporary save or advancement of interview

7 Task Overview Button
Shows all running applications

CAPI Application Name



1 Menu Icon ▶ Shows a set of options and settings to choose from

3 Version Provides information on the version of the 2021 PHC application on the tablet. Ensures that supervisors' CAPI and enumerators' CAPI have the same versions.

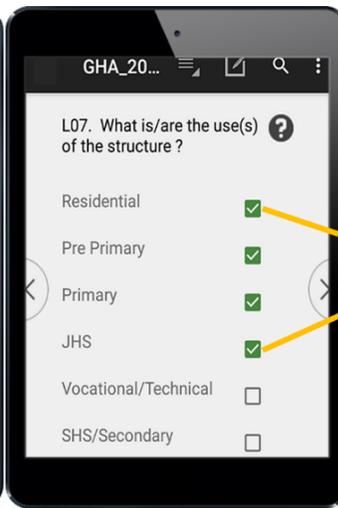
Radio Button

Allows choice of only one response from a predefined set of options.



2 Check Box

Allows choice of more than one response (multiple) from a predefined set of response options.



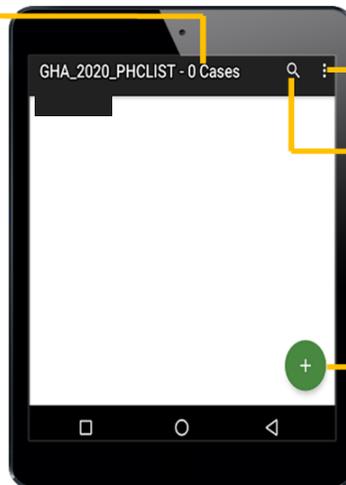
Number of Cases

Shows the number of questionnaires partially completed or completed.

Completed cases in listing refers to the number of structures that have been listed.

Completed cases in PHC 1A refers to the number of households enumerated and for the other questionnaires (PHC 1B, 1C and 1E) the number of units within the block.

Completed cases in PHC 1D refers to the number of questionnaires completed in the floating population area.



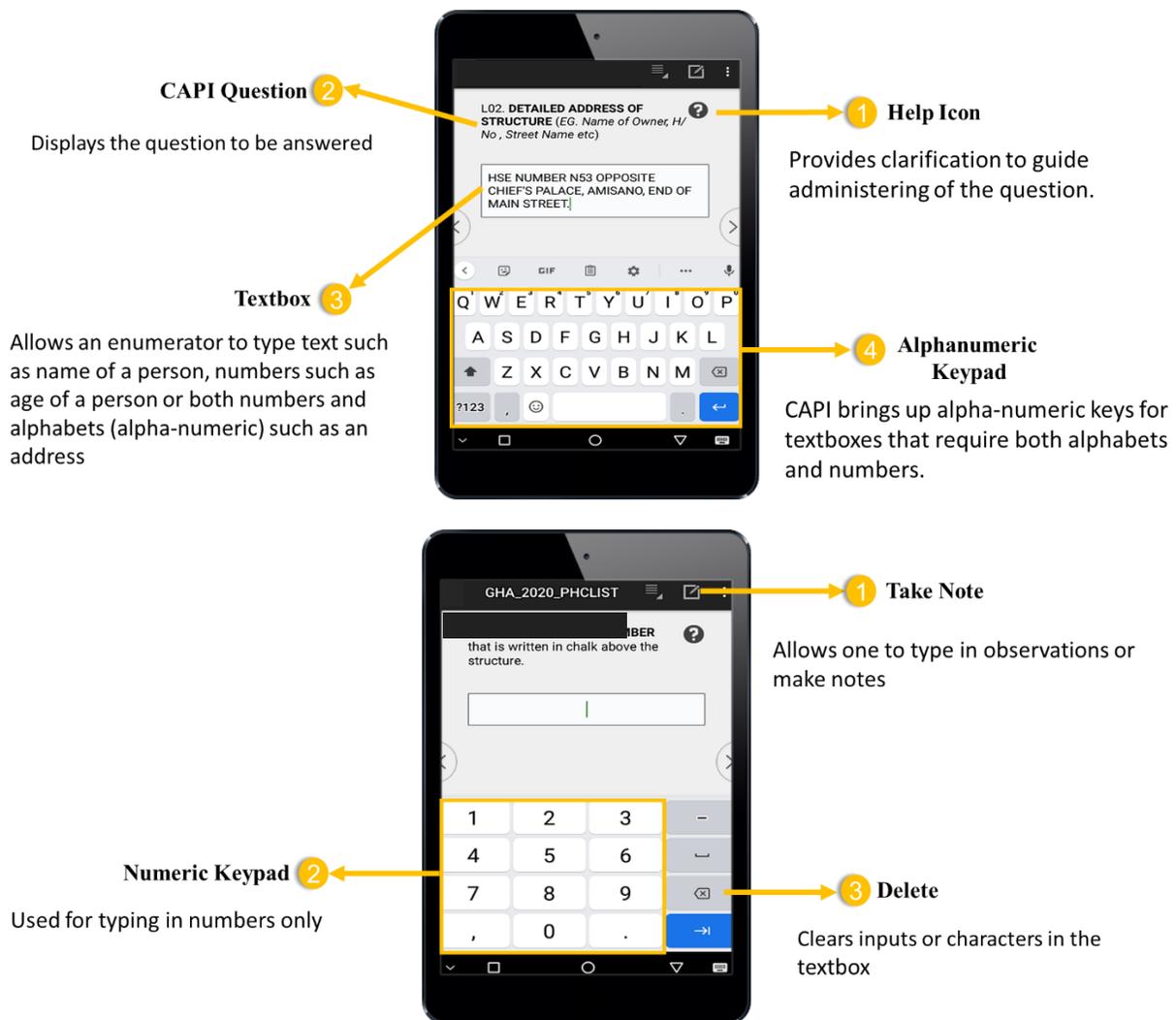
1 Sub Menu Shows a set of options and settings to choose from

2 Search Button

Allows the search of information pertaining to any particular page

4 Add New Case

Starts listing for a new structure or a new questionnaire



8.8.3 Why Consider CAPI Navigation and Features

- It identifies the key CAPI navigation features necessary to perform tasks related to field data collection.
- The features make it user-friendly.
- It accords the field officers control to move between pages and features flexibly and conveniently
- It reduces time spent during field data collection. It saves the enumerator time for flipping pages and looking for the next applicable questions and household members who are eligible for a certain module.

8.9 Possible error/challenges and how to them

<i>Possible problems that will occur both hardware and software.</i>	<i>Possible Causes</i>	<i>Averting/Solutions</i>
1. Data transmission difficulty 15. (internet & Bluetooth connectivity)	<ul style="list-style-type: none"> Poor or no internet availability Bluetooth malfunctioning Bluetooth not active Improper configuration of Bluetooth settings 	<ul style="list-style-type: none"> Call IT Officer Backup and locate strong internet connectivity and sync to HQ Clear Bluetooth cache Turn on or restart Bluetooth Call IT Officer to reconfigure the Bluetooth settings
2. Tablet screen crack	<ul style="list-style-type: none"> Accident Exerting pressure on tablet 	<ul style="list-style-type: none"> Caution Contact IT Officer for replacement Replacement of tablet
3. Touch Screen defective	<ul style="list-style-type: none"> Factory Defects Improper handling of tablet 	<ul style="list-style-type: none"> Contact IT Officer for replacement
4. Tablet unable to take GPS	<ul style="list-style-type: none"> Factory Defects GPS not calibrated Location service may be off GPS settings may not be correctly set 	<ul style="list-style-type: none"> Turn on location service Contact IT Officer
5. CAPI Application not running	<ul style="list-style-type: none"> Deletion by supervisor/enumerator Tablet automatically reset 	<ul style="list-style-type: none"> Enumerators should be cautioned not to access unauthorized resources/folders Contact IT Officer
6. Faulty charging system	<ul style="list-style-type: none"> Improper connection of android cable into the charging port Using wrong/defective android cable Power surges 	<ul style="list-style-type: none"> Properly align the cable pin into the charging port Always ensure the right android cable is used for charging Contact IT Officer
7. Charger heads, USB cable malfunctioning	<ul style="list-style-type: none"> Improper handling of charger android cable Power surges Factory defect 	<ul style="list-style-type: none"> Users should be schooled on tablet use and care Replace charger heads and cables Procure original chargers Contact IT Officer
8. Blank/ Blur tablets screen	<ul style="list-style-type: none"> Improper handling of tablet Power surge Screen defective from factory 	<ul style="list-style-type: none"> Users should be schooled on tablet use and care Contact IT Officer
9. Tablet restart intermittently	<ul style="list-style-type: none"> Battery power not stable Error in operating system 	<ul style="list-style-type: none"> Replace battery Contact IT Officer
10. Bad battery cell	<ul style="list-style-type: none"> Power surge Improper first charge Overcharging of battery Power deplete to zero without charging 	<ul style="list-style-type: none"> Surge protector should be used at areas where the is rampant fluctuation Always ensure battery power level not less than 20% Do not charge tablet overnight or more than its prescribed hours of charging Contact IT Officer
11. Android OS loads slowly	<ul style="list-style-type: none"> The tablet memory not able to hold the program and the processor speed may also be low 	<ul style="list-style-type: none"> Contact IT Officer

	<ul style="list-style-type: none"> • Error in the Operating System 	
12. Application running very slow	multiple applications running on the background	<ul style="list-style-type: none"> • Close all unused apps sessions • Contact IT Officer
13. Loss of Tablets	Due to theft either on the field or at home	<ul style="list-style-type: none"> • Ensure real time synching • Replace tablet • Restore data file from backup

8.9.1 Troubleshooting guidelines

This section provides general step by step guidelines to help field officers perform a specific task under the menu functions of both the Supervisor and Enumerator.

8.10 Terminology

Entry Application Screen – Upon opening CSentry, all the data entry applications on the devices are displayed

Cases Listing Screen – The case listing displays all cases that have already been added to the data file.

Case Tree – The case tree displays all fields that have been entered in the data entry application.

Partial Save – Saving an interview midway to avoid data loss in case of impromptu shutdown of the tablet

Completed Cases – Saved completed interviews (data)

Advance to End - Skipping to the end of interview

Cases – Saved interviews (data),

EA Assignment – The act of tasking an Enumeration Area (EA) to an enumerator for field work.

Modify Cases – Making changes to already completed cases

CHAPTER 9

9 COMPLETING THE LISTING FORM

9.1 Introduction

The Listing Form is the document in which you will keep a record of your listing operation and enumeration. This record must include the 4-digit serial number of houses/structures in the EA, the address of each house or structure in your Enumeration Area, the type and use of the structure/house, the number of households in the house as well as the conditions of the structure in which the households reside. It also contains the total number of persons enumerated in the house. Instructions for filling the Listing Form are explained below.

9.2 How to complete the Listing Questionnaire

Region Name: There are 16 regions in Ghana. You are to write the name of the region in which you are doing the enumeration. For example, assuming your enumeration area is located in Ashanti region, write “Ashanti” in the space provided.

District Name: There are a number of districts in each region and you are to write the name of the district in which you are doing the enumeration. For example, assuming your enumeration area is located in Abura-Asebu-Kwamankese, write “Abura-Asebu-Kwamankese” in the space provided.

Name of Locality (Town/Village): Locality refers to town or village in which you are collecting the data for 2021 P. A locality is defined as a distinct population cluster (also designated as inhabited place, populated center, settlement) which has a **NAME or LOCALLY RECOGNISED STATUS**. It includes fishing hamlets, mining camps, ranches, farms, villages, towns, cities and many other types of population clusters, which meet the above criteria. In writing names of localities, you must not suffix No. 1, No. 2, except where the inhabitants themselves call it that way, e.g. Pakyi No.1, Pakyi No.2. In short never put down any name, which is not known in the area. Write the name of the locality in which you are doing the enumeration.

Enumeration Area (EA) Code: EAs are assigned numbers in conformity with the geographic coding of the country that uniquely identifies each EA. It is a ten-digit code system which

contains geographic identification codes of each administrative area with associated numbers.

Region Code: The list of the regions with their codes as assigned by the Ghana Statistical Service (GSS) is provided below:

Table 2: The regions in Ghana and their respective codes

S/N	Region	Code	S/N	Region	Code
1.	Western	01	9.	Bono	09
2.	Central	02	10.	Bono East	10
3.	Greater Accra	03	11.	Oti	11
4.	Volta	04	12.	Northern	12
5.	Eastern	05	13.	Savannah	13
6.	Ashanti	06	14.	North East	14
7.	Western North	07	15.	Upper East	15
8.	Ahafo	08	16.	Upper West	16

District Code: The list of Districts together with codes can be found in the manual (check Appendix 2)

Table 3: Positions of various digits during coding

Geographical Area	Digit Location	Code	Range	Remarks
Region	1st & 2nd	2-Digits	01-16	From Western 01 to Upper West 16
District	3 rd and 4 th	2-Digits	01-47	Ashanti has the Highest number of districts: 47
District Type	5 th	1-Digit	1-3	District=1 Municipal=2, Metropolitan=3.
Sub-Metro	6th & 7th	2-Digit	1 and 2	
EA Number	8th, 9th & 10th	3-Digits	001-999	To be numbered sequentially within district/municipal/sub-metro
Locality code	11 th ,12 th &13th	3-digits	001-999	numbered sequentially within type 3 EAs

Other information to be included in the identification are:

EA BASE NAME: This is usually a popular feature such as Mosque, Chapel, drinking spot, etc, situated within the EA. In the case of type 3 EA, the largest locality is identified as the EA base.

EA TYPE: There are three types of Enumeration Areas (EA) and each type is assigned a one-digit number.

9.3 Interview Dates

Start date: Refers to the date the listing of the structures in a particular enumeration area actually started or begun.

End date: Refers to the date the listing of the structures in a particular enumeration area actually ended.

9.4. Questions on Listing Form:

L01. PES structure number: This is four-digit number assigned to the structure during the PES listing exercise in the EA. This number helps to identify the structures in the EA.

L02. CENSUS structure number: This is a number first three digits EA number and the last four-digit structure number assigned to the structure during the Census listing exercise in the EA. This number helps to identify the structures in the EA. If the structure does not have any number, find out from residents in the structure or neighbours if that structure was chalked during the census. If it becomes clear that the structure existed during the census but was not chalked then enter **9998**. If the structure is a new one or was put up only after the census then enter **9999**.

NOTE: The census number must be repeated if PES team finds it necessary to assign separate numbers

L03. Address of Structure/ Compound or Location of Structure

This refers to a description that will help locate the structure in the EA. The description should include information such as official house numbers or any other number assigned by PLOT, ECG, VRA, etc. In addition, describe the location of the structure, using identifiable landmarks e.g. Near, Behind, Opposite, Beside, Adjacent to or In front of L/A Primary School. In some cases, popular names to locate the structures are used.

Give a precise description of the location of the structure. Description must include at least three (3) of the following indicators

a. **Name of house, owner, popular person or institution-(required field)**

b. **Popular landmark** (e.g. churches, mosque, schools, health facilities, market and communication mast, police station, bus stops, water bodies, forest reserves, Chief palace, name of a house) – **(required field)**

c. **House numbers and any nationally recognized identification number on the wall** e.g. ECG, Ghana water, NADMO or any other identifiable project/programme specific number

d. **Street names** Eg 35 Tetrete street

e. Suburb/Estate names

f. Closest popular locality name

Example1: Mrs. Adam Bukari's house, 200 metres from the Trotro Last Stop, House Number 21, Ashie Loop (street), Trotro Last Stop

Example2: Akorli's House, Opposite Agya Ato Corn Mill, House Number AB 38, Wesleyan mission street

Example3: Narh Teye's Akura, on the Boundary of Krokosua Forest Reserve, 1 km from Opanyin Tetteh's Krom

Example 4: Opanyin Kofi Mensah's house, near the market.

Example 5: Agyaa Kwasi's Memorial house, behind the Post Office.

Example 6: ECG-215, Adjacent to, 'Are You God?' house.

L04. GPS Coordinates of Structure

The Global Positioning System coordinates will be taken for each structure using the Tablet. The readings of the coordinates are made up of longitudes and latitudes, observed in decimal degrees and in meters.

L05A. Ghana Post Digital Address of Structure: 1. Yes , 2.No, The question seeks to find out if the structure has Ghana Post Digital Address. If Yes, continue to QL05B to record the number. If No, GO TO to QL06.

L05B Ghana Post Digital Address of Structure: Record the Ghana Post Digital Address for the structure if available. Ask residents of the structure for the digital address and record it. The address consists of 11 to 13 alphanumeric characters, including the hyphen (-). Example of a Ghana Post Digital Address is GA-478-7596 or ER-0254-2310.

L06. LEVEL OF COMPLETION:

This question requires the enumerator to provide description of the level of completion of the structure. This question has nine response categories each of which has been described with guidelines on how to identify them.

1. **Fully completed:** Choose this option if the structure is enclosed and has a covering on the uppermost part of the building or shelter which is fully or completely covered to provide protection from animals and bad weather, notably rain, heat, wind and sunlight and has doors and windows. This will include storey buildings with some floors completely covered and some floors have all the windows and doors fixed for habitation.
2. **Completely roofed but uncompleted:** Code 2 is selected if the covering on the uppermost part of a building or shelter is fully or completely covered to provide protection from animals and bad weather, notably rain, heat, wind and sunlight but doors and windows are not fixed. This should be an enclosure and will include storey buildings with some floors completely covered for habitation.

3. **Partly roofed:** Choose this option if the structure has a covering on the uppermost part of a building or shelter which is **NOT** fully or completely covered to provide protection from animals and bad weather, notably rain, heat, wind and sunlight.
4. **Roofing level [With improvised roof]:** Choose this code when a building has been constructed up to the stage when the roof is yet to be put on but there is an improvised material used as a roof to provide shelter for occupants. In simple terms, it is when the structure is at the roofing level and temporal roofing is provided.
5. **Lintel level [with improvised roof]:** Select this code when the structure is at a level where a beam is placed across the openings to support the load from the structure above; and there is an improvised material used as a roof. In simple terms, it is when the structure is at the window level and temporal roofing is provided.
6. **Roofing level [without roof]:** Choose this code when a building has been constructed up to the stage when the roof is yet to be put on
7. **Lintel level [without roof]:** Select this code when the structure is at a level where a beam is placed across the openings to support the load from the structure above. In simple terms, it is when the structure is at the window level; and yet to be used for habitation. Go to the next structure when this option is selected. Note that if the boards have been mounted but have no concrete then it should be considered as window level.
8. **Window level:** It is the level between the base portion of the window and portion of the floor above ground level (upwards). Structures being constructed and are below window or footing levels are to be excluded.
9. **Concrete/metal pillars level:** These are structures which have concrete, metal or wood pillars erected with the uppermost part roofed. These should have standard roof and exclude structures where pillars have been erected only for the foundation of the structure.



3. Partially roofed



4. Roofing level (with improvised roof)

5. Lintel level (with improvised roof)



6. Roofing level (without roof)



7. Lintel level (with roof)



8. Window level



<p>9. Concrete/metal pillars level</p> 	
--	--

IF ANY OF OPTIONS 6-9 IS SELECTED, GO TO **the next structure**

Note: With regard to storey buildings, consider it to be “Completely roofed but uncompleted” if one floor has been cast with concrete (floored) with doors and windows all fully installed.

L07. Type of Structure:

Thirteen different response categories have been provided. Indicate the type of structure.

See descriptions of responses with their respective pictures below for a better appreciation of the structure types.

01. Single building (Detached) house: A detached house is any housing unit that stands alone and is not attached in any way to another house. It has only one floor level. During listing, each detached house should be assigned a separate 4-digit serial number.



02. One-storey (detached): It is a building with one floor level on top of a ground floor house/building. It stands alone and not attached to any other building.



03. Two-storey (Detached): It is a building with two floor levels on top of the ground floor house/building. It stands alone and not attached to any other building.



04. Multiple-storey (Detached): It is a multi-storey with 3 or more floor levels on top of the ground floor house/building. It stands alone and not attached to any other building.



05. Semi-detached: It refers to a single building that is attached to another single building and the adjoining building usually have a common dividing wall which extends from ground to the roof. It has only one floor level. It may or may not have a fence wall.



06. One-storey (Semi-Detached): It is a building with one floor level on top of a ground floor house/building. It has a common dividing wall which extends from ground to the roof. It may or may not have a fence wall.



07. Two-storey (Semi- Detached): It is a building with two floor levels on top of the ground floor house/building. It has a common dividing wall which extends from ground to the roof.



08. Multiple-storey (Semi-Detached): It is a multi-storey with 3 or more floor levels on top of the ground floor house/building. It has a common dividing wall which extends from ground to the roof.



09. Terrace: Refers to house which is part of a row of similar houses that are joined together by their side walls.



10. Metal Container: It is an independent makeshift structure built of metal sheets. This is also an enclosure which could be used as a dwelling unit or for other purposes and made of a metallic material.



11. Wooden structure: It is a makeshift structure which is built of wood. Mostly it has an unmovable foundation/base and its permanent.



12. Kiosk/Poly-Kiosk: A kiosk is a small enclosed structure usually made of wood, polyplastic, etc. and is movable. It could be used for various purposes ranging from dwelling to store keeping, etc.



L08. What is the residential status of this structure?

This question seeks to identify the residential status of the listed structures. The uses have been grouped into three (residential, non-residential or both residential and non-residential) different response categories to help code the use of the structure appropriately.

In the case where a structure is currently being used as residential, record “1” , if not record “2” and if 0 both residential and non-residential, select ‘3’.

L09: Is any person living in this structure?

This question seeks to find out if the structure is vacant or not i.e. if someone lives in the structure. Select one of the two responses provided; For YES select code 1, and for NO select code 2. If no household lives in the structure, GO TO the next structure.

L10: Type of residence

There are three major types of residences identified for the 2021 PES. Select the type of residence that is applicable for each structure/population. The type of residence determines whether the main questionnaire should be administered during the main enumeration.

- 01. Household housing unit
- 02. Group quarters housing unit (Institutional)
- 98. Secondary housing unit for same household

Note: In a situation where one household occupies two or more structures on the same compound, 'enter code' 01' for the main structure and '98' for the other structure(s) thus secondary housing unit..

The structures with code '98' during the listing operation would be treated as 'special vacant housing units' during the main enumeration.

L11: Serial number of household in the structure

This is the number assigned to each household in a structure. For instance, if three households are in structure/house, the first household will be 01, the second will 02 and the third will be 03 and so on.

In a situation where one household occupies two or more structures on the same compound, assign same serial number to the household in all structures.

L11a Structure Number for the Main housing unit of the secondary housing unit for same household

This item demands to enter the structure number of the main housing unit for which a secondary housing unit is linked to. This is needed when L10=98. This will help identify the secondary housing unit with the main for the purpose of easy matching.

L12: What is the Name of head of household?

Write down the full name including popular name of the person the household recognizes as the head. ENTER THE NAMES IN BLOCK LETTERS

L13: Contact number of the head of household

Write in the space provided the contact phone numbers of the head of household. The contact number of any of the household members could be taken if the head has no contact number.

Insist they should give you the same contact number the household gave to the census enumerator. In the event that the respondent cannot retrieve his/her contact number and the phone is available in the household, the following SHORT CODES could be applied.

MTN = *156#

AIRTEL/TIGO = *703#

VODAFONE = *127#

GLO = *777#

Note: DIAL THE NUMBER GIVEN TO YOU TO AUTHENTICATE IT

L14: Sex of the head of household

Indicate whether the head is male or female. Enter code 1 if male and code 2 if female.

L15: How many males and females are currently living in this household?

Ask and record the number of males, females and total number of persons in the household at L15a, b and c respectively.

REMARKS. RECORD SPECIAL CASE OR PROBLEM (IF ANY), ENCOUNTERED IN THE STRUCTURE.

This question is to identify challenges or observation encountered during the listing and you want the PES implementation team to know. Record special case, event or problem encountered in the structure or the household.

CHAPTER 10

10 WHO TO ENUMERATE

10.1 What is the unit of enumeration?

For the process of this PES the units of enumeration are the usual members of households living in private houses or compounds. In institutions the households of staff must be enumerated as in private houses but not the inmates.

10.2. What is a household?

A household consist of a person or a group of persons who live together in the same house or compound, share the same house-keeping arrangements and are catered for as one unit. It is important to remember that members of a household are not necessarily related (by blood or marriage) because house helps may be part of a household. On the other hand, not all those related in the same house or compounds are necessarily members of the same household. Two brothers who live in the same house with their wives and children may or may not form separate households depending on their catering arrangements. The same can be said of a father and his married children. Thus, in many cases, a house or compound may be broken into separate households.

Dividing a house or compound into households may not be easy. However, the following examples must guide you in deciding who must form a household:

- (a) In general, a household consists of a man, his wife, children and some other relatives or a house help who may be living with them.
- (b) In large family houses where you have more than two generations of people in the same house, you must not automatically treat the grandfather, his married children, and their families as forming one household. First, find out the members of his household the members of his house have a common catering arrangement and regard each such unit as a household. He may, for example, have four sons, each of whom has a separate for the preparation of food for his own “family”. Each of these units must be treated as a household. If the father shares food with one of his married children, he must be classified as one of that household. An exception of the above principle is where in a house or compound, a man has several wives with each wife and her children occupying

their own set of rooms in the house, and the man eats successfully with each of his wives. In such a case, the man, his wives, his children, etc, must be treated as a household.

- (c) You may also come across a married man who does not live in the same house as his wife or wives. The children may take their meals in their respective mother's houses. But if the children sleep in their father's house, they must be considered as forming one household with the father (not the mother). Each mother then constitutes one household.

If a house, barracks or quarters are divided into flats or other separate dwellings, each such separate dwelling constitutes at least one household. The broad principle is that two households can live in one house but one household cannot live in two separate houses or compounds, as in the latter case, it must not be regarded as two households.

- (d) A house help and his family who live in a house or in an out-house in the same compound as the employer but prepare their own food and eat separately must not be considered as members of the employer's household. They must not be considered as forming a separate household. However, a house help who eats and sleeps with the family of the employer must be considered as a member of the employer's household.
- (e) If two or more unrelated persons live together in one flat or in one room, they may or may not be regarded as one household depending on whether or not they have a common catering arrangement.
- (f) It will be seen from the example(s) above that one person may be constitute a household if the person lives alone in a house, or even if the person lives with others in the room but prepares and eats his meals separately.
- (g) The members of staff of institutions should be enumerated as members of households. They must never be treated as inmates of the institution even though they may share the same dwelling. The inmates will not be enumerated in this PES.

10.3 Who is a usual member of the household?

A usual member of a household is a person who has spent at least six months with the household.

The following, however, must also be considered as usual members of the household, even though they **do not satisfy** the residential requirements:

- (a) Persons who have **not** spent at least six months with the household but who have the intention of staying there for at least the next six months, e.g. workers on transfer.
- (b) Seasonal workers who return home after a season.
- (c) Students in boarding schools and hostels except students who have spent six months or more (prior to the date of interview) at the school and those who were outside the country and intend to stay outside the country for the next six months or more
- (d) Soldiers in barracks where they are catered for as a group.

10.4 Look out for special omissions

There are certain types of persons who are likely to be omitted. Make sure to enumerate the following categories of persons who spent the night before the day of interview in the household:

- (a) All newly born babies in the household. It does not matter at all whether they have not been named;
- (b) All physically or mentally sick persons;
- (c) All old men and women;
- (d) All servants/domestic employees.

In short you must enumerate every usual member of a household as described above.

10.5 Who should be interviewed?

Though we require information on every person, who qualifies to be enumerated, it is not likely that you will obtain information directly from every individual. In some cases, you will have to rely on some persons in the house or compound you visit to give you information about persons who may be absent when you call. You must **never rely solely** on the following persons to supply you with the information required:

- (a) Young children
- (b) Strangers
- (c) Mentally sick persons

CHAPTER 11

11 HOW TO COMPLETE THE PES MAIN QUESTIONNAIRE

11.1 Introduction

You have been told earlier that you will use CAPI to elicit the PES information from the households and individuals. The PES secretariat will not under any circumstance accept filled paper questionnaires. Each team will be assigned extra tablet to cater for situation when any of the enumerator's tablet develop a fault.

In the inside pages of the questionnaire, the members are each identified by their respective names and members serial number in the first column, and questions then relate to each according to his/her name and number. Each member also retains his/her row throughout the interview.

You must accept **only one** response out of the alternatives given for each question against each person. Avoid missing and double entries.

11.2 Skipping (GO TO)

The response to some questions necessitates the skipping (leaving out) of some questions (or alternatives to some questions). In such instances the prefix '**GO TO**' is use to indicate that some subsequent questions (or alternatives to some questions) must not be asked. For example, in section C, question 5 there is an indication after the response 'Yes '**(GO TO Q7)**'. This means that if the response to question 5 is '1' or '2' you **MUST NOT** ask question 6, but continue with question 7. In this 2021 PES, CAPI will take care of all necessary skips.

11.3 Entries in section A

This section is normally on the front page of the questionnaire and are spaces provided for certain items which apply to all members of a household.

The following are the general information on the front page which must be filled with care:

How to fill out the front page entries

NOTE THAT **A1-A10b.** WILL BE PREPOPULATED FROM THE LISTING DATA

A10c. If CENSUS STRUCTURE NOT ON THE WALL, (thus L02= 9998 or 9999), verify the code from respondent and code appropriately.

A10d. RECORD THE CENSUS STRUCTURE NUMBER if the respondent was able to provide the census structure number.

A10e. If A10c =2, 3 find out from the respondent why the census structure is not on the wall of the structure and record.

A11. Detail physical Address of structure: The address you write here must be the same as the one you wrote in the household listing form. This must be so accurate that another person can use the address to find the location of a particular house or compound on a second visit. If the streets are named and the houses are numbered you must write in the space the House Number and the name of the street e.g. C49/2 Castle road, Adabraka. Otherwise write a precise description of the location of the house/compound. For example, (i) KWESI MENSAH'S HOUSE ON THE MAIN STREET DIRECTLY OPPOSITE NYAME BEKYERE CHOP BAR, OR (ii) MUMUNI ADAMA'S HOUSE THIRD COMPOUND AFTER CHIEF'S COMPOUND ON THE WAY TO THE METHODIST CHURCH.

a NAME OF HOUSE OR STRUCTURE, OWNER

b) POPULAR LAND MARK:

c. House number, ECG/VRA/Other Number: write in the space any of the numbers available for the structure eg. VRA/ECG/Other number. This is the name given to the House/Compound by the District Assemble or Local Council etc. The number may not be visible or available so you should ask the occupants.

d) **STREET NAME:** Record the Ghana Post code for the structure

e) **SUBURB/ESTATE NAME:** Record the contact number of the household in the space provided

f. CLOSEST POPULAR LOCALITY (FOR TYPE 3 EA)

All these information will be provided by the CAPI from the listing questionnaire.

A12a) HOUSEHOLD NUMBER: CAPI will take care of it.

A12b). NAME OF HOUSEHOLD HEAD: You should ask and write the full name of the Head of household in the order that has been arranged in the space provided. It should take the following order;

- a. FIRST NAME
- b. MIDDLE NAME
- c. LAST NAME/SURNAME
- d. POPULAR NAME

A11). Record of Visits: It is possible that you may make several visits to a household in order to ensure complete enumeration. Record only the day and month for the dates of first and last visits. You should keep track of your visit to the household because on the day of your last visit you must record the total number of times you have visited the household before completing the enumeration of all eligible members.

11.4 Entries in Section B: OCCUPANCY STATUS

This section's main intension is to identify usual residents of occupied structures as at the time of PHC but have since moved out by the time of PES. These residents, if identified as outmovers will have their information completed in section D. The section is made up of three items, B01, B02, and B03. The section seeks to verify if the occupants, if any, were enumerated during the census. The enumerator therefore should find out if the dwelling was occupied during census. If it is not occupied ask neighbors. You are to select relevant codes and follow the right skips.

11.5 Entries in Section C : PARTICULARS OF HOUSEHOLD MEMBERS

Household Roster

This is the list of accurately identified household members (Usual members or visitors) present as at the PES reference period (**Last Night:** the night preceding the enumeration the household). This area seeks to describe the dynamics of the household such as headship and household structure, family ties and relationships. The first person on the list is the head of household followed by usual members of household and each visitor who slept in the house on the **Night preceding** the enumeration. The roster include the serial number and full name of the member.

C01: FULL NAME OF HOUSEHOLD MEMBERS

Four columns has been provided to enter the full name of the household members. **Names should be arranged in order of C01a. first name, C01b. middle name, C01c. surname and C01d. popular name. Leave the column blank if a particular member doesn't have a popular name or a middle name for instance, if the respondent has no middle name, you must leave the column for middle name blank.**

The names you put down must be such that if a second visit is paid to the house during or after the PES, the person to whom the names refer can be easily identified. You must avoid names like sister Akos, Brother Joe, Antie Araba, Mallam Abu etc. when such names are given then ask for a third and possibly fourth name and add it e.g. Sister Araba Martin.

NOTE THE FOLLOWINGS:

A. Babies who have not been named

Occasionally, you will come across recently born babies who have not been named by the time you call to enumerate. In such cases write down only the day name (e.g. Kwame, Akua, Abla, or any ethnic designation) of the baby together with the mother's name. For example, if the newly born baby's name is Kwame and the mother's name is Akua Mansa then the name you must put down is Kwame, Akua Mansa's son.

B. Persons who refuse to give out their names

Sometimes you may come across a person who will refuse to give you his name although he may be quite prepared to give you answers to the remaining questions. Explain to such a person that the law strictly forbids the disclosure to unauthorized persons of any PES information he/she gives. The name is required only for identification purposes in connection with later checks on the accuracy of the information being collected. If he still refuses to give his name kindly report it to your field supervisor or obtain the person's name from other sources, e.g. neighbors, Chiefs, etc.

C. Persons with identical names

You may also come across households where two or more persons have identical names. In such a case you must record all the nick-names, or any other names by which they are distinguished in the household or by neighbors and friends, e.g. Kofi Kyamba Panyin and Kofi Kyamba Kakraba. Failing this you must distinguished them by physical characteristics such as tallness or fatness or shortness. Thu, for instance you can have Abongo Jato (fair colored) or Kofi Dogo (tall).

D. Order of household listing

List in the following order (where applicable) For a household, you will usually have the following household pattern:

1. Head
2. Spouse
3. Children (start from eldest child)
4. Parents of head;
5. Parents of spouse;
6. Other relatives;
7. Non-relatives;
8. Visitors present on Last Night.
9. Househelp

In a household where a head has more than one wife as part of one household, the listing should be as follows for all persons who will have spent the Last Night:

1. Head
2. First spouse followed by all her children
3. Second spouse followed by all her children
4. Continue to list all spouses and their children until they are finished
5. Other children of the head
6. Parents
7. In-laws
8. Other relatives (niece, nephew, grandchildren etc.)
9. Non relatives
10. Domestic workers (House-help, “maid servant”)
11. Visitors

You must note that this method of listing the names first is to ensure completeness of coverage within the household. If this is not done the respondent may forget to give information on all the eligible members. In this connection, you must make sure that all babies born before The night of the interview is enumerated

After listing all persons as provided by the respondent, ask whether there are any other persons who spent Last Night with the household e.g.

1. Persons alive on Last Night but who died before the enumerator’s visit
2. Babies born before Last Night still living or dead at time of visit
3. Functionally impaired (Mentally, physically challenged) persons
4. Elderly men and women
5. Visitors present on Last Night but absent at the time of Enumerators visit
6. Domestic workers (House-help, “maid servant”) living in the household

C02: LAST NIGHT STATUS

In this column you should write/enter 1 for Usual Member **Present**, 2 for Usual Member **absent** or **3 for visitor present** according to whether the person listed is present or absent from the household on the preceding night (Last Night).

C02a: LENGTH OF STAY

This item intend to determine the period a member spend with his/her household. Three codes are identified. Code 1 for after census, code 2 for before census and code 3 for since birth.

C03: CENSUS NIGHT STATUS: Was (Name) a usual member or visitor of this household at trial CENSUS night?

Record code 1 (i.e. Yes) if the member who spent CENSUS Night in the house was usual member. On the other hand, code 2 (i.e. No) if the member is a usual member but did not spend CENSUS Night in the house. However, he/she came after CENSUS Night to stay or with the intention to stay for at least the next six months, e.g. Workers on transfer and recently married persons. Choose the appropriate code according to the status of the household member at trial census night. You may need some time to explain CENSUS night to the respondent, since he/she might have forgotten. The census night was 27th June, 2021 and lot of activities were carried to mark the night.

C04: CENSUS ENUMERATION STATUS: Was (NAME) enumerated during census period?

Enter code 1 if the member was enumerated in the household, code 2 if in elsewhere, code 3 if the member was was not enumerated at all.

C04a: REASONS [NAME] WAS NOT ENUMERATED: Why [NAME] was not enumerated during census? Six (6) categories are provided. Select the appropriate category

C05: RELATIONSHIP TO THE HEAD OF HOUSEHOLD: what is the relationship of (Name) to the Head of Household?

Determining relationship to head of household

What is required in the relationship column is the relationship of every member of the household to the head of household. Most relationships are established either by blood (descent) or by marriage (affiant). This means that your brother and sister's son are your blood relatives whilst your wife, wife's mother or wife's sister is your relatives by marriage.

You must refer to the list of relationships to be used in question C07. The relationship must always be written as if it were defined by the head himself. For example, if the head replies in the following manner:

- a. A is my son - write SON
- b. B is my brother - write BROTHER
- c. C is my wife - write WIFE
- d. D is my father- write FATHER

On the other hand, if you ask a member of your household about his or her relationship to the head of the household you have to invert the relationship before you enter it. For example the head replies in the following manner:

- a. The head is my father – you will write SON OR DAUGHTER (whichever is the correct one)
- b. The head is my mother’s brother – you will write OTHER RELATIVE
- c. The head is my son – you will write FATHER OR MOTHER.

ALWAYS REMEMBER TO AVOID SUCH VAGUE TERMS AS NEPHEW, COUSIN, UNCLE ETC. which do not denote exact relationships. Nephew may mean brother’s son or sister’s son and these must be recorded as “other relatives”.

Make sure that the blood relationships specified are true biological relationships. A son must mean the head’s own true son and not his brother’s son, etc. However, half-brothers, e.g. Persons having one mother but different fathers, or one father but different mothers must be recorded as brothers. Similarly half-sisters must be recorded as sisters. Any other relationships must be fully specified, e.g. Adopted Son, Adopted Daughter, etc. other household members who are not related to the head of the household such as lodgers, guest, friend must be classified as non-relatives. Unpaid unrelated house help must be classified as non-relatives. Paid unrelated house help must be classified as domestic employee; otherwise he/she must be classified as non-relative.

Enter the code corresponding to the relationship of the respondent to the head of the household.

C06. SEX

This refers to whether a person is a male or female

- It is about biological or genetic differences between a male and female such as the genitals (penis and vagina)
- Do not assume the sex of a household member on the basis of name or looks
- Enquire about the sex of each household member and record.
- Ensure that you enquire about the sex of children and newly born babies who have not been named at the time of visit

It is important to ask whether a person is male or female when information is being given to you by a third person. Do not infer the sex from the name or names of the person. Bear in mind that some names are given to both males and females and can be misleading in this respect e.g. Kafui,

Dela. Some people also use George as a short form of Georgina, Ben for Bernice and Pat as Patrick. Enter code 1 or 2 according to whether the respondent is

Male = 1 or Female = 2

C07: WHAT IS (NAME) AGE IN COMPLETED YEARS?

The age of every person must be entered in 3 digits completed years only. For those who know their birthdays, the age to shade is the age at last birthday. “Age in completed years only” means that all the ages must be written in full years discarding fractions of years and months. For instance 15 years 11 months must be entered as 15. Do not enter the months. Only the years are required. All infants who are less than one year must be recorded as “000” year old.

Example 1: If a household member is 11 months old, write ‘000’.

Example 2: If the household member is 1 year 11 months. Enter ‘001’

Example 3: If a household member is aged 109 years and 2 months, Enter ‘109’.

NOTE: TAKE CARE NOT TO ROUND UP AGE, ESPECIALLY FOR INFANTS AND CHILDREN

What to do when a person does not know his/her age

- (i) For such a person use the following method to estimate his age:-
 - a. Ask him to name any historical event (preferable a local one) as in appendix 1, which occurred around the time of his birth.
 - b. Ask him to give an indication of how old he was when that event occurred or how many years elapse before his birth.
 - c. Then use that information to work out his age. For example, if a respondent tells you that he was about 15 years when Ghana attained independence this person must be $15 + 64$ (i.e. 6th March 1957 to.. August, 2021) =79years.
- (ii) If this method fails you must try the following approach:-
 - a. Simply estimate how old he may be.
 - b. Then select from list of local, regional or national historical events some event which occurred about the time when according to your estimate, he must have been born.
 - c. Ask whether he has heard about any of these events.
 - d. If he has, ask him to give you an indication of how old he was when this event occurred or how many years elapsed before he was born.

- e. Then from this information work out his age.
- (iii) If this second approach also does not elicit the required information, then base your estimate on biological relationships. For instance, a woman who those not know her age but who has two or three children of her own is unlikely is on likely to be less than 15 years old however small she may look. You may then try to work out her age by the following method:-
- a. Ask her, at what age she had her first child.
 - b. Determine the age of her oldest child.
 - c. Then assume that the average woman in Ghana gives birth to her first child at about 18. However, without further probing you must not base your assumption on the oldest child who is at present living. There is the likelihood that that in certain cases the first child died later on or that the woman had miscarriages or still born children before the oldest living was born. Therefore if the woman tells you that she had one miscarriage or stillbirth before the oldest living child was born you must make your estimation from the year of the first miscarriage, stillbirth or live birth.

Note also that some women do not have children early in life while others have children earlier than what generally obtains in the community. Therefore in every case you must find out whether she had her first child, miscarriage or stillbirth at the usual age before you assume she was aged 18 years at her first pregnancy.

- d. Then use the information obtained by means of a and b above to estimate her age.
- (iv) Only as a last resort should you estimate a person's age from physical features.
- (iv) If you are obtaining information about an absent person from a third person then, obviously you have to rely on the information supplied by the third person in estimating the age in respect of the person who is absent. Under no circumstance must you live this column blank

C08: DATE OF BIRTH: What is (NAME's) date of birth?

Enter day and month in 2 digits and year in 4 digits for each member. If day or month is not known, enter '98'

C09: RELIGIOUS AFFILIATION: What is (NAME)'s religious affiliation?

Ask the religious affiliation of each person. Do not assume that every household member, particularly the children, belong to the same religion as the head or the head's spouse.

Do not use respondents' names to determine their religious affiliation. For example, Kwame Obeng may be a Muslim whilst Baba Alhassan may be a Catholic. It is, therefore, very important to ask for the religious affiliation of every respondent.

Write the code corresponding to the respondent's religious affiliation in the boxes provided.

1. **Catholic** - Christians who belong to the Catholic faith

2. **Protestant (Anglican, Lutheran, Presbyterian, Methodist, SDA, etc.)** - These are made up of mainly the Churches that belong to Christian Council and include; Anglican, Methodist, Presbyterian, AME Zion, Lutheran, E.P. Church, Global Evangelical Church, etc.

3. **Pentecostal/Charismatic (e.g. Apostolic, Pentecost, Assemblies, etc)** - This group comprises Churches which are mainly under the Ghana Pentecostal Council and include: The Apostolic Church, Foursquare Gospel Church, Christ Apostolic Church, Assemblies of God, Church of Pentecost, International Central Gospel Church, Action Chapel, Praise Valley Temple, Rhema Christian Centre, Word Miracle Church International, International Bible Worship Centre, Victory Bible Church, Jubilee International Church, Light House Chapel, Salvation Army, etc.

4. **Other Christian** - Other Christians include members of the SDA Church, Mosama Disco Christo Church, Church of Christ, Kristo Asafo, Odifo Nkansah/Awoyo, Church of Jesus Christ of Latter Day Saints, Jehovah Witness, Church Universal and Triumphant, etc.

5. **Islam /Ahmadis** - These are made up of people who mainly use the Holy Qur'an and the Hadith as their books of instruction. They include the following sects: Al-Suna/Tijaniya (orthodox), other Islamic and Ahmadis.

6. **Traditional Religion** - These are made of people who worship gods such as "abosom"/"tro"/"woɛ", Africana mission and other forms of ancestral worship. Examples of some of the gods are "akoned", "antoa nyama", "tigare", etc.

7. **No Religion** - Some people do not have any religious beliefs and thus do not belong to any religion.

8. **Other Specify** - These include Eckankar, Bahai, Hinduism, Buddhism, Hare-Khrisna, Yoga and all Transcendental Meditation religions. Those whose religious affiliation is unknown should also be put under this category.

C10: MARITAL STATUS: “IF NAME IS 12 YEARS OR OLDER”, what is (NAME’S) current marital status?

Question C10 is to be asked of persons who are 12 years or older. Nine (9) options have been provided. Only one answer must be recorded and the answer must refer to marital status as at the time of **PES Night**.

01. **Informal/Consensual union/Living together** - Write ‘2’ in the box for a relationship contracted by two adults who are living together without civil or traditional recognition.
02. **Married (civil/ordinance)** A civil marriage is a marriage contracted between two parties of the opposite sex under the Marriage Act. It could be a religious or non-religious legal marriage ceremony performed by a government official or functionary normally called a Registrar or a Gazetted Minister. Select code ‘2’ in the appropriate box for persons who, at the PES reference time (**Last Night**) have married partners whether they were staying in the same house or not.
03. **Married (Customary/traditional):** Customary marriage is a kind of marriage between a man and a woman, which involves performance of certain local customs. The customary rite performed differs from one ethnic group to another. However, gathering of the extended families of the couples and payment of a bride-price to the bride’s parents are common to the various ethnic groups. Marriages that fall under this category are usually registered under customary marriage and divorce registration laws. (PNDCL112)
04. **Married (Islamic):** Is a marriage that is contracted in accordance with Islamic rules regarding marriage. It is celebrated by couples who profess the Islamic faith. The ceremony is officiated by an Imam, a Sheikh, or Kadhi.
05. **Married (Other type):** Is a marriage type which is different from what have been described above.
06. **Separated** - Enter code ‘6’ for all persons who because of a dispute or other reasons are no longer staying as "married partners" but whose marriage has not been declared customarily or legally dissolved. Note that the fact that the two married partners are not staying in the same house does not necessarily mean that the two are separated. Normally, a "Separated" person has his/her case before the "elders of one of the families" or before a law court. A separation need not lead to a divorce.

07. **Divorced:** Enter code '7' for all persons who at the reference time have had their marriage formally annulled or dissolved either in court or by custom and have not remarried.
08. **Widowed** - Enter code '8' for persons who at the reference time had lost their marriage partners through death and had not remarried. If a man who is into polygamous marriage tells you that he has lost one of his wives, do not consider him as 'widowed', rather, he is to be considered 'married'. Occasionally, you may come across a respondent who has been divorced or widowed before his or her present marriage. You must treat such a person as married.
09. **Never Married** - Write code '1' in the box for persons who have never been married.

C11a: SCHOOL ATTENDANCE: Has [NAME] ever attended or is attending school now?

This question refers to full time education in an educational institution such as, Nursery, Kindergarten (Pre-school), Primary, Junior Secondary, Junior High School, Middle, Senior Secondary, Senior High School, Secondary (O' and A' - Levels), Vocational, Commercial or Technical, Teacher Training College, University or similar type of school where a person spends or has spent at least four (4) hours a day receiving general education in which the emphasis is not on trade training. Formal Education here refers to the process of giving and receiving a standardized systematic instruction from a recognized and accredited institution to individuals for knowledge acquisition and skill development. In this context, education is conceptualized as formal. The mode of instruction could be full-time or part-time. This definition excludes night schools and trade schools such as Catering schools, Floral schools, etc. It also excludes on-the-job training establishments like National Productivity Institute, Auditor-General's Training School, Accountant-General Training School, Labour College, Commercial Bank Training School, etc. It includes schools where Arabic and other subjects are taught. It, however, excludes Arabic schools where only reading and writing of the Qur'an are taught, example Makaranta. School attendance is defined as regular attendance at accredited educational institution or programme for organized learning at any level.

Three Options: NEVER ATTENDED, ATTENDING NOW and ATTENDED IN THE PAST have been provided for this question and you must select ONLY ONE of them:

- a. **Never attended**– Select the option 'Never attended' if the person has never at any time received full-time education. If you select the option 'Never', skip to Section D.

b. Attending now – Select the option ‘attending now’ if the person is still receiving full-time education at the time of the Census Night. This includes those who are on vacation at the time of the Census Night and would be going back to school.

c. Attended in the past – Select the option ‘Attended in the past’ if the person received full time education in the past and is no longer receiving it as at the Night preceding the enumeration.

C11b. LEVEL OF EDUCATION: What is the highest level of schooling (NAME) is attending now/attended in the past? **Ask all persons 3 years and older**

This question refers to full time education in an educational institution where a person spends or has spent at least four (4) hours a day receiving general education in which the emphasis is not on trade training. This definition excludes night schools and trade schools such as Catering schools, floral schools, etc. It also excludes on-the-job training establishments like National Productivity Institute, Auditor-General's Training School, Accountant-General Training School, Labor College, Commercial Bank Training School, etc. It includes schools where Arabic and other subjects are taught. It, however, excludes Arabic schools where only reading and writing of the Qur'an are taught.

The question seeks to elicit information on the highest level of formal school respondent attended or is attending. Sixteen levels of schooling have been identified and the enumerator must select the level that best describes the respondent's response.

1. Nursery
2. Kindergarten
3. Primary
4. JSS/JHS
5. Middle
6. SSS/SHS
7. Secondary (including 6th Form)
8. Vocational/Technical/Commercial
9. Post Middle/Secondary certificate
10. Post Middle/Secondary Diploma
11. Tertiary- Certificate /Diploma
12. Tertiary- Bachelor's Degree
13. Tertiary-Post Graduate Certificate/ Diploma
14. Tertiary – Master's Degree
15. Tertiary PhD...
16. Other Specify

11.6 Entries for Section D: HOUSEHOLD OUTMOVERS' CHARACTERISTICS

This section is reserved for all individuals who were usual members or visitors of a household as at Census Night but ceased to be usual member as at the Night preceding the PES (Last Night)

D01: This is a screening exercise to identify usual members or visitors who spent the Census Night and were also enumerated in the household but did not spend Last Night in the household. If the answer is 'Yes' code 1 then ask for their names and list all such persons in the column headed D02a to D02d. If however, the answer is 'No', then select code 2 and end the interview for that household.

D03: Why was [NAME] absent from this household last night?

This question seeks to find out the reason members listed in D02 did not spend night preceding the enumeration (Last Night) in the household. Select the appropriate code from the nine (9) different categories provided. Select code 10 and specify if the answer provided by the respondent cannot be found among the ten categories.

D04: Was [NAME] a usual member or visitor of this household on Census Night?

This is to elicit the status of the member in the household as at census night. Three categories has been provided. Select the appropriate code with respect to the response provided.

Then proceed to administer question D05 to D11 in the same manner as already discussed under C05 to C11. Do not forget to show their appreciation to respondents for time spent with you.

CHAPTER 12

12 HOW TO ACHIEVE COMPLETE COVERAGE

12.1 What complete coverage means

Complete coverage means that every structure and everybody within the selected EAs is counted. In order to achieve complete coverage, you must ensure that all eligible persons in the EAs assign to you are enumerated.

This means that:

- (a) If your Enumeration Area consists of a number of villages and hamlets the team must list each village and enumerate everyone.
- (b) Within your Enumeration Area and within each locality, you must make sure you visit every house or compound, as well as any other building such as school, a store, etc. some people use their stores for residential purposes and you may miss these as well as the staff of institutions who live in the same dwellings with the inmates.
- (c) Within each house, compound or dwelling in your Enumeration Area, you must enumerate who qualify for the enumeration. Do not leave out any person unless you have specific instructions to omit them in your Enumeration Area.

12.2 How to ensure complete coverage

In order to ensure complete coverage you must pay attention to the following guidelines:

- (a) *Study your area thoroughly.* – The two basic documents which will assist you in achieving complete coverage of your Enumeration Area are the Enumeration Area Map and the Final Enumeration Area Description (Form PHC 2). With the aid of these two documents you must make every effort to become thoroughly familiar with the area assign to you. For instance, if a road or street forms one of its boundaries, be sure you know the side which is in your Enumeration Area. You will create confusion if you enumerate persons and houses belonging to another Enumeration Area.
- (b) *Systematic method of enumeration.* – You must cover your area in a systematic manner since a haphazard manner of enumeration will result in the omission or double counting of the houses.

- (c) *Listing of Building/Houses and compounds.* – This listing operation must be done carefully since there is a possibility of leaving many houses. Always ask what appears to be the last house whether there are houses further on which may be obscured from view and may be easily missed.
- (d) *Listing of households.* – You must complete the structure and household listing before you start detailed interviewing or enumeration.
- (e) *Disputed Boundaries.* – If there is some dispute about who must enumerate a certain house, compound or village, i.e. if two Teams claim that the same village, house or compound lies within their respective Enumeration Areas, this must be reported at once to the zonal coordinator who will check up to see whether there has been any duplication or error on the map. He will decide which enumerator must enumerate that disputed house. It is expected however that such an extreme case is unlikely to arise during enumeration as teams are expected to have checked their boundaries before the enumeration starts.
- (f) *Call-backs.* – You must make sure that you honor all call-backs.

12.3 Using hard-to-count indices to achieve complete coverage

12.3.1 Background on hard-to-count indices

‘Hard-to-count’ indices represent a collaborative effort to generate indicative scores for all enumeration areas (EAs) in Ghana. These scores relate to the relative ease or difficulty that field teams may experience when attempting to enumerate a given area, i.e. how ‘hard to count’ is a particular EA? GIS-based tools have been developed to help assess each EA against a range of variables such as surface areas, shape, perimeter, connectivity, accessibility, forest cover, estimated building count and distribution. The indicators are intended to guide census field Supervisors and Enumerators on the relative difficulties that may occur in the EAs. The indicators should be regarded as ‘flags’ – from low difficulty (green) to high difficulty (red) – red being potentially ‘harder to count.’ Thus, this information by far, would help the DDQMT to craft the best strategies to help field officers to achieve complete coverage in their assigned areas. This scale is described in the table below. *Note however, that the scores should not be regarded as a definitive indication of the difficulty of an EA, but as flags for potential concern and which may require more planning and preparedness for enumeration.* This Section provides a description for each of the hard-to-count indices.

Table 13.1: Description of indicator status assigned to each enumeration area

Colour	Difficulty	Description
Green	Low	<i>EA is marked low difficulty based on the indices</i>
Yellow/Amber	Medium	<i>EA is marked medium difficulty based on the indices</i>
Red	High	<i>EA is marked high difficulty based on the indices and is an area of possible concern, so may require more planning for enumeration</i>

The hard-to-count indices are separated into three categories, each containing their own collection of indicators that could affect enumeration. These are combined to create an overall indicator for each category with a difficulty score of between 0 and 1. The individual categories and indices are laid as Geometry indices, Accessibility indices and Building indices.

12.3.2 Geometry indices definition

Surface area

The surface area measure calculates the surface area in hectares for each EA. EAs with a larger surface area are marked as more difficult compared to EAs with a smaller surface area. Larger EAs are considered to be more difficult to enumerate due to their greater size. On the other hand, smaller EAs require less area to travel around so are given a lower score of difficulty.

Compactness: Polsby-Popper score

The Polsby-Popper score provides a measure of compactness. It is a measure of the ratio of the area of an EA to the area of a circle whose circumference is equal to the perimeter of the EA. A higher polsby-popper score indicates a more compact EA. EAs with a higher score that are more compact are assigned a low score of difficulty, as they have a simpler shape and may be easier to navigate around. EAs that have a more complex shape and a lower score of compactness are assigned a high score of difficulty, as they may be harder to navigate around.

Combined geometry score

This is the combined score of surface area and compactness (Polsby-Popper) to create one difficulty index score based on geometry. Red indicates areas of high difficulty, due to complexity of EA size and shape, and green indicates areas of low difficulty.

12.3.3 Accessibility indices definition

Tree cover percentage

This indicator provides a value for the amount of tree cover within each EA. It uses a raster containing fractional tree cover values at 30 metres across the whole of Ghana. The higher the percentage of tree cover, the higher the difficulty of the EA. Increased tree cover can be linked to issues such as lack of mobile network coverage and difficulty travelling and navigating across the EA.

Road density

This is a ratio of the total road length (km) in an EA against the total EA surface area (km²). This produces a value that represents the number of kilometres of road length per square kilometre of EA area. A higher value indicates an EA with increased road density. A high score of difficulty is given to EA's with a low road density, as this represents a smaller road coverage which may be more difficult to move around. A low score of difficulty is given to EAs with high road density and it indicates a larger road network and coverage within the area.

Accessibility

This indicator provides a value of 'accessibility' which identifies how many seconds on average are needed to move around a 100 metres grid cell within each EA, based on road network, road class and land cover type. It is derived from a friction surface raster (where friction is the resistance that you would encounter when moving across grid cells), which is represented by the number of seconds to travel through a 100x100 metres cell, regardless of direction, for walking and driving. A low score of difficulty indicates that it would take less time to move around an EA, making it more accessible. A high score of difficulty indicates that it would potentially take longer to move around that EA, based on the existing road network and land cover.

Combined accessibility score

This is a combined score for all 3 accessibility indices - Tree cover percentage, Road density and Accessibility. Red areas indicate high difficulty EAs that have decreased accessibility, due to a combination of the indicators.

12.3.4 Building indices definition

The building difficulty scores are generated using the MAXAR building footprint data which are produced from Satellite Imagery. Whilst the datasets are the most accurate available, there are some areas across Ghana where Satellite Imagery did not produce footprints of buildings due to out of date imagery, cloud cover or tree cover. The dataset does not include a classification of buildings, so both commercial and residential buildings are included. Due to this, building indicators be used as a **guide** and enumerators should be prepared for the actual environment in the EA to differ.

Building count

This indicator provides a count of the number of buildings in each EA. A higher difficulty is assigned to EA's with a higher building count, as this will increase the time needed to enumerate an EA due to having more buildings to visit. A lower score of difficulty is awarded to EA's with a lower number of buildings.

Cluster distance (km)

This indicator represents the shortest straight-line distance between clusters of buildings in each EA, to give an indication into the minimum distance needed to travel between building clusters. Buildings are clustered together if they are within a user-set distance from each other. An EA with a higher cluster distance may take longer to enumerate as it indicates an area where buildings are more dispersed and have a greater distance to travel between. A higher score of difficulty is given to EAs with a higher cluster distance, as these may take longer to travel around

to visit the buildings. EAs that have a lower cluster distance as all of their buildings clustered together are given a lower score of difficulty as these may take less time to enumerate.

Combined buildings score

This is a combined score of the building count and building cluster distance indicators. Red areas indicate high difficulty EAs that may have a higher number of buildings that are more spread out, due to a combination of the indicators.

CHAPTER 13

13. WHAT TO DO AFTER ENUMERATION

As a Enumerator or Supervisor, your work is not complete until everyone in the assigned area has been enumerated and every field logistics have been accounted for. The following activities should be performed to achieve this.

13.1 Syncing EA Enumeration Results and Final Summary

As soon as the Enumerators complete enumeration in their areas, they are expected to **sync** their data daily. Instructions for doing this are explained fully in the CAPI Training Manual. As a supervisor, you also to **make sure the EA Enumeration Results in the SA get to the headquarters by syncing**. Remain in the field till all the Enumerators have brought their work and syncing has been successful.

13.2 PHC 2 (Enumeration Area Boundary Description)

This is a form attached to the EA map which describes the boundary of the EA. It also provides the Enumerated Population in 2010 as well as the 2021 Field Estimated Population for the EA. The form also has space for recording 2021 Enumerated Population. After enumeration, you should run a report for each Enumerator on the total population enumerated in the EA. If the EA has two or more localities this information should be recorded for each locality.

You should compare the 2021 Enumerated Population of the EA with both the 2021 Field Estimated Population and the 2010 Population. If there are wide discrepancies, you should investigate this in the field with Enumerator and also inform your FIELD MONITOR.

13.3 Taking over / Submitting PES Documents and Materials

It will be duty of the enumerator to submit all the materials that are returnable including the tablets ID Card to your supervisor and the supervisor in turn collect, from the Enumerators and hand them over to the IN-CHARGE OF FIELD LOGISTICS.. It is advisable to have a separate schedule with each Enumerator so that you will have sufficient time to carry out final review. In addition to the completed questionnaires you should collect all the items that are returnable according to the PES Coordinator. If you find that everything is correct, sign the Enumerator's/Supervisor Material Record Form and hand it to the Supervisor/ In-Charge of Field logistics.

13.4 Reviewing the Completed Work

You must examine the responses to the questions carefully before synchronizing. **This is the last opportunity for you to correct any serious errors which may have been committed and ensure corrections are made.** Briefly, here is what you must look out for:

Check that the number of Questionnaires completed for each locality tallies with the entries in the summaries of the listing form.

Check that the number of persons (males and females) enumerated in each locality tallies with the entries for those localities in the listing form.

In case of discrepancies, try to find out the source of the mistake, by checking questionnaires used for each house/structure in each locality. If necessary, send the Enumerator back to his area to have the mistakes corrected.

Go through all the cases and check for partial saves (uncompleted) forms to ensure that they are all completed before syncing. You should also check and take necessary action on closed or vacant houses which have not been enumerated or only partially completed. This check is one of the most important as it will help to ensure that all the persons have been enumerated. Emphasis on these does not mean that the other items are not important.

13.5 Dealing with Omissions and Errors

If your field checks during enumeration are thoroughly carried out, it is most likely that there will be little or no omissions and errors. However, as a Supervisor, if from your check you observe that more than 10% of rows/persons have errors in the work of any Enumerator, contact your FIELD MONITOR immediately and discuss the problem with him/her. You may decide to have a complete re-enumeration or have a more reliable Enumerator make another visit to the field. Do not forget that such omissions and mistakes are bound to be discovered by the GIS monitor.

CHAPTER 14

14. FIELD DATA QUALITY MANAGEMENT

14.1 Introduction

The requirement to collect high quality data and release the results promptly are central to the goal of the Ghana 2021 Post Enumeration Survey, in accordance with international standards. The use of CAPI allows for real-time data quality checks during field data collection, quick data processing and timely release of the results.

In view of this, data quality assurance mechanisms have been established at all levels (national, regional, district, SA and EA) involving various actors and the logical validation rules found in the CAPI application. Also, these mechanisms are put in place to direct the enumerators to collect complete and accurate data through real time monitoring.

A computer program has been developed for monitoring and assessing the quality of the data being collected on the field and providing reports (i.e. feedback) to the teams on the field for prompt correction. This program is in place to detect errors and prevent them from recurring. The Data Quality Management covers planning field work, data collection, processing, evaluation and dissemination of results. It also spells out procedures for the Data Quality Management Team (DQMT) to follow after completing field work and a check list to complete before exiting the field.

14.2 Concepts and Definitions

Field data quality monitoring: refers to the process of observing procedures and assessing data being collected and providing feedback for prompt correction on the field during data collection

Field data quality management: refers to the quality assurance programme involving various actors and sequence of activities to detect errors easily and early, and prevent errors from reoccurring.

Quality management covers all activities including planning fieldwork, data collection, monitoring, processing, evaluation and dissemination of results.

Near real-time: refers to the significantly reduced time lag between when the data are collected and when they are sent to the server at HQ by both supervisors and enumerators. Thus, data are available virtually almost immediately, processed and feedback sent to field staff for prompt correction.

14.3 Why Data Quality Monitoring and Clearance in the 2021 PES

Field data quality management procedures and processes have been included in the 2021 PES to ensure that:

- All EAs have been assigned and enumerated for the purpose of achieving complete coverage,

- Work of field officers is validated on a continuous basis,
- Data collected during fieldwork are edited and cleaned in near real-time,
- Feedback is provided promptly,
- Any inconsistencies and errors observed in the course of the exercise are rectified immediately by field staff.
- These processes pave way for speedy clearance of field officers

14.4 Scope of the Data Quality Monitoring and clearance

The Data Quality Management for 2021 PES is implemented at four different levels: National, Zonal, Regional and EA. The actual monitoring of the data quality is at the 3 levels: mainly the EA level through the Regional. The National and Zonal level management have general oversight responsibility.

The Data Quality Management Team at the Zonal level (ZDQMT) is made up of Field Supervisor, Data Quality Monitor and IT Officer. It also includes independent monitors who will visit teams to assess the quality of the whole census process.

The Zonal Data Quality Management Team (ZDQMT) will work from the Zonal Offices in their respective zones and would be responsible for monitoring data quality at the EA levels. At the EA level, supervisors are responsible for monitoring data quality in their teams and the enumerators are to review their work regularly to ensure they achieve complete coverage and there are no errors in the data collected.

The Data Quality Management Team (DQMT) operates from Head Office of the Ghana Statistical Service and oversee all the other levels of the data quality management structure. The Data Quality Management Team (DQMT) operates from the zonal offices of the Service and has oversight responsibility for monitoring data quality in all the EAs. Note that only the Data Quality Monitor (DQM) operates from the HQ but gives feedback to the other members of the team who resides in the Zone.

14.5 Data Quality Management at the Zonal Level

The ZDQMT is the main body responsible for data quality management at the EA level and their day-to-day operations involve:

- Ensure all field officers have synced data to the HQ server daily
- Prompt Supervisors about missing SA and EA data
- Provide support to field officers in the syncing of data where connectivity is a challenge
- Receive synced data from the HQ server
- Run checks on data synced to bring out all errors and inconsistencies, if any
- Communicates error messages to the respective field officers for correction
- Repeatedly runs checks to ensure errors identified have been corrected
- Generates daily reports to track progress of work for each enumerator and team
- Undertakes field visits to validate field officers' work and to correct them when necessary
- Resolves issues pertaining to field data collection

- Refers unresolved issues to the Regional Data Quality Management Team (DQMT)
- Clears teams on completion of fieldwork and retrieval of materials and logistics

14.6 Important Issues to Consider

Since the daily monitoring exercise is key in achieving data quality of the 2021 PES, the ZDQMT must ensure that activities by enumerators and supervisors that must be done to drive the process have been followed. These activities include:

- Daily synchronization is necessary for:
 - Tracking progress of work,
 - Identifying teams/enumerators with data synchronization challenges
 - Exposing possible errors,
 - Timely communication of errors,
 - Preventing reoccurrence.
- Supervisors should ensure that all error messages from ZDQMT are resolved.
- The correct identification of EA boundaries is key to attaining completeness of coverage and avoiding duplication.
- Supervisors should contact the ZDQMT immediately for any unresolved boundary issues.

14.7 Duty of Enumerators and Supervisors in Data Quality Management

All enumerators and supervisors have a role to play in achieving the overall quality of the 2021 PES data and therefore must be guided in their daily procedures to know what to do in any situation that may arise in the course of the field data collection. To attain the required results,

- Enumerators must sync to HQ and Supervisor on a daily basis
- Enumerators should run reports on their tablets and correct any errors before syncing to the Supervisor.
- Where the problem cannot be solved immediately, the Enumerators should still sync to Supervisor and HQ and continue to resolve the problem.
- Enumerators should resolve any errors identified by the Supervisor.
- Enumerators should resolve any errors identified by the ZDQMT.
- Enumerators should re-visit households and institutions to correct errors and gaps identified.
- Supervisors must sync to HQ on a daily basis
- Supervisors should run reports on data received on their tablets and work with the team to correct any errors before syncing to HQ.
- Where the problem cannot be solved immediately, the Supervisor should still sync to HQ and continue to resolve the problem.
- Supervisors should work with team members to resolve any error messages received from ZDQMT and re-sync to HQ.
- Supervisors should ensure that all error messages from ZDQMT are resolved seeking assistance from the ZDQMT where necessary.
- Supervisors should ensure Enumerators go back to the households and institutions to correct errors and data gaps.

-
- Field officers should contact IT support for syncing challenges and IT related issues

14.8 Clearance of Field Officers

A team is cleared when the ZDQMT confirms that the work in each EA under the SA is completed and HQ has certified the completeness and quality of the data. Thus all field officers must be cleared by ZDQMT before exiting the field.

There are procedures for clearance at two levels for all field officers, that is, at the district level ZDQMT and at the national level by NDQMT.

A team is cleared when:

- ZDQMT confirms that the work in each EA under the SA is completed
- HQ has certified the completeness and quality of the data
- ZDQMT has received all returnable materials and logistics.

14.8.1 Criteria for clearance at the Zonal level

The criteria for clearance must be employed strictly in certifying the work of an enumerator and the team. Procedures for DDQMT clearance of field officers cover four aspects:

1. Submission of data from the field: in the form of synced data and tablet backup
2. Completeness in coverage: all structures and households in all EAs, and all localities in Type 3 EAs have been enumerated
3. Completeness and accuracy of content: information about the individuals in households (population and housing characteristics) and institutions is complete for all applicable topics
4. Retrieval of returnable materials/items

14.8.2 Completeness of Coverage and Content

The ZDQMT and the GIS monitor confirms that the work in each EA is completed based on the following checklist:

1. All structures in the EAs have been listed and reflect in the database.
2. All structures with household especially have been correctly enumerated.
3. All data for the EAs assigned to a team have no duplicates, no gaps and no partial saves or (incomplete interview).
4. Total household populations identified during listing have been accounted for during the main enumeration
5. Total number of EAs assigned to the Team have been listed, enumerated and accounted for
6. Total number of localities expected for each Type3 EA have been accounted for
7. All inconsistencies and errors identified have been resolved for every enumerator in the team.

14.8.3 Retrieval of returnable materials/items

All tablets and accessories assigned to the team should be accounted for and be in good condition. DQMT shall:

1. Reconcile data on tablets with those on the server,
2. Make a back-up of data on all tablets assigned to the team (SA),
3. Collect all other returnable materials / items,
4. Field officers must sign Assets and Material Receipt (Return) Forms.

Note: Individuals shall be held accountable for any item assigned to them on a case by case basis. It is when the returnable items have been collected from all field staff that they are to wait patiently for final clearance from HQ and payment.

14.9 Criteria for clearance at the HQ

NDQMT compiles the list of teams that have passed all the criteria and submits a copy to the DDQMT for collation and onward transmission to HQ

1. NDQMT certifies the work of the teams as having met all requirements for zonal level clearance set out above
2. NDQMT submits final clearance list to Finance and Administration for payment authorization
3. Finance and Administration then effects payment

CHAPTER 15

15. LEADERSHIP OF THE FIELD SUPERVISOR

15.1 Introduction

The field supervisor is the senior member of the field team. He/she is responsible for the well-being and safety of team members, as well as the completion of the assigned workload and the maintenance of data quality. The supervisor receives his/her assignments from and reports to the field/zonal coordinator. The specific responsibilities of the supervisor are to make the necessary preparations for the fieldwork, to organize and direct the fieldwork, and to monitor the quality of interviews. Good supervision is a critical part of the census process since the success of the census will to a large extent depend on the quality of data that will be collected from the field. It is important to put in place measures that will ensure the collection of good quality data and also achieve complete coverage. Therefore, the supervisor's role before, during and after fieldwork is critical in the 2021 PES. The success of the 2021 PES to a large extent depends on the quality of data collected from the field. It is therefore important for the supervisor to be on field till end of field work. Supervisors are to monitor the works of the enumerators to ensure they are working as expected. Supervisors are the first level monitors on the field and for that matter must be on the field with their enumerators from the beginning till the end of the field work.

To prepare for fieldwork, the supervisor must:

- Obtain maps for each EA in which his/her team will be working.
- Become familiar with the area where the team will be working and determine the best arrangements for travel and accommodations.
- Contact local authorities to inform them about the survey and gain their cooperation.
- Obtain all monetary advances, supplies, and equipment necessary for the team to complete its assigned interviews.

Careful preparation by the supervisor is important for facilitating the work of the team on the field, for maintaining enumerator morale, and for ensuring contact with the zonal monitor and head office throughout the fieldwork.

During the fieldwork, the supervisor will:

- Assign work to enumerators, taking into account the linguistic competence of individual enumerators, and ensuring that there is an equitable distribution of the workload.
- Regularly send progress reports to the zonal monitor and keep headquarters informed of the team's location.
- Communicate any problems to the zonal monitor or the survey coordinator.
- Observe interviews and do spot checks or re-interview.
- Conduct regular review sessions with each enumerator and advise him/her of any problems found in his/her work.

- Conduct quality control interviews and give interviewers feedback based on those interviews.
- Ensure the team sync its data daily
- Take charge of the team vehicle, ensuring that it is kept in good condition and that it is used only for the field work.
- Make an effort to develop a positive team spirit. A congenial work atmosphere, along with careful planning of field activities, contributes to the overall quality of the survey.

In addition, managing the CAPI system for the team requires that the supervisor:

- Assign work daily
- Ensure each enumerator sync to you daily
- Ensure that all structures have been covered and households enumerated
- Ensure that all questionnaires have been completed
- Provide feedback on the progress of work each day based on enumerator work
- Review and resolve errors with enumerators
- Send the data to the ZDQM and the head office
- Receive and transmit to the enumerators any instructions or program updates sent from the head office

15.1.1 Main task of the Supervisor in the PES

As a Supervisor, your main task will be the supervision of a number of Enumerators, who will work directly under you during the PES. Enumerators' main assignment is to list and enumerate, during the PES period, all persons spent the night before the interview in their households in EAs. It is your duty as a supervisor to ensure that this assignment is carried out efficiently. You will also assist in the training of the Enumerators on the field. To be effective as a Supervisor, you must take note of the following:

15.1.2 Mastering the Field Officer's Manual

Every Enumerator and Supervisor have been given a copy of the Field Officer's Manual which contains detailed instructions on how Enumerators should conduct the actual enumeration in the field. The instructions are preceded by general background information concerning Post Enumeration Surveys.

To supervise these Enumerators and help them conduct the PES well, you yourself must understand very clearly what the Enumerators are being asked to do. This means that you must read and master the Field Officer's Manual before starting your supervisory work. It is only when you know the functions being performed by the Enumerators very well that you will be able to help them when they approach you with their problems.

15.1.3 Commanding the Confidence of your Enumerators

You must always try to command the confidence of the Enumerators who are working under you. Remember that you are their leader to whom they will turn whenever they come across any difficulties. If they have no confidence in your ability, they will always be reluctant to approach

you with their problems. Your appointment as a Field Supervisor will be worthless if Enumerators find that you cannot help them to solve their problems.

15.1.4 Contacting the PES members in Case of difficulties

Whenever you are in any doubt concerning any part of your assignment, you must consult your field monitor or any PES team member, who may also consult the the survey Coordinator if it becomes necessary. These two officers are in the position to help you overcome your difficulties.

15.1.5 Giving Approved Directives to the Enumerators

Enumerators will be instructed on how they should conduct the enumeration. Do not confuse them by giving wrong directives. Whenever you are in doubt, explain to them that you are not sure yourself, and that you will obtain the necessary explanation from your your zonal monitor. It is always better to admit your uncertainty rather than to offer wrong answers.

15.1.6 Leading in an Exemplary Manner

You are leading a team of three Enumerators into the field to conduct an operation which is of vital national importance. You must always try to explain solution to problems clearly and set a good example to these Enumerators. In particular, you must be fair and approachable, encourage them to approach you with their problems. Some of the Enumerators may be experienced data collectors and of the same educational level as you so do not give them any cause to grumble about your leadership.

15.1.7 Cooperating with the Enumerators

Throughout the PES enumeration, you must cooperate with the Enumerators working with you. Remember that you are working as a team. If they fail, it means that you yourself have failed. If they succeed you will share the honours of success equally with them.

15.1.8 Completing Enumeration in the EA

You and your Enumerators will have to work outside the normal working hours during the enumeration period. You should work as hard as you can to complete your assignment during the data collection period. If you cannot complete on time, report the matter as soon as possible to your monitor. Working hours will not be fixed for you because, in many cases, you will have to work at very odd periods. Remember that you are performing very important national service. Encourage each of your Enumerators to produce their best in order to finish within time.

A Post Enumeration Survey take place once in ten years after census. Help to make this one a success and you will feel proud thereafter that you made a worthwhile contribution to the 2021 Post Enumeration Survey of Ghana.

15.1.9 Replacing Enumerators when necessary

The survey secretariat have some reserve Enumerators. If during the enumeration period any of your Enumerators falls sick, you should contact your monitor for immediate replacement. Every effort has been made to ensure that only Enumerators, who are efficient, are engaged to conduct the enumeration. You must keep a close watch on the work of all your Enumerators during the training and the survey period. Go through all the completed questionnaires and their listing

forms. If you detect any sign of inefficiency and you feel that an Enumerator is not working satisfactorily, report it to your zonal monitor immediately for possible replacement. When a decision has been taken to replace an enumerator, ensure that you collect all materials from the Enumerator who is being replaced. The Supervisor must also remember that if he/she proves inefficient, he/she could be recommended for replacement.

15.2 Supervisor's duties before enumeration period

The duties of the Supervisor before enumeration is very critical in the data collection exercise of the census process. It is therefore, important that some preparatory activities are undertaken to help achieve complete coverage during field data collection. Some of the activities to be undertaken before the enumeration period are:

15.2.1 Training, retraining and coaching of Enumerators

Supervisors will be identified during the training of field officers. At the end of the training, the final selection of supervisors will be based on performance during training. Throughout the actual training (the lectures, mock interviews/role play, field exercises, class tests and group discussions), you should be ready at all times to undertake any specific aspect of the training which might be delegated to you. You may be asked to help in organising training sessions, to distribute and collect documents, to make roll-calls, and to undertake any other tasks which will facilitate the smooth running of the training programme. Though you will be assisting in organising the large classes, the greater part of your attention should be concentrated on the Enumerators who are under you during the training. Sometimes they may feel reluctant to raise some points which they did not understand in class, or there might not be sufficient time to discuss all their individual problems with them. Therefore, the task of solving these individual problems rests on you. You have to give adequate attention to each Enumerator and re-train him/her personally if it becomes necessary.

Enumerators have been specifically instructed to contact you whenever they do not understand something in the Field Officer's Manual. This means that you must always be prepared to receive any Enumerator and to help them solve any difficulty they may have. As a leader, your duty is to try to explain the enumeration process and field problems they do not understand. This is the reason why it is absolutely necessary that you study the Field Officer's Manual very thoroughly.

15.2.2 Expanding list of historical events to estimate the age of respondents

In Appendix of the Field Officer's Manual, you will find a list of national and regional historical events to help estimate ages of respondents who do not know their ages. In many cases, however, this list may not be sufficient, or the events listed may not be known to all the people in your area. It is your duty to supplement this with appropriate "Local Historical Events" in the area. The chief or Assemblyman/woman or any other knowledgeable person in the community is the best person to help you in the compilation of such events. Starting from the year 1900, try to list at least one event for each ten-year period, for example, one event that happened between 1900 and 1910, and so on. Make copies available for discussion during Enumerators training in the field.

The List of Local Historical Events is very important (Appendix 5). It assists the Enumerators in avoiding as much as possible rough guesses of respondents' age and enables them to check respondent's answers on age.

15.2.3 Check your EA boundaries

Before listing of houses/structures, teams should check their Enumeration Area boundaries and localities within each EA. Canvassing of EAs should be done by the entire team and not the supervisor alone. If during the canvassing of the EA, you come across any discrepancies or errors in boundaries, which you cannot resolve yourself, seek the advice from the zonal monitor or the zonal GIS officers. This boundary checking will reveal all the shortcomings of the EA maps and the list of localities on the PHC 2. The boundary checking may reveal new localities or new houses/structures not shown on the EA Map. On the other hand, some of the localities, which are on the Map, might be extinct at the time of the exercise. It is important to do all you can to ensure complete coverage and stay within your assigned EA.

15.2.7 Helping in the PES Publicity

During your visits to the EAs with your Enumerators, you must approach the Chiefs, Headmen, or Assemblymen in the localities and explain to them the objectives of the PES and the need for them to co-operate with the Enumerators. It is expected that by the time you pay your visit, the Chief or Headman would have heard about the PES through the media (radio, TV and newspapers). Your visit to the Chief or Opinion leader/Headman is to ensure that he/she knows about the PES. You should note that if you ignore the Chief before you start enumeration, you will be met with opposition from the local people, and enumeration will thereby be made difficult. To avoid this, see the Chief or Headman with your Enumerators **before** you start work.

15.2.8 Preparing of itinerary

You must ensure that your team prepares an itinerary. A copy of the itinerary should be given to the zonal monitors and the PES secretariat. This will outline the team's movement on the field.

15.2.9 Supervising Enumerators to ensure all structures are listed

Listing of structures will precede enumeration. The Supervisor shall ensure that all structures has been listed **in the EAs** and the information recorded/entered in the CAPI

Note that listing will ensure that every house in the EA has been covered. The listing is done by visiting every house/structure and writing in chalk, 2021PES plus the EA number as well as a 4-digit serial number of the house/structure on the front door, or on the wall near the front door, or at a conspicuous spot on the building e.g. 2021PES/EA Number/Structure Number. You must also indicate (in chalk with an arrow under the 4-digit serial number assigned (to the house/structure), to indicate the direction of his/her movements in the EA.

You should ensure that the enumerators enter every structure you chalk and every household listed and enumerated.

15.2.10 Distributing Field Officer's logistics

Before leaving for the field, the supervisor is responsible for collecting adequate supplies of the materials the team will need in the field. These items are listed below:

Fieldwork Documents

- Field officer's Manual
- EA Maps
- ID Cards for each team member
- Letters of introduction
- Contact information for the survey managers
- Callback cards

Supplies

- Tablets and accessories
- Power banks
- Welling boots (where applicable)
- Chalks
- Rain coats
- PES embossed jacket
- Backpack
- PPEs
- First aid kit

Funds for Field Expenses

- Sufficient funds to buy fuel for the team's vehicle
- Accountability forms

15.2.11 Arranging transportation and accommodations

It is the supervisor's responsibility to make all necessary travel arrangements for his or her team, whenever possible, in consultation with the zonal monitor or the Regional Statistician. Vehicles will generally transport the team to and from the assigned work areas. The supervisor is responsible for the maintenance and security of the team vehicle. The vehicle should be used exclusively for survey-related travel, and when not in use, it should be kept in a safe place. The driver of the vehicle takes instructions from the supervisor. In some cases, it may be necessary to arrange for other means of transportation; the supervisor also has the responsibility for making these arrangements.

In addition to arranging transportation, the supervisor is in charge of arranging for food and lodging for the team. If they wish, interviewers may make their own arrangements, as long as these do not interfere with fieldwork activities or break the team spirit. Lodging should be reasonably comfortable, located as close as possible to the interview area, and provide secure space to store survey materials.

15.2.12 Contacting Local Authorities

It is the supervisor's responsibility to contact the local officials before starting work in an area. Letters of introduction will be provided, but tact and sensitivity in explaining the purpose of the survey will help win the cooperation needed to carry out the interviews.

15.2.13 Contacting the Head Office

Each supervisor should arrange for a system to maintain regular contact with the monitor and the PES secretariat before leaving for the field. Regular contact is needed for supervision of the team by head office staff and the speedy resolution of any challenges.

15.2.14 Using Maps to locate EAs and selected Households

A major responsibility of the field supervisor is to lead interviewers in identifying the EA boundaries and locating households in the sample. The Field/Project Coordinator will provide the supervisor with EA maps for each of the EAs in which his/her team will be working.

In most EAs, the boundaries follow easily recognizable land features (such as rivers, roads, railroads, swamps, etc.). However, at times, boundaries are invisible lines. The location and determination of invisible boundaries will require some ingenuity. The following guidelines are suggested to locate the selected EAs:

- 1) Identify on the map the road used to reach the EA. When you reach what appears to be the boundary, verify this by checking the location of terrain features and landmarks against their location on the map. Do not depend on one single feature; use as many as possible.
- 2) It is usually possible to locate unnamed roads or imaginary lines by asking local authorities or people living in the area. In most cases, these people will know where the villages or other landmarks are, and by locating these, you can usually determine where the boundary runs.
- 3) Although there are cases in which boundaries shown on the map no longer exist or have changed location (e.g., a road has been relocated or a river has changed course), do not jump to conclusions. If you cannot locate an EA, go on to the next one and discuss the matter as soon as possible with the Field monitor or GIS officer.
- 4) In urban areas, street names will often help you locate the general area. Boundaries can be streets, alleys, streams, power cables, walls, rows of trees, etc.
- 5) Check the general shape of the EA. This will help you determine whether you are in the right place.
- 6) Read the written description.

- 7) Locate all the EA boundaries before you begin work. For example, if the EA is a rectangular block, the names of three boundary streets is not enough to unequivocally identify the EA; check all four boundary streets.

15.2.15 MAINTAINING MOTIVATION AND MORALE

The supervisor plays a vital role in creating and maintaining motivation and morale among the enumerators - two elements that are essential to good-quality work. To achieve this, it is necessary to make sure that interviewers:

- Understand clearly what is expected of them
- Are properly guided and supervised in their work
- Receive recognition for good work
- Are stimulated to improve their work
- Work in tranquil and secure conditions.

In working with the enumerators it may be useful to adhere to the following principles:

- Rather than giving direct orders, try to gain voluntary compliance before demanding it.
- Without losing a sense of authority, try to involve the enumeratos in decision-making, and at the same time, see to it that the decision remains firm.
- When pointing out an error, do it with tact, in a friendly manner, and in private. Listen to the enumerators's explanation, show her that you are trying to help, and examine the causes of the problem and solution together.
- When enumerators voice complaints, listen with patience and try to resolve them.
- Try to foster team spirit and group work.
- Under no circumstances show preference for one or another of the interviewers.
- Try to develop a friendly and informal atmosphere.

Finally, remember that encouraging words, instructions, and constructive criticism are not worth anything unless the supervisor sets a good example. It is important to demonstrate punctuality, enthusiasm, and dedication in order to demand the same of other team members. Never give the impression that you are working less than other members of the team, or that you are enjoying special privileges; this may produce a lack of faith in the project and cause general discontent. An ill-prepared supervisor will not be able to demand high-quality work from interviewers and will lose credibility and authority. Interviewer morale and motivation depend on your morale and motivation.

15.3 What to do during field visits

As a Supervisor, you should carry out thorough checks during enumeration. The aim is to limit errors as much as possible at the data collection stage. During field monitoring, ensure that the following activities are performed:

- a. Sit in and observe interviews, and be sure that the right translations and interpretations are being given to the questions.
- b. Check coverage of houses listed and members of households enumerated to ensure that **no houses or persons have been omitted**.
- c. Check to ensure that **entries are consistent**, i.e., they agree with each other and make sense.
- d. Check entries on total number of persons enumerated in houses/structures in the listing form with the entries on the questionnaires for corresponding houses/structures.
- e. Make sure that your Enumerators are following the instructions in the listing form.
- f. Ensure that after enumerators have enumerated all persons in one EA or locality.

15.3.1 Conducting re-interviews in your EAs

You are required to conduct re-interviews to prompt an enumerator on the quality of his/her data re-interviews will be conducted out of the Listing interviews that have been completed by enumerators. This is to ensure complete coverage, consistency and accuracy of information being collected from respondents.

Re-interviews will be conducted of some structures and households that have already been enumerated by your enumerators to ensure consistency and accuracy of information being collected from the respondents. These re-interviews are meant to ensure that the enumerators are prompted about the quality of their data before the end of listing/enumeration. It is important that the dates for re-interviews are specified (the dates will be automatically be generated by the CAPI). The re-interviews should be done within the early days of field work for all the selected structures and households in the EAs. This section provides a guide to you on how you should do the re-interviews.

15.3.2 Re-interview during listing

You are to select three (3) structures and households in each EA and conduct re-interviews

The supervisor should click on view report that has been generated from the re-interview and compare with the results from ones completed by the enumerator. Where there is a mismatch, more checks should be made to ascertain the extent of inconsistency so that all the errors could be resolved. However, if more errors are found in a particular enumerator's work then the issue must be referred to any PES team member.

15.3.3 Supporting Enumerators to deal with difficult cases

Every effort has been made to ensure that the PES is publicised and it is hoped that by the time Enumerators start enumeration, most people would have heard about the Census. However, a situation where people are reluctant to co-operate it is your duty as supervisor to step in and address the challenge.

In some cases, you may have to seek the help of the Chiefs/Assemblymen/women to be able to deal with some uncooperative respondents. Other cases will have to be referred to your SFS. The main difficulty arises when persons refuse to be enumerated. They may give many reasons and excuses that **will not** give the Enumerators the information that is required.

Enumerators have been instructed to explain to such persons the importance of the Census and also to seek help from neighbours who have already been enumerated. If this also fails, Enumerators have been instructed to make a note of the house and report to you as soon as possible. It will be your duty, immediately you receive such a report, to do everything you can to ensure that the difficulties are overcome. **We cannot miss out any person from the PES.** This means that even difficult cases must be overcome and the people concerned must be enumerated.

All Chiefs and assembly members in the country have been asked to help the PES operation by bringing their influence to bear on their people to cooperate with Enumerators. The first thing you must do, therefore, is to approach the Chief or any significant person of the town or village where difficulties are encountered. The influential person (Chief, Assembly person) may send a linguist to the house to explain the PES and to persuade the persons to give the required information. If they agree to cooperate, contact your Enumerator and ask him to proceed to enumerate them.

If after trying all possible means the person still refuses to cooperate, try to gather information about the household from neighbours, friends and significant persons. In some cases, you may have to do the enumeration yourself. Try as much as you can to obtain information on how many males and females stay in the house as well as their estimated ages. If these cases are numerous report the matter to your monitor.

15.3.4 Taking action when new localities are discovered

Each team working in a Type 3 EA will be given a list of all the villages which fall within his/her EA. Every effort has been made to ensure that all villages and hamlets, which lie within the EA, are included in the list on PHC 2. It is anticipated, however, that teams will occasionally discover new villages and hamlets which have not been listed on the form.

Supervisors have been instructed to take action when they come across new villages, hamlets or settlements which did not exist before the drawing of maps. As soon as you come across such situation you must make **SURE** that all these newly-discovered villages and hamlets fall within the specified EA are covered. If the case is not clear, report to your PES members. The idea is to ensure that these villages or hamlets are only counted once. It is expected that you personally go round these places to confirm it is new discovery.

If the newly discovered village or hamlet falls within the EA concerned, you and your Enumerators must list and enumerate it. If it falls outside the EA, but within your SA, check and make sure it is covered appropriately.

15.3.5 Taking action after Enumerator's unsuccessful visits

Enumerators have been instructed that whenever they visit a house in an urban area and do not meet anybody, they must leave a Call-Back Card on which is stated the time they will call again. They have been asked to make a number of call-backs. If after those visits no enumeration takes place, they must make a note of the house and report it to you.

Whenever the Enumerator inform you, obtain from him/her all the houses which (s)he has not been able to enumerate (because of refusals or unavailability of respondents) after making several visits. Try to help as a Supervisor by contacting neighbouring houses to find out whether people are staying in there and if they are, obtain some indication about their movements. Try to do all you can to help the Enumerator obtain the necessary information. Pass every piece of information, which you obtain to the Enumerator, and give him specific instructions as to how he should conduct his visits. Do not allow the Enumerator to “write-off” some houses simply because he did not meet anybody to interview on such visits, he/she made.

Remember every person must be enumerated. This means that you must make every effort to contact every household during enumeration. Sometimes, visits may have to be done by you and the Enumerator at odd times, e.g., early in the morning or late in the evening. Such visits could be very inconvenient but could help to achieve our goal. Make sure that before you resort to that you have explored all other means to enumerate the persons concerned. You will have to exercise tact whenever you make such visits. In particular, explain why you are calling at such odd hours. If possible, always give advance information to neighbours. When you have exhausted all possible means of trying to contact a household in a particular structure fails, try to obtain as much information from neighbours as you can. You must enter this information on the questionnaire and explain the reasons for missing entries on the questionnaire and in the listing form. At the very least ask the neighbours how many people live in that particular dwelling, their sex and their approximate ages. In doing this, the monitor in particular, and the other DQMT members must be informed about this.

15.3.6 Providing Interpreters

Every effort will be made to ensure that your team is assigned areas where you understand the languages spoken by the majority of the persons living there. This will reduce, to the barest minimum, the language problem.

There may be some cases, however, where an Enumerator cannot understand any of the languages spoken by people in the house in which he/she is to conduct an interview. If you the Supervisor understands the language of the people in the house, go ahead and do the enumeration of the people in the house/structure. Enumerators have also been asked to try to obtain the help of persons in consultation with the respondent. When they cannot find anybody to help them, they have been instructed to report it to you.

Much caution should be exercised when interpreters are used. It is a well-known fact that interpreters are fond of adding some explanations of their own to the original questions or responses. Each of the questions has been framed to elicit a particular answer and this should be emphasized to the interpreters. They should try as much as possible to convey the exact meaning of the question to the respondent so that the meaning of the questions would remain unchanged.

15.3.7 Holding a stock of materials

During enumeration, you will be given a stock of PES materials for the team. Your zonal monitor will also hold a certain number of documents in stock. If your own stock runs short, contact him/her immediately for new supplies. Do not wait until your materials completely run out before contacting the secretariat for for more. **You must keep a record of the distribution of materials you make during Enumeration.** After the PES, you will be asked to account for all materials given to you.

15.3.8 Summary of activities of the Supervisor

Among the routine activities of a supervisor are:

First day activities

1. check their EA boundaries
2. Check that all structures in the assigned EAs have been listed

Daily activities

1. Check errors – manually go through enumerated cases to identify possible errors.

Routine activities

1. Check completeness of work
2. Ensure that data is synced to HQ (central server) daily
3. Conduct spot checks and conduct re-interview

The success of the operation will depend upon supervision and timely interventions to ensure that the right things are done.

15.4 What to do after enumeration

As a Supervisor, your work is not complete until everyone in the assigned area has been enumerated and every field logistics have been accounted for. The following activities should be performed to achieve this.

15.4.1 Syncing EA Enumeration Results and Final Summary

As soon as the Enumerators complete enumeration in your areas, they are expected to **sync** their data to you daily. Instructions for doing this are explained fully in the CAPI Training Manual. **Make sure the EA Enumeration Results in the SA get to the headquarters by syncing.** Remain in the field till all the Enumerators have brought their work and syncing has been successful.

15.4.2 PHC 2 (Enumeration Area Boundary Description)

This is a form attached to the EA map which describes the boundary of the EA. It also provides the Enumerated Population in 2010 as well as the 2021 Field Estimated Population for the EA. The form also has space for recording 2021 Enumerated Population. After enumeration, you should run a report for each Enumerator on the total population enumerated (households and non-household) in the EA. If the EA has two or more localities this information should be recorded for each locality.

You should compare the 2021 Enumerated Population of the EA with both the 2021 Field Estimated Population and the 2010 Population. If there are wide discrepancies, you should investigate this in the field with Enumerator and also inform your SFS.

Remember that total population on the listing form summary column and the one on the PHC 2 must be the same.

15.4.3 Taking over PES Documents and Materials from each Enumerator

It will be your duty to collect all the materials that are returnable including the tablets and questionnaires (completed, spoiled and cancelled, and unused), from the Enumerators and hand them over to your ZDQMT. If there were interviews made with the paper questionnaire, remember to ensure that all the information elicited have been entered into the CAPI. It is

advisable to fix an appointment with each Enumerator so that you will have sufficient time to carry out final review. In addition to the completed questionnaires you should collect all the items that are returnable according to the PES Coordinator. If you find that everything is correct, sign the Enumerator's Material Record Form and hand it to the Enumerator.

15.4.4 Reviewing the Completed Work

You must examine the responses to the questions carefully before synchronizing. **This is the last opportunity for you to correct any serious errors which may have been committed by the Enumerator**, and to send the Enumerator back to the field for corrections. Briefly, here is what you must look out for:

- a. **Check that the number of Questionnaires** completed for each locality tallies with the entries in the summaries of the listing form.
- b. **Check that the number of persons (males and females) enumerated** in each locality tallies with the entries for those localities in the listing form.
In case of discrepancies, try to find out the source of the mistake, by checking questionnaires used for each house/structure in each locality. If necessary, send the Enumerator back to his area to have the mistakes corrected, preferably in the company of another Enumerator.
- c. **Go through all the cases and check for partial saves (uncompleted) forms to ensure that they are all completed before syncing.** You should also check and take necessary action on closed or vacant houses which have not been enumerated or only partially completed. This check is one of the most important as it will help to ensure that all the persons have been enumerated. Emphasis on these does not mean that the other items are not important.

15.4.5 Dealing with Omissions and Errors

If your field checks during enumeration are thoroughly carried out, it is most likely that there will be little or no omissions and errors. However, if from your check you observe that more than 10% of rows/persons have errors in the work of any Enumerator, contact your DFS/DCO immediately and discuss the problem with him/her. You may decide to have a complete re-enumeration or have a more reliable Enumerator make another visit to the field. Do not forget that such omissions and mistakes are bound to be discovered during the Post-Enumeration Survey.

15.4.6 Supervisor using CAPI for 2021 PES exercise

The use of CAPI will require close monitoring to ensure optimal performance. The supervisors will be central in addressing field issues including challenges related to ICT devices. As a supervisor, you are number ONE team player to ensure that enumerators assigned to you use the application effectively and efficiently to enumerate all persons in your SA.

A supervisor will be in charge of a SA. Supervisors and Enumerators menu will be developed for the workflow and you will be expected to control all the processes. The 2021 PES will begin with the listing of structures.

15.4.7 Role of the supervisor before, during and after enumeration

As a supervisor, your main roles are the following:

1. Assign EAs to enumerators in your SA before listing commences.
2. Ensure all structures are listed
3. Ensure all Households are enumerated.
4. Check for Duplicate and Partial saves cases for corrections and completeness
5. Sync Data with Enumerator
6. Sync Data to HQ
7. Receive updates from HQ
8. Send updates from HQ to enumerators.
9. Run reports on completed EAs for omission and correction.
 10. Check and help Enumerators working under you to solve whatever challenges they may encounter during enumeration, whether ICT related or otherwise. Where supervisor is unable to resolve ICT related challenges, he/she should consult ICT Support Staff for assistance.
11. Report any problem encountered to the senior supervisor

15.4.8 Carefully handling documents

Before handing over the documents to your SFS ensure that all tablets put into any satchel are those which should go into that satchel. You should check the EA number of the satchel label with the EA number on the tablet. These Satchels have been specially made for the preservation of the tablet. Under no circumstance should the tablet be kept somewhere else.

Remember that the results of the Census operation are recorded on the tablet, all of which are very valuable. None of them must be lost. Careful handling of documents has been requested of all Enumerators. This applies equally to you. Handle them carefully and deliver all of them safely to your SFS.

15.4.9 Handing over of documents to SFS

It may be necessary to book an appointment with your SFS before seeing him/her, as other Field Supervisors may also wish to see him/her at the same time. When you hand over the documents to the SFS, he/she will check them again with you, and you must make sure that you obtain his/her signature on your copy of the Field Supervisor's Material Receipt Form.

The success of the Census depends, to a large extent, on how well you perform your assignment. We know you will succeed. Be a good leader of your team and set as your goal the production of the best performance during the enumeration.

15.5 Role of the IT support Officer before, during and after enumeration

The 2021 PES will be conducted using ICT gadgets. Enumerators will be expected to collect data and transmit the same directly to a central server via internet. The data collection tablets will require close monitoring to ensure optimal performance. The zonal IT Support Officers will be a rover in addressing all technical issues and challenges related to ICT gadgets and CAPI Application.

In particular, the role of the Zonal IT Support Officers will be as follows:

1. Prepare and assign tablets to enumerators for field work immediately after training
2. Take inventory of all tablets assigned to enumerators

3. Provide technical assistance by responding to technical queries/problems (e.g., IT equipment and network) and consultations.
4. Provide onsite diagnostic, troubleshooting and assessment of technical problems.
5. Coordinate and allocate the ICT equipment's in the respective area of jurisdiction and make sure they are functioning properly.
6. Monitor, manage and assess the CAPI application and mobile device performance and advice accordingly.
7. Investigate and implement measures to rectify or enhance data syncing.
8. Support and ensure roll-out and installation of new tablet assignment and application updates by enumerators and supervisors.
9. Coordinate, solve and ensure escalation of both hardware and software related issues to the national IT Support team.
10. Establish a good, professional and courteous relationship with supervisors and enumerators.
11. Train users in the management and utilization of the CAPI application.
12. Prioritize escalated issues and ensure their timely resolution.
13. Provide IT technical support during the enumerators training.
14. Ensure capture of accurate and relevant logging of all requests and incidents raised in the field.
15. Monitor district risk posed to the ICT system and device and suggest precautions.
16. Backup all data file from enumerator's tablets
17. Retrieve all IT assets assigned to field officers

APPENDIX 1

LIST OF HISTORICAL EVENTS

A – NATIONAL EVENTS

EVENT	YEAR	NO. YEARS TO 2019	OF UP
King Prempeh removed from Sierra Leone to the Seychelles Island	1900	119	
Yaa Asantewaa War	1900	119	
Capture of Yaa Asantewaa	1901	118	
First World War	1914	105	
West African Currency Notes introduced	1918	101	
Armistice Day (End of 1 st World War)	1918	101	
Prince of Wales visited Gold Coast	1925	94	
First Aeroplane arrived in Accra	1926	93	
Dr. J.E. Kwagyir Aggrey died	1927	92	
Takoradi Harbour opened	1928	91	
Introduction of Basic Rate	1936	83	
Cocoa Hold-up	1938	81	
Earthquake	1939	80	
Second World War Started	1939	80	
Eclipse of the Sun	1947	72	
Looting in Various parts of the Country resulting from the Shooting of Sergeant Adjetey and Others	1948	71	
Arrest of Six Leaders of the United Gold Coast Convention	1948	71	
Founding of CPP by Kwame Nkrumah	1949	70	
Positive Action Declared	1950	69	
Kwame Nkrumah made Leader of Government Business	1951	68	

Kwame Nkrumah made first Prime Minister of the Gold Coast	1952	67
Ghana's Independence Declared	1957	62
R.R. Amponsah and M.K. Apaloo (both opposition members arrested)	1958	61
Preventive Detention Act came into force	1958	61
French Togoland became Independent State	1960	59
Ghana Became a Republic	1960	59
Queen Elizabeth II visited Ghana	1961	58
Murder of former Congo Premier Patrice Lumumba	1961	58
Railway Employees at Takoradi went on strike	1961	58
The Kulungugu bomb explosion	1962	57
Tema Harbour opened	1962	57
Detention of Ako Adjei, Tawiah Adamafio and H. Coffie Crabbe	1962	57
President Nkrumah dismissed Sir Arku Korsah from his Post as Chief Justice	1963	56
Flagstaff House shooting incident involving Ametewee	1964	55
Death of Dr. J.B. Danquah	1965	54
Formal Opening of Akosombo Dam	1965	54
O.A.U Summit Conference in Accra	1965	54
Introduction of Decimal Currency in Ghana (the Old Cedi and Old Pesewa)	1965	54
Military coup d'etat in Nigeria	1966	53
Overthrow of President Nkrumah by the Army and the Police	1966	53
Introduction of the New Cedis and New Pesewas	1967	52
Death of Lieutenant-General E.K. Kotoka	1967	52
Lifting of Ban on Political Activity in Ghana after the 1966 Coup	1969	50
Dr. K.A. Busia made Prime Minister of Ghana	1969	50

Death of Asantehene Nana Sir Osei Agyeman Prempeh II	1970	49
Formation of "Justice Party" by a merger of National Alliance of Liberals and three other Opposition Parties	1970	49
Overthrow of Dr. K.A Busia's Progress Party Government by Colonel I.K. Acheampong	1972	47
Students harvest Sugar Cane at Asutsuare and Komenda	1972	47
Operation Feed Yourself Programme launched	1972	47
Death of Dr. Kwame Nkrumah in Romania	1972	47
Arrival of Dr. Kwame Nkrumah corpse in Ghana from Guinea	1972	47
Ghana broke Diplomatic Relations with Israel	1973	46
Introduction of Right Hand Traffic	1974	45
J.H. Mensah and Two others Arrested on Sedition Charge	1975	44
Creation of Supreme Military Council (SMC 1)	1975	44
Appointment of Dr. Koranteng Addo's Adhoc Committee to gather information on how to implement a Union Government for Ghana	1977	42
Closure of the three Universities following demonstration by the Students against High Prices of Food	1977	42
Strike Action by members of Ghana Medical Association Demanding early re-opening of the closed Universities	1977	42
The Ghana Bar Association called on the SMC 1 Government to hand over power to a Presidential Commission Pending a Return to Civilian rule	1977	42
Discovery of Oil In commercial quantities offshore Saltpond by Agric-Petco Ghana Incorporated	1978	41
Referendum on Union Government	1978	41
Strike Action by the Ghana Bar Association	1978	41
Demonstration by University Students again the Union Government concept and the invasion of Legon Campus by Police armoured Cars	1978	41

Formation of People's Movement for Freedom and Justice (PPMFJ) led by K.A. Gbedema, A. A. Afrifa and William Ofori-Atta	1978	41
Banning of PMFJ, the Front for the Prevention of Dictatorship and the Third Force by General Acheampong	1978	41
General Acheampong removed from Office and Lt.-General FWK Akuffo became Chairman of the reconstituted Supreme Military Council (SMC II)	1978	41
Dr. K. A. Busia died in London	1978	41
Appointment of Mr. Justice Amissah and Mrs Gloria Amon-Nikoi as Attorney General and Commissioner for Foreign Affairs respectively	1979	40
Currency Change Exercise	1979	40
An abortive uprising in which Flt. Lt. J.J. Rawlings was Arrested	1979	40
The Revolution that overthrew SMC II led by J.J. Rawlings as Chairman of the Armed Forces Revolutionary Council (AFRC)	1979	40
Execution of General Acheampong, General Akuffo, Lt. General A.A. Afrifa, Maj. General Utuka and four other Senior Military Officers	1979	40
General Elections	1979	40
Major General Odartey Wellington given a state Burial	1979	40
Demolition of Makola No.1 Market	1979	40
Mr. Justice Akuffo-Addo died and was buried at Akropong	1979	40
Second Round of Presidential Election	1979	40
Handing Over of Power to the People's National Party (PNP) Administration by the AFRC	1979	40
Usher Fort Jail Break By Captain Koda, Captain Okaikoi and Three other military Personnel	1979	40
Pope John Paul II visited Ghana	1980	39
Head of Ahmadiyya Muslim visited Ghana	1980	39

Visit to Ghana by Archbishop of Canterbury (Head of the Anglican church)	1980	39
Commissioning of Ghana's first Satellite earth station at Nkuntunse	1981	38
Overthrow of PNP Administration by J.J. Rawlings as Chairman of PNDC	1981	38
Draught, Bush fires and Hunger (Rawlings chain)	1983	36
Voters Registration Exercise	1987	32
District Level Elections	1989	30
Constitution for 4 th Republic	1991	28
Election of JJ Rawlings as President of Ghana	1992	27
An elephant wandered into Navrongo	1993	26
J.J. Rawlings elected President for a second term	1996	23
Visit of the American President (Bill Clinton)	1998	21
Death of Dr. Hilla Limann (February)	1998	21
Election of President John Agyekum Kufour (Fourth Republic)	2000	19
Second visit of Queen Elizabeth to Ghana	2000	19
Accra Sports Stadium Disaster (May 9 th)	2001	18
First mass cancellation of JSS results in Ghana	2001	18
Ghana Celebrates 50 years of independence from Britain (March)	2007	12
Major off-shore oil discovery announced (June)	2007	12
Worst floods in over 30 years cause widespread devastation and destroys much of harvest (Sept)	2007	12
Election of President John Evans Atta Mills (December)	2008	11
US President Barack Obama visits Ghana (July)	2009	10
Death of Professor John Evans Atta Mills (June)	2012	7

	NO. OF YEARS YEAR	
B—REGIONAL EVENTS		
<i>CENTRAL AND WESTERN REGIONS</i>		
First Train from Sekondi arrived at Kumasi	1903	116
Rev. Attoh-Ahuma died	1921	98
Nana Attafua, Omanhene of Akim Kotoku died	1927	92
Governor Guggisberg died	1930	89
Nana Mbra Ansa died	1933	86
First Section of Sese Oil Palm Plantation started	1934	85
Secondary Schools in Cape Coast went on strike	1948	71
Ahanta/Dixcove Local Council was established	1952	67
Opening of St. Mary's Training College at Apowa	1954	65
Nana Baidoo Bonsoe XIII died	1954	65
Tarkwa and Aboso Mines closed	1956	63
Opening of Busua Pleasure Beach	1963	56
Aboso Glass Factory started operation	1963	56
Nana Hima Dekyi XII (KC), Omanhene of Upper Dixcove died	1963	56
Nana Aboayisa II, chief of Ewusiajoe died	1964	55
Enstoolment of Nana Hima Dekyi XIII of Upper Dixcove	1964	55
Plane crash at Phillip Quarcoo Boy's School (18 th February)	1966	53
Death of Most Rev. John Kodwo Amissah, Catholic Bishop of Cape Coast	1992	27
Death of Nana Osabarima Kojo Mmrah V, Omanhene of Oguaa	1997	22

Traditional Area			
<i>GREATER ACCRA, EASTERN AND VOLTA REGIONS</i>	YEAR	NO. YEARS TO 2019	OF UP
Execution of Sotordugbe of Aflao Viefe at Viefe	1902	117	
Rev. A.W. Clerk of Basel Mission Church died at Aburi	1906	113	
Dedication of Larteh Basel Mission Church	1907	112	
Bubonic Plague (Akpornabu)	1908	111	
Rev. Theophilus Opoku died at Akropong	1913	106	
Major Agricultural show took place at Krobo Odumase	1913	106	
Motor Car first Climbed Aburi Hill	1913	106	
Anum-Peki Political Unrest	1920	99	
Korle Bu Hospital Foundation laid	1921	98	
Death of Odikro Anakwa of Mamfe	1925	94	
Achimota School opened	1927	92	
Opening of the joint Provincial Council at Dodowa	1938	81	
Governor Allan Burns visited Anum	1946	73	
Adomi Bridge (Volta) Opened	1957	62	
The Golden Jubilee of Nana Kumi VII	1960	59	
Cutting of "Aryee Canal" at Kedzi near Keta	1963	56	
Major Floods hit Accra causing several deaths and forcing thousands of people to flee from their homes (June)	2001	18	
Area canal commission at Kezi near Keta	2001	18	
A boat capsizes on lake Volta reservoir and many passengers feared drowned	2006	13	
Ghana Celebrates 50 years of independence from Britain (March)	2007	12	

Major off-shore oil discovery announced (June)	2007	12	
Worst floods in over 30 years cause widespread devastation (Sept)	2007	12	
REGIONAL EVENTS	YEAR	NO. YEARS TO 2019	OF UP
<i>ASHANTI AND BRONG AHAFO REGIONS</i>			
First Train Arrived in Kumasi	1903	116	
Lt. Lionel Henry Trafford Martin of the 1 st Gold Coast Regiment Died at Sampa	1905	114	
Basel Missionaries arrived at Sampa	1919	100	
King Prempeh I return from exile	1925	94	
Ashanti Tekyiman killed their Omanhene Yao Kramo	1927	92	
Muslims led by Malam Halidu, left Atebubu and settled at Prang	1927	92	
Installation of King Prempeh II	1931	88	
Kumasi Fort destroyed accidentally by fire	1932	87	
Restoration of Ashanti Confederacy	1935	84	
Suma became a member of the Ashanti Confederacy	1935	84	
Telephone extension to Berekum	1946	73	
Telephone service extended to Domaa-Ahenkro	1948	71	
Telephone service extended to Nsoatre	1954	65	
Kwame Nkrumah visited Yeji	1955	64	
Creation of the Brong-Ahafo Region	1959	60	
Foundation of Atebubu Training College laid	1965	54	

<i>NORTHERN AND UPPER REGIONS</i>	YEAR	NO. YEARS TO 2019	OF UP
First chiefs meeting at Yapei	1923	96	
First Aeroplane to Northern Territories	1934	85	
Construction of Wa/Tamale road	1940	79	
The initial operation of the Gonja Development Company in Damongo (GDC)	1948	71	
Gonja Development Company established	1950	69	
Chiefs from the Northern Region visited Accra	1956	63	
Epidemic known as "Accra Zukogli".	1957	62	
Opening of Notre Dam Seminary and Navrongo Secondary School	1960	59	
Construction of Tono Irrigation Dam started	1975	44	
Shooting of Colonel Felli and Others by Fring Squad	1979	40	
Fighting between Saboro and Wusungu	1985	34	
Start of Mamprusi/Kusasi War in Bawku	1985	34	
Major Dust storm	1985	34	
Start of Army worm invasion	1985	34	
Establishment of the University for Development Studies	1992	27	
Violent ethnic clashes between the Nanumba and Kokomba over land ownership	1994	25	
Seven ethnic groups involved in violence in Northern Region sign peace agreement	1994	25	
Government imposes curfew in Northern Region as a result of renewed ethnic violence	1995	24	
Opening of a University Campus in Navrongo	1995	24	
Reconstruction of the Tamale-Paga Road	1997	22	

APPENDIX 2**FINAL ENUMERATION AREA DESCRIPTION***SPECIMEN* Form PHC 1

1. ENUMERATION AREA NO : **33500121**
2. LOCAL AUTHORITY : **SUHUM URBAN COUNCIL**
3. PES DISTRICT : **SUHUM URBAN COUNCIL**
4. E. A. BASE NAME : **NSONTRA**
POSITION **ON PATH ½ MILE NSONTRA AKROWA**

LOCALITIES IN E.A.	POPULATION			POSITION
	ESTIMATED	ENUMERATED		
		FORM M	TOTAL	
NSONTRA	350	460	460	Scattered Hamlets
OBONOWU	300	344	344	About 2½ kms. S.E. of Kukosu Nsontra Road
TOTAL	650	804	804	

5. DESCRIPTION OF ENUMERATION AREA BOUNDARY

Start from the confluence of river Essusem and Kuia move along river Essusem for about 2 miles to meet a tributary at Anum (excluded). Turn left move along this tributary crossing a footpath from Akrobonkwa Asuboi (excluded) to join the Kukosu Aye Nsontra road. Turn left again move along this road downwards to meet the Kuia River. Turn left move along the Kuia River to meet river Essusem, the starting point.

6. IMPORTANT

All other settlements within the boundary of this Enumeration Area as described above and as shown in the respective may have to be enumerated as well. The enumerator has to make himself familiar with his area by walking round it according to the description before he starts to work.

APPENDIX 4

DISTRICT CODES

Table 6: DISTRICT CODES

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
WR	Jomoro	Half-Assini	2	0101
WR	Ellembelle	Nkroful	1	0102
WR	Nzema East Municipal	Axim	2	0103
WR	Ahanta West	Agona Nkwanta	2	0104
WR	Effia Kwesimintsim Municipal	Kwesimintsim	2	0105
WR	Secondi Takoradi Municipal (STMA)		3	0106
WR		Takoradi		01
WR		Sekondi		02
WR		Essikado-Ketan		03
	Shama	Shama	1	0107
WR	Wassa East	Daboase	1	0108
WR	Mpohor	Mpohor	1	0109
WR	Tarkwa-Nsuaem Municipal	Tarkwa	2	0110
WR	Prestea/Huni Valley	Bogoso	2	0111
WR	Wassa Amenfi East	Wassa Akropong	2	0112
WR	Wassa Amenfi Central	Manso Amenfi	1	0113
WR	Wassa Amenfi West	Asankragua	2	0114
CR	Komenda Edina Eguafo Abirem Municipal	Elmina	2	0201
CR	Cape Coast Metro		3	0202
CR		Cape Coast South		01
CR		Cape Coast North		02
CR	Abura Asebu Kwamankese	Abura-Dunkwa	1	0203
CR	Mfantsiman Municipal	Saltpond	2	0204
CR	Ekumfi	Essakyir	1	0205
CR	Gomoa West	Apam	1	0206
CR	Effutu Municipal	Winneba	2	0207
CR	Gomoa Central	Gomoa	1	0208

CR	Gomoa East	Afransi	1	0209
CR	Awutu Senya East Municipal	Kasoa	2	0210
CR	Awutu Senya West	Breku	1	0211
CR	Agona East	Nsaba	1	0212

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
CR	Agona West Municipal	Swedru	2	0213
CR	Asikuma Odoben Brakwa	Asikuma	1	0214
CR	Ajumaku Enyan Essiam	Ajumako	1	0215
CR	Assin South	Nsuaem-Kyekyewere	1	0216
CR	Twifo Heman Lower Denkyira	Hemang	1	0217
CR	Twifo Ati Morkwa	Twifo Praso	1	0218
CR	Assin Central Municipal	Assin Fosu	2	0219
CR	Assin North Municipal	Assin Breku	1	0220
CR	Upper Denkyira East Municipal	Dunkwa-On-Offin	2	0221
CR	Upper Denkyira West	Diaso	1	0222
GAR	Ga South	Ngleshie Amanfro	2	0301
GAR	Weija Gbawe Municipal	Weija	2	0302
GAR	Ga Central Municipal	Sowutuom	2	0303
GAR	Ablekuma North	Darkuman	2	0304
GAR	Ablekuma West Municipal	Dansoman	2	0305
GAR	Ablekuma Central	Lartebiokorshie	2	0306
GAR	Accra Metropolitan Assembly (AMA)		3	0307
GAR	Ablekuma South			01
GAR	Ashiedu Keteke			02
GAR	Okai Koi South			03
GAR	Korle Klotey	Korle Klotey	2	0308
GAR	Ayawaso Central	Kokomlemle	2	0309
GAR	Ayawaso East Municipal	Nima	2	0310
GAR	Ayawaso North Municipal	Accra New Town	2	0311
GAR	La Dadekotopon Municipal	La	2	0312
GAR	Ledzokuku	Teshie	2	0313
GAR	Krowor	Nungua	2	0314

GAR	Adentan Municipal	Adentan	2	0315
GAR	Ayawaso West Municipal	Dzorwulu	2	0316
GAR	Okai Koi North	Tesano	2	0317
GAR	Ga North	Ofankor	2	0318
GAR	Ga West	Amasaman	2	0319
GAR	Ga East	Abokobi	2	0320
GAR	La Nkwantanang-Madina Municipal	Madina	2	0321
GAR	Kpone Katamanso	Kpone	2	0322

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
GAR	Ashaiman	Ashaiman	2	0323
GAR	Tema West	Tema Community 18	2	0324
GAR	Tema Municipal Assembly (TMA)		3	0325
	Tema East			01
GAR	Tema Central			02
GAR	Ningo Prampram	Prampram	1	0326
GAR	Shai Osudoku	Dodowa	1	0327
GAR	Ada West	Sege	1	0328
GAR	Ada East	Ada-Foah	1	0329
VR	South Tongu	Sogakope	1	0401
VR	Anloga	Anloga	1	0402
VR	Keta Municipal	Keta	2	0403
VR	Ketu South	Denu	2	0404
VR	Ketu North	Dzodze	2	0405
VR	Akatsi North	Ave Dakpa	1	0406
VR	Akatsi South	Akatsi	1	0407
VR	Central Tongu	Adidome	1	0408
VR	North Tongu	Battor Dugame	1	0409
VR	Ho West	Dzolokpuita	1	0410
VR	Adaklu	Adaklu Waya	1	0411
VR	Agortime-Ziope	AgortimeKpetoe	1	0412
VR	Ho Municipal	Ho	2	0413
VR	South Dayi	Kpeve	1	0414
VR	Afadzato South	Ve Golokwati	1	0415

VR	North Dayi	Amfoega	1	0416
VR	Kpando Municipal	Kpando	2	0417
VR	Hohoe Municipal	Hohoe	2	0418
ER	Birim South	Akim Swedru	1	0501
ER	Birim Central Municipal	Akim Oda	2	0502
ER	Achiase	Achiase	1	0503
ER	Asene Manso Akroso	Manso	1	0504
ER	West Akim Municipal	Asamankese	2	0505
ER	Upper West Akim	Adeiso	1	0506
ER	Ayensuano	Coaltar	1	0507
ER	Nsawam Adoagyiri Municipal	Nsawam	2	0508

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
ER	Akwapim South	Aburi	1	0509
ER	Akwapim North Municipal	Akropong Akwapim	2	0510
ER	Okere	Adukrom	1	0511
ER	New Juaben South Municipal	Koforidua	2	0512
ER	New Juaben North	Effiduase	2	0513
ER	Suhum Municipal	Suhum	2	0514
ER	Abuakwa North	Kukurantumi	2	0515
ER	Abuakwa South	Kibi	2	0516
ER	Denkyembuor	Akwatia	1	0517
ER	Akyemansa	Ofoase	1	0518
ER	Kwaebibirem	Kade	2	0519
ER	Birim North	New Abirem	1	0520
ER	Atiwa West	Kwabeng	1	0521
ER	Atiwa East	Anyinam	1	0522
ER	Fanteakwa South	Osino	1	0523
ER	Yilo Krobo Municipal	Somanya	2	0524
ER	Lower Manya Krobo Municipal	OdumasiKrobo	2	0525
ER	Asuogyaman	Atimpoku	1	0526
ER	Upper Manya Krobo	Asesewa	1	0527
ER	Fanteakwa North	Begoro	1	0528
ER	Kwahu South	Mpraeso	1	0529

ER	Kwahu West Municipal	Nkawkaw	2	0530
ER	Kwahu East	Abetifi	1	0531
ER	Kwahu Afram Plains South	Tease	1	0532
ER	Kwahu Afram Plains North	Donkorkrom	1	0533
AR	Amansie South District	Manso Adubia	1	0601
AR	Amansie Central	Jacubu	1	0602
AR	Akrofuom District	Akrofuom	1	0603
AR	Adansi South	New Edubiase	1	0604
AR	Adansi Asokwa District	Adansi Asokwa	1	0605
AR	Obuasi East District	Tutuka	1	0606
AR	Obuasi Municipal	Obuasi	2	0607
AR	Adansi North	Fomena	1	0608
AR	Bekwai Municipal	Bekwai	2	0609
AR	Amansie West	Manso Nkwanta	1	0610

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
AR	Atwima Kwanwoma	Foase	1	0611
AR	Bosomtwe	Kuntanase	1	0612
AR	Bosome Freho	Asiwa	1	0613
AR	Asante Akim Central Municipal	Konongo	2	0614
AR	Asante Akim South	Juaso	2	0615
AR	Asante Akim North	Agogo	1	0616
AR	Sekyere Kumawu	Kumawu	1	0617
AR	Sekyere East	Effiduase	1	0618
AR	Juaben Municipal	Juaben	2	0619
AR	Ejisu Juaben Municipal	Ejisu	2	0620
AR	Oforikrom Municipal	Oforikrom	2	0621
AR	Asokwa Municipal	Asokwa	2	0622
AR	Kumasi Metropolitan (KMA)	Assembly	3	0623
AR		Nhyiaeso		01
AR		Subin		02

	Manhyia South			03
AR	Manhyia North			04
AR	Bantama			05
AR	Kwadaso Municipal	Kwadaso	2	0624
AR	Suame Municipal	Suame	2	0625
AR	Old Tafo Municipal	Old Tafo	2	0626
AR	Asokore Mampong Municipal	Asokore	2	0627
AR	Kwabre East	Mamponteng	1	0628
AR	Afigya Kwabre South	Kodie	1	0629
AR	Atwima Nwabiagya North District	Barekese	1	0630
AR	Atwima Nwabiagya South	Nkawie Kuma	2	0631
AR	Atwima Mponua	Nyinahin	1	0632
AR	Ahafo Ano South West	Mankranso	1	0633
AR	Ahafo Ano North	Tepa	1	0634
AR	Ahafo Ano South East District	Adugyama	1	0635
AR	Offinso North	Akomadan	1	0636
AR	Offinso Municipal	Offinso	2	0637
AR	Afigya Kwabre North District	Boamang	1	0638
AR	Sekyere South	Agona	1	0639
AR	Mampong Municipal	Mampong	2	0640
AR	Ejura Sekyedumase Municipal	Ejura	2	0641
AR	Sekyere Central	Nsuta	1	0642
AR	Sekyere Afram Plains	Drobonso	1	0643

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
WNR	Aowin	Enchi	2	0701
WNR	Sefwi Akontombra	Akontombra	1	0702
WNR	Suaman	Dadieso	1	0703
WNR	Bodi	Bodie	1	0704
WNR	Sefwi Wiawso Municipal	Wiawso	1	0705
WNR	Sefwi Bibiani Ahwiaso Bekwai	Bibiani	2	0706
WNR	Juaboso	Juaboso	1	0707
WNR	Bia West	Essam-Debiso	1	0708
WNR	Bia East	Adabokrom	1	0709

AHR	Asunafo South	Kukuom	1	0801
AHR	Asunafo North Municipal	Goaso	2	0802
AHR	Asutifi South	Hwidiem	1	0803
AHR	Asutifi North	Kenyasi	1	0804
AHR	Tano North	Duayaw Nkwanta	2	0805
AHR	Tano South	Bechem	2	0806
BR	Dormaa West	Nkran Nkwanta	1	0901
BR	Dormaa Central Municipal	Dormaa Ahenkro	2	0902
BR	Dormaa East	Wamfie	1	0903
BR	Sunyani Municipal	Sunyani	2	0904
BR	Sunyani West	Odumasi	1	0905
BR	Berekum East Municipal	Berekum	2	0906
BR	Berekum West District	Jinijini	1	0907
BR	Jaman South	Drobo	1	0908
BR	Jaman North	Sampa	1	0909
BR	Tain	Nsawkaw	1	0910
BR	Wenchi Municipal	Wenchi	2	0911
BR	Banda	Banda Ahenkro	1	0912
BER	Nkoranza South Municipal	Nkoranza	2	1001
BER	Techiman Municipal	Techiman	2	1002
BER	Nkoranza North	Busunya	1	1003
BER	Techiman North	Tuobodom	1	1004
BER	Atebubu Amantin	Atebubu	2	1005

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
BER	Sene West	Kwame Danso	1	1006
BER	Sene East	Kajaji	1	1007
BER	Pru West District	Prang	1	1008
BER	Pru East District	Yeji	1	1009
BER	Kintampo South	Jema	1	1010
BER	Kintampo North Municipal	Kintampo	2	1011

OR	Biakoye	Nkonya-Ahenkro	1	1101
OR	Jasikan	Jasikan	1	1102
OR	Kadjebi	Kadjebi	1	1103
OR	Krachi East	Dambai	1	1104
OR	Krachi West	Kete-Krachi	1	1105
OR	Krachi Nchumuru	Chinderi	1	1106
OR	Nkwanta South	Nkwanta	2	1107
OR	Nkwanta North	Kpassa	1	1108
NR	Kpandai District	Kpandai	1	1201
NR	Nanumba South District	Wulensi	1	1202
NR	Nanumba North Municipal	Bimbilla	2	1203
NR	Zabzugu District	Zabzugu	1	1204
NR	Tatale/Sanguli District	Tatale	1	1205
NR	Saboba District	Saboba	1	1206
NR	Yendi Municipal	Yendi	2	1207
NR	Mion District	Sang	1	1208
NR	Nanton District	Nanton	1	1209
NR	Tamale Metropolitan Assembly		3	1210
NR	Tamale South			01
NR	Tamale Central			02
NR	Sagnarigu Municipal	Sagnarigu	2	1211
NR	Tolon District	Tolon	1	1212
NR	Kumbungu District	Kumbungu	1	1213
NR	Savelugu Municipal	Savelugu	2	1214
NR	Karaga District	Karaga	1	1215
NR	Gushegu Municipal	Gushegu	2	1216
SR	Bole District	Bole	1	1301

REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
SR	Sawla-Tuna-Kalba District	Sawla	1	1302
SR	North Gonja District	Daboya	1	1303
SR	West Gonja District	Damango	1	1304
SR	Central Gonja District	Buipe	1	1305

SR	East Gonja Municipal	Salaga	1	1306
SR	North East Gonja	Kpalbe	1	1307
NER	Mamprugu Moagduri District	Yagaba	1	1401
NER	West Mamprusi Municipal	Walewale	1	1402
NER	East Mamprusi Municipal	Gambaga	2	1403
NER	Bunkpurugu Nankpanduri District	Bunkpurugu	1	1404
NER	Yunyoo-Nasuan District	Yunyoo	1	1405
NER	Chereponi District	Chereponi	1	1406
UER	Builsa South District	Fumbisi	1	1501
UER	Builsa North Municipal	Sandema	2	1502
UER	Kassena Nankana East Municipal	Navrongo	2	1503
UER	Kassena Nankana West District	Paga	1	1504
UER	Bolgatanga Municipal	Bolgatanga	2	1505
UER	Talensi District	Tongo	1	1506
UER	Bolgatanga East	Zuarugu	1	1507
UER	Bongo District	Bongo	1	1508
UER	Nabdam District	Nangodi	1	1509
UER	Bawku West District	Zebilla	1	1510
UER	Binduri District	Binduri	1	1511
UER	Bawku Municipal	Bawku	2	1512
UER	Garu District	Garu	1	1513
UER	Tempane District	Tempane	1	1514
UER	Pusiga District	Pusiga	1	1515
UWR	Wa West District	Weichiau	1	1601
UWR	Wa East District	Funsi	1	1602
UWR	Wa Municipal	Wa	2	1603
UWR	Nadowli Kaleo District	Nadowli	1	1604
UWR	Daffiama Bussie Issa District	Issa	1	1605
UWR	Sissala East Municipal	Tumu	2	1606
REGION	DISTRICT NAME	DISTRICT CAPITAL	DISTRICT TYPE	DISTRICT CODE
UWR	Sissala West District	Gwollu	1	1607

UWR	Jirapa Municipal	Jirapa	2	1608
UWR	Lawra Municipal	Lawra	2	1609
UWR	Lambussie Karni District	Lambussie	1	1610
UWR	Nandom District	Nandom	1	1611

ENUMERATION NAME.....

Enumerator's Signature.....