Malawi

Fifth Integrated Household Survey (IHS5)

2019-2020

Basic Information Document

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ACRONYMS

ADD	Agricultural Development Division
ADMARC	Agricultural Development and Marketing Corporation
CAPI	Computer Assisted Personal Interviewing
DFID	Department for International Development
EA	Enumeration Area
FAO	Food and Agriculture Organization of the United Nations
GTZ	German Development Corporation
IFAD	International Fund for Agricultural Development
IHPS 2010	Integrated Household Panel Survey 2010
IHPS 2013	Integrated Household Panel Survey 2013
IHPS 2016	Integrated Household Panel Survey 2016
IHPS 2019	Integrated Household Panel Survey 2019
IHS1	First Integrated Household Survey 1997-1998
IHS2	Second Integrated Household Survey 2004-2005
IHS3	Third Integrated Household Survey 2010-2011
IHS4	Fourth Integrated Household Survey 2016-2017
IHS5	Fourth Integrated Household Survey 2019-2020
LSMS	Living Standards Measurement Study
LSMS-ISA	LSMS–Integrated Surveys on Agriculture
MCC	Millennium Challenge Corporation
MGDS	Malawi Growth and Development Strategy
MDG	Millennium Development Goal
MK	Malawi Kwacha
NACAL	National Census of Agriculture and Livestock
NSO	National Statistical Office of Malawi
PHC	Population and Housing Census
PSU	Primary Sampling Unit
SDG	Sustainable Development Goal
TA	Traditional Authority
WFP	World Food Programme
WMS	Welfare Monitoring Survey

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1.0: INTRODUCTION

1.1: Background

The Integrated Household Survey (IHS) is one of the primary instruments implemented by the Government of Malawi through the National Statistical Office to monitor and evaluate the changing conditions of Malawian households. The IHS data have, among other insights, provided benchmark poverty and vulnerability indicators to foster evidence-based policy formulation and monitor the progress of meeting the Sustainable Development Goals (SDGs) and the goals listed as part of the third Malawi Growth and Development Strategy (MGDS III).

The First Integrated Household Survey (IHS1) was conducted in Malawi from November 1997 through October 1998 with support from the World Bank and IFPRI. The survey provided for a broad set of applications on policy issues regarding households' behavior and welfare, distribution of income, employment, health and education.

The Second Integrated Household Survey (IHS2) was implemented with technical assistance from the World Bank to compare the situation of that time with the situation in 1997-98, and to collect more detailed information on several topics. The IHS2 was conducted from March 2004 through February 2005.

The Third Integrated Household Survey (IHS3) was implemented from March 2010 to March 2011 under the umbrella of the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) initiative. the LSMS-ISA project collaborates with the national statistics offices of its eight partner countries in Sub-Saharan Africa to design and implement systems of multi-topic, nationally representative panel household surveys with a strong focus on agriculture. The primary objective of the project is to foster innovation and efficiency in statistical research on the links between agriculture and poverty reduction in the region. The IHS3 expanded on the agricultural content of the IHS2.

The Fourth Integrated Household Survey (IHS4) was implemented from April 2016 to April 2017 under the same umbrella of the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) initiative. This was conducted with financial support from the World Bank and the Millennium Challenge Account (MCA).

The Fifth Integrated Household Survey (IHS5) is the fifth full survey in this series and was fielded from April 2019 to March 2020 also under the World Bank LSMS-ISA umbrella. The IHS5 is a nationally representative sample survey designed to provide information on the various aspects of household welfare in Malawi. The survey collected information from 11,434 households statistically designed to

be representative at national, district, urban and rural levels enabling the provision of reliable estimates for these levels. Information was not collected from 854 households or 7 percent of the of the original sampled households because of the COVID-19 pandemic since enumerators had to be withdrawn from the field before completion of field work. IHS5 was conducted three years after successfully implementing IHS4, as this is in line with the NSO vision of collecting poverty data on a more frequent basis. Similar to the previous waves of the IHS, a market operation took place alongside the IHS5 fieldwork capturing data on items and units consumed and produced by households. The main objectives of this operation were to; Enhance the scope of local food price data collection as part of the upcoming IHS5 2019/20 and IHPS 2019, for use in measurement of consumption and income and Improve the existing conversion factor database for quantification of food consumption and agricultural production reported in non-standard units. Every month, up to 90 markets were visited and the markets visited each month sought to maximize the number of markets that were associated with the sampled IHS5 enumeration area locations and that were visited in sync with the IHS5 field teams' visits to these enumeration areas starting in April 2019.

The purpose of this document is to provide a basic overview of the latest round of data collection, the Fifth Integrated Household Survey 2019/20 (IHS5) which was implemented in the period of April 2019-April 2020, covering 717 EAs throughout Malawi.

Though this document covers the cross-sectional IHS5, the NSO, in parallel with the IHS5 operations, also implemented the Integrated Household Panel Survey 2019 as a follow up to the IHPS 2016. The IHPS 2019 subsample covered a national sample of 102 EAs (out of the 204 baseline IHS3 panel EAs), and was conducted during the first half of IHS9 fieldwork. The IHPS 2019 will be released as a separate project under the World Bank Microdata Library, with the corresponding data, basic information documentation, questionnaires, manuals and other field materials.

The IHS5 2019/20 and the IHPS 2019 were both implemented on Android tablets, using the computer-assisted personal interviewing (CAPI) platform that was built using the open-access World Bank Survey Solutions software https://mysurvey.solutions/.

Throughout the design and implementation of the IHS5 and the IHPS 2019, the NSO received technical assistance from the World Bank LSMS-ISA initiative.

2.0 SURVEY DESIGN

2.1 Sampling Frame and Sampling Units for the Malawi IHS5

The sampling frame for the IHS5 is based on the cartography and data from the 2018 Malawi Census of Population. This will provide a very updated frame for the first sampling stage compared to the IHS-4, which was based on the 2008 Census. The target universe for the IHS5 includes the individual households and persons living in these households within all the districts of Malawi, including the small island district of Likoma, which had also been included in IHS-4, but not in the previous surveys. The sampling frame excludes the population living in institutions, such as school dormitories, hospitals, prisons and military barracks.

A stratified two-stage sample design is used for the IHS5. The primary sampling units (PSUs) selected at the first sampling stage are the census enumeration areas (EAs) defined for the 2018 Malawi Census. The EA is the smallest operational area established for the census with well-defined boundaries identified on maps, corresponding to the workload of one census enumerator. The EAs have an average of about 215 households each. This is an ideal size for conducting a new listing of households in each sample EA.

Malawi is divided into 32 districts, which are also the geographic domains of estimation for the the IHS5 and previous surveys. The island district of Likoma only represents about 0.1% of the population of Malawi, and had been excluded from the sampling frame for the previous surveys up to IHS-3. Starting with IHS-4, it was decided to include Likoma in the sampling frame. Because of the small size of Likoma, for stratification purposes it was combined with the district of Nkhata Bay. Although it will be represented in the national-level survey results, Likoma will not be considered a domain of analysis for the IHS5. The distribution of the EAs and households by district, rural and urban areas from the 2018 Malawi Census is presented in Table 1, which includes Likoma separately for reference purposes although in the sampling frame the EAs of Likoma were combined with those of the Nkhata Bay.

Table 1. Distribution of Households and EAs by District and Rural/Urban Areas in Sampling Frame from the 2018 Malawi Population and Housing Census

	Rural		Urban		Total			
District	No. EAs	No. households	No. EAs	No. households	No. EAs	No. households	% households in district	% urban hhs. in district
Chitipa	314	43,249	17	3,987	331	47,236	1.2%	8.4%
Karonga	355	61,329	54	13,525	409	74,854	1.9%	18.1%
Nkhata Bay	347	49,167	18	2,986	365	52,153	1.3%	5.7%
Rumphi	283	41,946	26	4,951	309	46,897	1.2%	10.6%
Mzimba	1,442	188,802	27	6,021	1,469	194,823	4.9%	3.1%
Likoma	14	2,594	2	298	16	2,892	0.1%	10.3%
Mzuzu City	0	0	201	48,611	201	48,611	1.2%	100.0%
Kasungu	799	166,032	47	12,976	846	179,008	4.5%	7.2%
Nkhotakota	306	74,368	30	6,081	336	80,449	2.0%	7.6%
Ntchisi	396	68,522	10	2,192	406	70,714	1.8%	3.1%
Dowa	898	168,572	36	7,341	934	175,913	4.4%	4.2%
Salima	386	94,908	35	10,096	421	105,004	2.6%	9.6%
Lilongwe,non-city	1,544	387,170	0	0	1,544	387,170	9.7%	0.0%
Mchinji	438	130,437	32	6,391	470	136,828	3.4%	4.7%
Dedza	826	188,412	36	7,634	862	196,046	4.9%	3.9%
Ntcheu	796	149,673	22	5,152	818	154,825	3.9%	3.3%
Lilongwe City	0	0	956	228,482	956	228,482	5.7%	100.0%
Mangochi	1,050	237,586	71	15,110	1,121	252,696	6.4%	6.0%
Machinga	671	157,874	33	6,041	704	163,915	4.1%	3.7%
Zomba, non-city	710	176,852	0	0	710	176,852	4.4%	0.0%
Chiradzulu	364	89,917	4	716	368	90,633	2.3%	0.8%
Blantyre, non-city	490	109,773	0	0	490	109,773	2.8%	0.0%
Mwanza	125	26,022	21	4,319	146	30,341	0.8%	14.2%
Thyolo	903	169,084	23	4,986	926	174,070	4.4%	2.9%
Mulanje	574	156,468	15	3,623	589	160,091	4.0%	2.3%
Phalombe	388	97,328	9	1,519	397	98,847	2.5%	1.5%
Chikwawa	501	126,518	16	2,593	517	129,111	3.2%	2.0%
Nsanje	228	57,968	16	5,968	244	63,936	1.6%	9.3%
Balaka	404	89,837	49	11,738	453	101,575	2.6%	11.6%
Neno	190	30,806	5	568	195	31,374	0.8%	1.8%
Zomba City	0	0	117	22,830	117	22,830	0.6%	100.0%
Blantyre City	0	0	798	191,227	798	191,227	4.8%	100.0%
Malawi	15,742	3,341,214	2,726	637,962	18,468	3,979,176	100.0%	16.0%

Table 2 presents the average number of households per EA and the average number of persons per household by district and rural and urban areas in the 2018 Malawi Census frame. It can be seen that at the national level the average number of households per EA is 215 (212 for rural EAs and 234 for urban EAs). The average EA size varies by district from 133 households for Mzimba to 272 households for Mulanje. At the national level the average number of persons per household is 4.4, which is also the average household size for the rural stratum; the urban average household size is just slightly lower, 4.3. The average household size varies by district from 3.9 for Chiradzulu to 5.4 for Nkhata Bay.

Table 2. Average Number of Households per EA and Average Number of Persons per Household by District, Rural and Urban Areas, Based on 2018 Malawi Population and Housing Census

	Rural		Urban		Total	
District	Avg. no. hhs./EA	Avg. no. persons/ hh.	Avg. no. hhs./EA	Avg. no. persons/ hh.	Avg. no. hhs./EA	Avg. no. persons/ hh.
Chitipa	138	4.6	235	4.5	143	4.6
Karonga	173	4.9	250	4.6	183	4.9
Nkhata Bay	142	5.5	166	4.8	143	5.4
Rumphi	148	4.9	190	4.5	152	4.9
Mzimba	131	4.8	223	4.3	133	4.8
Likoma	185	5.1	149	4.4	181	5.0
Mzuzu City	-	-	242	4.5	242	4.5
Kasungu	208	4.7	276	4.5	212	4.7
Nkhotakota	243	4.9	203	4.7	239	4.9
Ntchisi	173	4.5	219	4.3	174	4.5
Dowa	188	4.4	204	4.3	188	4.4
Salima	246	4.6	288	4.3	249	4.5
Lilongwe,non-city	251	4.3	-	-	251	4.3
Mchinji	298	4.5	200	4.4	291	4.5
Dedza	228	4.2	212	4.1	227	4.2
Ntcheu	188	4.3	234	4.1	189	4.3
Lilongwe City	-	-	239	4.3	239	4.3
Mangochi	226	4.5	213	4.5	225	4.5
Machinga	235	4.5	183	4.2	233	4.5
Zomba, non-city	249	4.2	-	-	249	4.2
Chiradzulu	247	3.9	179	4.1	246	3.9
Blantyre, non-city	224	4.1	-	-	224	4.1
Mwanza	208	4.3	206	4.2	208	4.3
Thyolo	187	4.1	217	4.1	188	4.1
Mulanje	273	4.3	242	4.1	272	4.3
Phalombe	251	4.3	169	4.1	249	4.3
Chikwawa	253	4.4	162	4.0	250	4.4
Nsanje	254	4.7	373	4.5	262	4.7
Balaka	222	4.3	240	4.2	224	4.3
Neno	162	4.4	114	4.0	161	4.4
Zomba City	-	-	195	4.2	195	4.2
Blantyre City	-	-	240	4.2	240	4.2
Malawi	212	4.4	234	4.3	215	4.4

The number of households varies somewhat by EA. **Table 3** shows the distribution of the rural and urban EAs in Malawi by size. It can be seen that the minimum EA size is 50 households for the rural stratum and 51 households for the urban stratum. The maximum EA size is 1,630 households for the rural stratum and 1,105 households for the urban stratum. In the case of the 2008 Malawi Census frame that was used for the IHS-3 and IHS-4, there were about 300 EAs with less than 50 households. The standard deviation, a measure of variability in the EA size, is higher for the urban EAs. It can be seen

in Table 3 that the EAs are concentrated in the range between 100 and 400 households.

Table 3. Distribution of EAs in the 2018 Malawi Census Frame by Size (Number of Households) and Rural/Urban Areas

No. Households in EA	Number of EAs		
	Rural	Urban	Total
50-99 households	1,317	56	1,373
100-149 households	3,007	254	3,261
150-199 households	3,566	618	4,184
200-249 households	3,097	754	3,851
250-299 households	2,167	561	2,728
300-399 households	2,055	419	2,474
400-499 households	410	53	463
500-699 households	104	9	113
700-999 households	15	1	16
1000+ households	4	1	5
Total no. EAs	15,742	2,726	18,468
Mean no. hhs./EA	212	234	215
Minimum hhs./EA	50	51	50
Maximum hhs./EA	1630	1105	1630
Std. Deviation hhs./EA	93.7	77.0	91.8

Given the variability in the number of households per EA, the EAs were selected with probability proportional to size (PPS) within each district at the first sampling stage, where the measure of size was based on the number of households in the 2018 Malawi Census frame.

Following the selection of sample EAs, a listing of households was conducted in each sample EA to provide the sampling frame for the second stage selection of households. The units of analysis for the IHS5 are the individual households and corresponding persons who are household members.

2.2. Stratification

In order to increase the efficiency of the sample design for the IHS5, it is important to divide the sampling frame of EAs into strata that are as homogeneous as possible. The nature of the stratification depends on the most important characteristics to be measured in the survey, as well as the domains of analysis; the strata should be consistent with the geographic domains to be used in the survey tables. The sampling frame for the IHS5 was stratified by district; this is the same stratification as that for IHS-4. The first stage sample selection was carried out independently within each district. The EAs in the sampling frame for each district were ordered geographically by rural/urban code, TA and EA codes in order to provide further implicit stratification based on the systematic PPS selection at the first sampling stage.

As indicated previously, the island district of Likoma was combined with the Nkhata Bay stratum. The

survey results will be tabulated at the national level, urban and rural domains, and for the individual districts except for Likoma. It can be seen in Table 1 that some of the districts only have a few urban EAs. For this reason it would not be practical to establish separate urban and rural strata within each district. Instead, the EAs within each district were ordered by type of area as well as geographic codes (TA and EA codes) in order to provide implicit stratification by urban and rural areas, and to improve the geographic representativeness of the sample of EAs. In the case of Lilongwe and Zomba, the cities and rural areas are considered separate strata, as shown in Table 1.

2.3. Review of Sampling Errors from IHS-4 Data

One sampling option that was considered for the IHS5 was to use the same sample size and allocation as IHS-4, while selecting a new sample of EAs within each stratum from the new sampling frame based on the 2018 Malawi Census. It is important to tabulate the sampling errors, confidence intervals and design effects for key estimates from the IHS-4 data in order to determine whether the level of precision was sufficient for the district-level results. The design effect is defined as the ratio of the variance of an estimate based on the actual sample design and the corresponding variance from a simple random sample of the same size; it is a measure of the relative efficiency of the sample design, which mostly depends on the clustering effect.

It is important that the variance estimator takes into account the effects of stratification and clustering in the sample design. As described later in the section on Tabulation of Sampling Errors, the Complex Samples module of SPSS was used with the IHS-4 data to tabulate the standard errors, 95% confidence intervals and design effects for selected indicators based on the stratified two-stage sample design; the variance estimation methodology is described in that section. Measures of precision were tabulated for the IHS-4 estimates of the average annual household consumption per capita and the absolute poverty rate, at the national level, urban and rural domains, by region (North, Centre and South) and by district. These results are presented in Annex A. Table A1 in Annex A shows that the coefficient of variation (CV) for the estimate of average annual household consumption per capita was 7.9%, and the design effect was 2.4, which is reasonable for this type of estimate. The design effect is higher for the urban domain (2.6) compared to the rural stratum (1.2). This is due to a higher clustering effect for household consumption in the urban areas, and a higher variability between the sample urban clusters. As a result, the CV for the urban estimate was relatively high (20.4%). The Southern Region has the highest CV (16.0%), but the CVs for the other regions are less than 5%. In the case of the district-level estimates, the CV was less than 10% for 24 of the districts. Blantyre City has the highest CV (42.5%), and Ntcheu has the highest design effect (9.3).

For the absolute poverty rate it is more practical to compare the levels of precision for different domains

based on the margin of error, which is defined as half of the width of the confidence level. At the national level the margin of error is 2.1%, which is very good. The margins of error are less than 4% for the urban and rural estimates. The margin of error for the North Region is 5.5%, while the other regions have margins of error less than 4%. There are 25 districts with a margin of error less than 10%, and the highest margin of error is 13.8% for Blantyre. The district with the largest design effect was Mangochi (11.7), indicating a high level of clustering for the poverty indicator in that district.

2.4. Sample Size and Allocation for Malawi IHS5 Cross-Sectional Survey

The sample size for a household survey such as the IHS5 is determined by the accuracy required for the survey estimates for each domain, as well as by the logistical, timing and resource constraints. The accuracy of the survey results depends on both the sampling error, which can be measured through variance estimation, and the nonsampling error, which results from all other sources of error, including response and measurement errors as well as coding, keying and processing errors. The sampling error is inversely proportional to the square root of the sample size. On the other hand, the nonsampling error may increase with the sample size, since it is more difficult to control the quality of a larger operation. It is therefore important that the overall sample size be manageable for quality and operational control purposes. This is especially important given the challenge of collecting accurate information on household income and expenditures, as well as crop area and production.

Based on a review of the results of the sampling errors for the estimates of average annual household consumption per capita and the absolute poverty rate from the IHS-4 data shown in Annex A, as well as the resource constraints and issues of quality control, it was decided that the sample size and allocation for the IHS5 would be the same as for the IHS-4. It was also decided to continue with the selection of 16 households per EA used in IHS-4. It was found that interviewing 16 households per sample EA was effective in terms of the logistics of the fieldwork, as well as the statistical efficiency of the sample design. Another consideration in maintaining the sample size of IHS-4 is that the number of sample EAs allocated to each district has to be a multiple of 12 in order to distribute the sample EAs within each district to the 12 months of the year. The number of sample EAs and households by district, urban and rural stratum, is presented in Table 4.

Given that the sample size and allocation for IHS5 is the same as that for IHS-4, we can expect a similar level of precision for the estimates of key indicators. Therefore the results for the sampling errors, design effects and 95% confidence intervals for the estimates of average annual household consumption per capita and the absolute poverty rate presented in Annex A will provide a good indication of the level of precision that can be expected from the IHS5 estimates. However, given the new sampling frame for the IHS5 based on the 2018 Malawi Census, the design effects may be slightly smaller than those from

the IHS-4, resulting in a slightly improved level of precision. There should be less variability between the number of households in the Census frame and the listing, resulting in less variability in the weights within each stratum.

There are only two strata that were allocated 36 sample EAs. The Lilongwe City and non-city strata were allocated 36 sample EAs each given their relatively high proportion of households in Malawi, and a higher level of socioeconomic variability. With 24 sample EAs allocated to each of the remaining districts, there were a total of 768 sample EAs selected. Given that 16 households will be selected in each sample EA, the overall sample size is 12,288 households. This is close to the upper limit for the sample size based on the resource constraints, so it was not possible to increase the sample for additional districts.

As shown in Table 1, many of the districts have a relatively small number of urban EAs, so it was not practical to establish separate urban and rural strata for each district. However, the EAs in each district were sorted by rural and urban areas in the sampling frame to provide implicit stratification based on the systematic selection of the EAs with PPS within each stratum. This resulted in an implicit proportional allocation of the sample EAs to the urban and rural areas of each district based on the number of households. Following the sample selection, the final distribution of the sample EAs by district, rural and urban areas is shown in Table 4.

Table 4. Distribution of Sample EAs and Households for IHS5 by District, Rural and Urban Areas

	Total		Rural		Urban	
District	EAs	Households	EAs	Households	EAs	Households
Chitipa	24	384	22	352	2	32
Karonga	24	384	19	304	5	80
Nkhata Bay	24	384	23	368	1	16
Rumphi	24	384	22	352	2	32
Mzimba	24	384	24	384	0	0
Mzuzu City	24	384	0	0	24	384
Kasungu	24	384	23	368	1	16
Nkhotakota	24	384	23	368	1	16
Ntchisi	24	384	23	368	1	16
Dowa	24	384	23	368	1	16
Salima	24	384	21	336	3	48
Lilongwe, non-city	36	576	36	576	0	0
Mchinji	24	384	23	368	1	16
Dedza	24	384	23	368	1	16
Ntcheu	24	384	23	368	1	16
Lilongwe City	36	576	0	0	36	576
Mangochi	24	384	22	352	2	32
Machinga	24	384	23	368	1	16
Zomba, non-city	24	384	24	384	0	0
Chiradzulu	24	384	24	384	0	0
Blantyre, non-city	24	384	24	384	0	0

Mwanza	24	384	21	336	3	48
Thyolo	24	384	23	368	1	16
Mulanje	24	384	24	384	0	0
Phalombe	24	384	24	384	0	0
Chikwawa	24	384	23	368	1	16
Nsanje	24	384	22	352	2	32
Balaka	24	384	21	336	3	48
Neno	24	384	24	384	0	0
Zomba City	24	384	0	0	24	384
Blantyre City	24	384	0	0	24	384
Malawi	768	12,288	627	10,032	141	2,256

For the rural domain there are a total of 627 sample EAs and 10,032 sample households, and for the urban domain there are 141 sample EAs and 2,256 sample households. By comparison, for the IHS-4 there were 628 sample rural EAs and 140 sample urban EAs, so the overall distribution of sample by residence is very similar. Although most of the districts have the same number of urban and rural EAs in IHS-4 and IHS5, the urban/rural distribution of the EAs for a few districts varies by 1 or 2 EAs given the nature of the sample allocation based on implicit stratification and changes in the distribution of the new 2018 Census frame.

2.6 Sample Selection Procedures for Malawi IHS5

A stratified two-stage sample design was used for the Malawi IHS5. At the first sampling stage the EAs were selected within each stratum with PPS, and at the second stage the households are selected from the listing using random systematic sampling. The methodology used for each sampling stage and the procedures for assigning the sample EAs to the quarterly and monthly subsamples for the IHS5 data collection are similar to those for IHS-4. The sample selection procedures are described below.

2.61 First Stage Selection of Sample EAs

At the first sampling stage the sample EAs for IHS5 were selected within each stratum (district) systematically with PPS from the geographically ordered list of EAs in the sampling frame. The measure of size for each EA is based on the total number of households in the 2018 Malawi Census frame. The sampling frame of census EAs for each district was sorted by rural/urban classification, TA and EA codes. Using systematic sampling, this ordering of the sample EAs provided a high level of geographic implicit stratification. Within each stratum (district) the following first stage sample selection procedures were used:

(1) Cumulate the measures of size (number of households) down the ordered list of EAs within the district. The final cumulated measure of size will be the total number of households in the frame for the district (M_h).

(2) To obtain the sampling interval for district h (I_h), divide M_h by the total number of EAs to be selected in district h (n_h) specified in Table 4: $I_h = M_h/n_h$.

(3) Select a random number (R_h) between 0 and I_h. The sample EAs in district h will be identified by the following selection numbers:

$$S_{hi} = R_h + [\, I_h \times (i - 1)], \text{ rounded up to the next integer,}$$

where i = 1, 2, ..., n_h

The i-th selected EA is the one with a cumulated measure of size closest to S_{hi} that is greater than or equal to S_{hi}.

The SPSS Complex Samples module was used for selecting the sample of 768 sample EAs for IHS5 based on these sampling procedures, using the allocation of sample EAs by district specified in Table 4.

2.62. Selection of Quarterly and Monthly Subsamples of EAs for Data Collection

Given the systematic selection of EAs with PPS at the first sampling stage, the subsample of EAs for each quarter of the IHS5 data collection was selected from the full sample systematically with equal probability. A simple method was used for implementing this selection of sample EAs for each quarter. Sequential numbers from 1 to 4 were assigned to all the sample EAs within each district, in the same order in which they were selected. Each of these numbers identify the EAs in a quarterly subsample. Since the number of EAs allocated to each stratum is a multiple of 4, an equal number of EAs was assigned to each subsample. This sampling procedure ensured that each systematic subsample within a district is geographically representative. Each of the 25% subsamples is representative at the national level.

A random integer between 1 and 4 was used to identify the subsample to be assigned to each quarter in all districts. Subsample 3 was selected for the first quarter, subsample 1 for the second quarter, subsample 4 for the third quarter and subsample 2 for the fourth quarter of the IHS5 data collection. In order to ensure that a representative subsample of EAs was assigned for the enumeration each month, a similar procedure was used to identify the three systematic monthly subsamples for each quarter, and a random systematic subsample was assigned to each month within the quarter. This methodology ensured that the IHS5 sample is representative across space and time in order to represent seasonality throughout the 12 months within each district.

2.63. Listing of Households in Sample EAs

A listing of households was conducted in each sample EA prior to the IHS5 data collection in order to select the sample households from the updated frame. The supervisor verified the boundaries of the

sample EA in order to ensure good coverage of the sample households. The number of households listed in each EA was compared to the corresponding number from the census frame, so that any large differences could be investigated.

2.64. Selection of Sample Households within Each Sample EA

A random systematic sample of 16 households was selected from the household listing for each sample EA using the following procedures:

(1) All the eligible households were assigned a serial number from 1 to M'_{hi}, the total number of households listed in the EA.

(2) To obtain the sampling interval for the selection of households within the sample EA (I_{hi}), M'_{hi} was divided by 16, maintaining 2 decimal places.

(3) A random number (R_{hi}) was generated with 2 decimal places, between 0.01 and I_{hi}. The sample households within the sample EA were identified by the following selection numbers:

$S_{hij} = R_{hi} + \left[I_{hi} \times (j-1)\right]$, rounded up to the next integer,

where j = 1, 2, 3,..., 16

The j-th selected household is the one with a serial number equal to S_{hij}.

As in previous rounds, during the course of fieldwork it was necessary to select replacement households in place of the originally sampled households that could not be interviewed. **Table 5** shows the reasons for replacement.

Table 5: Reason for Original Household Replacement

	Dwelling found but no HH member could be located	Dwelling found but respondent refused	Dwelling found but appears unoccupied	Dwelling found but not a residential building	Dwelling destroyed	Dwelling not found	Dwelling found but occupants depend on other people
Chitipa	10	2	8	0	0	0	0
Karonga	9	1	1	0	0	0	0
Nkhatabay	10	2	0	0	0	1	0
Rumphi	7	0	1	0	0	1	0
Mzimba	22	3	0	0	0	0	0
Likoma	12	0	1	0	0	0	0
Mzuzu City	8	1	5	0	0	1	1
Kasungu	12	0	3	0	0	0	0
Nkhotakota	14	0	4	0	0	0	0
Ntchisi	22	0	2	1	0	0	0
Dowa	3	0	0	0	0	0	0
Salima	22	1	1	1	0	0	3
Lilongwe	37	3	0	1	1	0	0
Mchinji	9	0	5	0	0	0	0
Dedza	23	0	3	0	0	0	0
Ntcheu	17	0	1	0	0	0	0
Lilongwe City	7	0	0	0	0	0	0
Mangochi	11	3	1	0	0	0	0
Machinga	7	1	2	1	0	0	0
Zomba Non-City	10	4	16	0	0	0	0
Chiradzulu	16	2	9	0	0	0	0
Blantyre	6	0	1	0	0	0	0
Mwanza	17	0	1	1	0	1	0
Thyolo	8	0	1	0	0	0	0
Mulanje	11	1	3	0	0	1	0
Phalombe	12	0	0	0	0	0	2
Chikwawa	9	0	0	0	0	0	0
Nsanje	13	0	5	0	0	1	0
Balaka	12	2	2	2	0	0	2
Neno	21	1	0	0	0	0	0
Zomba City	36	0	0	0	0	2	0
Blantyre City	22	1	0	0	0	0	0

2.7 Fieldwork Organization

The IHS5 consists of four core questionnaire instruments; the Household Questionnaire, the Agriculture Questionnaire, the Fishery Questionnaire, and the Community Questionnaire. While the details on the structure and scope of the questionnaire instruments will be provided in Section 2.2, they are briefly mentioned here since they are relevant for understanding the fieldwork organization.

Similar to the IHS4 set up, the cross-sectional households were visited only once during the IHS5. When

they were visited, they received the Household Questionnaire in full, as well as Agriculture and Fishery questionnaires, if these were applicable. As part of the Agriculture Questionnaire, the cross-sectional households reported information on the last completed rainy season and the last completed dimba season. Depending on the timing of their interview, the reference rainy season could have been 2017/18 or 2018/19, while the reference dry season could have been 2018 or 2019.[1]

2.8 Questionnaire Design

The IHS5 questionnaire instruments are primarily modeled after the IHS4 with some modules and content altered, dropped or added. The modules and questions that have been added in either IHPS 2013 or IHS4 2016 are identified primarily by an underscore "_" in the questionnaire instruments.

2.81 Household Questionnaire

The Household Questionnaire is a multi-topic survey instrument and is near-identical to the content and organization of the IHS4. It encompasses economic activities, demographics, welfare and other sectoral information of households. It covers a wide range of topics, dealing with the dynamics of poverty (consumption, cash and non-cash income, savings, assets, food security, health and education, vulnerability and social protection). Although the IHS5 Household Questionnaire covers a wide variety of topics in detail it intentionally excludes in-depth information on topics covered in other surveys that are part of the NSO's statistical plan (such as maternal and child health issues covered at length in the Malawi Demographic and Health Survey).

Table 6 presents a list and description of the IHS5 Household Questionnaire modules. The modules were developed in extensive consultations with a wide set of stakeholders, including the World Bank LSMS, Statistics Norway, the UK Department for International Development (DFID), the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the Millennium Challenge Corporation – Malawi Account (MCC-MA), the Department of Forestry, the Department of National Accounts, and the World Fish Center (WFC).

[1] Rainy agricultural season covers two calendar years. The start and end dates for the rains vary spatially, happening throughout the period of November-April. Agricultural season is inclusive of harvest; as such rainy agricultural season generally refers to the period of November-May for majority of the country, although earlier/later harvests are possible, depending on the type of crop, rainfall and other location-specific agronomic and climatic conditions.

Table 6: Contents of the IHS5 Household Questionnaire

Module	Description
Module A:	This module household identifiers, the sample weights, information on household location, date of interview, supervisor and enumerator codes. Additionally, this module contains filters for subsequent modules.
Module B: Household Roster	This module contains the roster of individuals living in the household, their gender, age, relationship to the household head, duration away from the household in past 12 months, number of days meals were taken in the household, where born, how long in this community, and information on the location and level of education of parents of every member, including ID's if in the household. For members over 12, information on religious affiliation, marital status and location of spouses is collected and identifies the ID of the spouse/s of a household member.
Module C: Education	The education module is asked of all individuals over 5 years in age and collects information on self-reported reading and writing ability, school attendance, highest class attended and highest qualification achieved, year and age of beginning school. If the individual is presently attending school, information on the type of school, distance, and costs are collected.
Module D: Health	The health module is administered to all individuals and collects information on: Illness or injury in the past 2 weeks, diagnosis source, and action taken, and disruption to normal activity; Health spending over the past 4 weeks; Hospitalization or stay in a traditional healer's in the last 12 months. For individuals over 5 years in age: Information on chronic difficulties and disruption to normal activities; chronic illness and diagnosis source. For women aged 12 to 49 years of age information on births in the last 24 months, prenatal health clinic visits and where the baby was born and who assisted at birth for last-born child is collected. There are **new** questions on disability administered in 2019.
Module E: Time Use and Labour	The module is administered to all individuals 5 years or older. This module collects information on hours spent yesterday collecting water and wood; hours spent in the last 7 days spent on agriculture and non-agriculture activities; type of primary and secondary work, employers and wages over the last 12 months; participation in unpaid apprenticeships, casual (ganyu) labour, and other unpaid labour over the last 12 months. Households involved in agriculture 5 crops were captured in accordance with importance (importance defined as value addition in terms of non-market (consumption) or market (commercial sales) terms).

Module F: Housing	This module on housing is administered to the household head. It collects information on the characteristics of the dwelling, household fuel use, availability of electricity, telephone and water, toilet and rubbish facilities, and mosquito net use. In an attempt to improve data collected on land rights and ownership, this module contains detailed questions on who owns the property and who has the right to sell or bequeath the property containing their dwelling. **new** detailed questions were added on use of toilet facilities
Module F1: Land Roster	This is a **new** module and it collects information on all agricultural and non-agricultural land for which any household member currently uses, owns or holds use rights for, either alone or with someone else. This gardens in this module feeds forward into the different agricultural modules depending on the time they were cultivated. NOTE: This Module **Replaces** AG_MOD_B1, AG_MOD_I1 AND AG_MOD_O1 in the Agricultural Questionnaire. All Plots in the Agricultural Questionnaire are linked to this module.
Module G: Consumption of food Over past one week	This module collects information on all food consumed by the household in the past 7 days: in total and then classified as purchased (with price), own-production, or gift and other sources. Additionally, this module collects information on number of days aggregated food categories were consumed by the household and number of days and meals taken in the household by children and adults.
Module H: Food Security	This module collects information on number of meals taken by adults and children in the household and restricted food intake in the past 7 days.
Module I: Non-food Expenditures	This module collects expenditures on non-food items over the past week and the past 1 month.
Module J: Non-Food Expenditures (3 months)	This module collects expenditures on non-food items over the past 3 months.
Module K: Non-Food Expenditures (12 months)	This module collects expenditures on non-food items over the past 12 month.
Module L: Durable Goods	This module collects information on ownership, quantity owned, age of items, current preserved market value, purchases of items in the last 12 months, and cost of items in the last 12 months for durable goods.
Module M: Farm Implements, Machinery and Structures	This module collects information on household ownership, quantity owned, age of items, perceived market value, item purchases in last 12 months, quantity purchased in last 12 months, asset value, use, and items rental and rental cost, for farm implements and structures. Additionally, for farm structures, information is collected on construction and cost of construction over the past 12 months.

Module N: Household Enterprises	This module collects information on non-agricultural family enterprises or trading business, specifically who manages/owns the enterprise, employees, enterprise operation periods, start-up capital and source, customers, business trends, sales revenue, expenditures, and profits.
Module O: Children Living Elsewhere	This module collects information on the age, sex, education, length away from household, current locations, activity status and occupation of children living outside the household. Additional information is collected on remittances to the household from children living outside the household.
Module P: Other Income	This module collects information on household income from interest, pensions, rentals, or other income over the past 12 months.
Module Q: Gifts Given Out	This module collects information on cash, food, or other in-kind items given by the household, in the past 12 months.
Module R: Social Safety Nets	This module collects information on receipts and value of social safety nets including, cash, food, or other aid from programs. Additionally this module collects information on household member recipients of the aid, decision making for aid received, and number of months aid was received.
Module S: Credit	This module collects information on household credit, specifically where the credit was acquired, who is responsible for the loan, reason credit was obtained, how much was borrowed, timing of loan, and expected pay-off. Additionally this module collect information on attempted credit and reasons for being turned down.
Module T: Subjective Assessment of Well-being	This module collects information on the respondent's assessment of his/her family's situation regarding food consumption, housing, clothing, health care, financial level, and income level. The intended respondent for this module is the head of household. Additionally this module asks the head of household about the number of changes of clothes owned, and bedding type.
Module U: Shocks & Coping Strategies	This module collects information on shocks on the household in the past 3 years such as crop disease, theft of livestock, death of family members and how many times these shocks have happened in the past 3 years. Respondents are asked to rank the 3 most severe shocks experienced within a 12 month period(filtered based on date from those listed as having happened in the past years) and report on the impact of the shock on income, assets, food production, food stocks and food purchases as well as what was done by the household in response to the shock.
Module V: Child Anthropometry	This module collects weight and height/length measurements as well as observed oedema for children of age 0-60 months. Additionally, this module collects information on child participation in nutrition programs and under five clinics. **Note:** The age group was adjusted downwards from 0 for this round.

Module W: Deaths in the Household	This module records information on family members who have died in the past two years and collects information on the type of work previously performed, age at death, and previous illness of deceased household member. It also collects information on the diagnosis source of cause of death and assets lost due to the death.
Module X: Filter Questions for Agriculture & Fishery	This module contains filter questions on the presence of agricultural, livestock and or fisheries in the household.
Network Roster	This module collects information on the characteristics of the networks of households such as friends, relatives, employers, government agencies and private institutions.

2.82 Agriculture Questionnaire

All IHS5 households that are identified as being involved in agricultural or livestock activities were administered the Agriculture Questionnaire, which is primarily modelled after the IHS4 counterpart. The development of the agriculture questionnaire was done with input from the aforementioned stakeholders who provided input on the household questionnaire as well as outside researchers involved in research and policy discussions pertaining to the Malawian agriculture. The Agriculture Questionnaire allows, among other things, for extensive agricultural productivity analysis through the diligent estimation of land areas, both owned and cultivated, labor and non-labor input use and expenditures, and production figures for main crops, and livestock. Although one of the major foci of the agriculture data collection effort was to produce smallholder production estimates for major crops, it is also possible to disaggregate the data by gender and main geographical regions. **Table 7** includes the descriptions of the modules. The IHS5 cross-sectional households supply information on the last completed rainy season (2017/2018 or 2018/2019) and the last completed dry season (2018 or 2019) depending on the timing of their interview.

Table 7: Contents of the IHS5 Agriculture Questionnaire

Module	**Description**
Module B_2: Garden Details (Rainy Season)	This module was **adjusted** in 2019 and collects information on details of how the garden was acquired, proceeds from renting out the garden, obligations arising from renting in the garden and decision makers as regards the proceeds from the garden. It also collects information on concerns of ownership of a garden. **Some** information that was collected using this module in 2016 was transferred to the land roster (Module F1 in the household questionnaire) in 2019.

Module C: Plot Roster (Rainy Season)	This module contains the information of agriculture plots owned and/or cultivated by household members during the reference rainy season. More specifically, it reports the location and description and area of the plot.
Module D: Plot Details (Rainy Season)	This module collects detailed plot information (agricultural practices and plot characteristics, use of organic and inorganic fertilizers, use of pesticides/herbicides, and labor inputs) for the reference rainy season. This module also asks a series of questions on sustainable agriculture: trees, cover crops, crop residue disposal, land preparation.
Module E: Coupon Use (Rainy Season)	This module collects information about quantity/type of input coupons/vouchers and how they were obtained and used during the reference rainy season.
Module F: Other Inputs (Rainy Season)	This module collects information about the inputs used for cultivation and their costs, specifically pesticides and herbicides, during the reference rainy season. It elicits information on the main sources of the input purchased without coupons/vouchers, any input received for free, any input that was left over from a previous season and own-produced organic fertilizer.
Module G: Crops (Rainy Season)	This module collects information about the crops grown by the household on each plot during the reference rainy season such as the type of crop stand, area of plantation, the amount of seed used and when it was planted, and the details of the harvest.
Module H: Seeds (Rainy Season)	This module collects information about seeds and how they were acquired during the rainy season. More specifically, it elicits information on the main sources of the seed purchased without coupons/vouchers, any seed received for free, and any seed that was left over from a previous season.
Module I: Sales/Storage (Rainy Season)	This module collects information on the quantity and value of crops sold, the main buyers/outlet, alternative uses, post-harvest losses and storage during the reference rainy season.
Module I_1: Post Harvest Labour (Rainy Season)	This is a **new** module whose questions were added to Module I in 2019. This module collects information on post-harvest labour activities for a particular crop.
Module I_2: Garden Details (Dry Season)	This module was **adjusted** in 2019 and collects information on details of how the garden was acquired, proceeds from renting out the garden, obligations arising from renting in the garden and decision makers as regards the proceeds from the garden. It also collects information on concerns of ownership of a garden. **Some** information that was contained in this module as per the 2016 setup was transferred to the land roster (Module F1 in the household questionnaire).

Module J: Plot Roster (Dry Season)	This module contains the information of agriculture plots owned and/or cultivated by household members during the reference dry (dimba) season. More specifically, it reports the location and description and area of the plot. Enumerators identify whether the plot of land was part of a rainy season or dry season garden.
Module K: Plot Details (Dry Season)	This module collects detailed plot information (agricultural practices and plot characteristics, use of organic and inorganic fertilizers, use of pesticides/herbicides, and labor inputs) for the reference dry (dimba) season.
Module L: Other Inputs (Dry Season)	This module collects information about the inputs used for cultivation and their costs, specifically pesticides and herbicides, during the reference dry (dimba) season. More specifically, it elicits information on the main sources of the input purchased without coupons/vouchers, any input received for free, any input that was left over from a previous season and own-produced organic fertilizer.
Module M: Crops (Dry Season)	This module collects information about the crops grown by the household on each plot during the reference dry (dimba) such as the type of crop stand, area of plantation, the amount of seed used and when it was planted, and the details of the harvest.
Module N: Seeds (Dry Season)	This module collects information about seeds and how they were acquired during the reference dry (dimba) season. More specifically, it elicits information on the main sources of the seed purchased without coupons/vouchers, any seed received for free, and any seed that was left over from a previous season.
Module O: Sales Storage (Dry Season)	This module collects information on the quantity and value of crops sold, the main buyers/outlet, alternative uses, post-harvest losses and storage during the reference dry (dimba) season.
Module O_1: Post Harvest Labour (Dry Season)	This is a **new** module whose questions were added to Module O in 2019. This module collects information on post-harvest labour activities for a particular crop.
Module O_2: Plot Roster Tree Crop Production	This module collects basic information on plots owned and/or cultivated with tree crops by household members during the last 12 months, specifically the area and GPS coordinates of each plot.
Module P: Tree / Permanent Crop Production (Last 12 Months)	This module collects information on crop-stand, area planted, number of trees owned, pre-harvest losses, and amount harvested.
Module Q: Tree/Permanent Crop Sales/Storage (Last 12 Months)	This module collects information on amount sold (value of sales) / given out / used as input for crop by-product / lost / currently in storage.

Module Q_I: Post Harvest Labour (Rainy Season)	This is a **new** module whose questions were added to Module Q in 2019. This module collects information on post-harvest labour activities for a particular crop.
Module R: Livestock	This module collects information on number currently owned, owners and responsible individuals in the household, inflow/outflow of livestock through various means in the past twelve months, vaccinations, expenditures in the past twelve months on various items
Module S: Livestock Products	This module collects information on amount produced, sales and expenditures.
Module T: Access to Extension Services	This module collects information on where households receive advice/ information on agriculture and how useful the source has been during the last 12 months.
Network Roster	This module collects information on the characteristics of the networks of households such as friends, relatives, employers, government agencies and private institutions.

2.83 Fishery Questionnaire

The design of the IHS5 Fishery Questionnaire is identical to the questionnaire designed for IHS3. The IHS3 Fisheries Questionnaire was informed by the design and piloting of a fishery questionnaire by the World Fish Center (WFC), which was supported by the World Bank LSMS-ISA initiative for the purpose of assembling a fishery questionnaire that could be integrated into multi-topic household-surveys. **Table 8** presents the list and description of the fishery questionnaire modules.

Table 8: Contents of the IHS5 Fishery Questionnaire

Module	**Description**
Module B: Fisheries Calendar	This module asks the respondent to indicate the status of fishing months for the community as either “high”, “low”, or “no fishing” months.
Module C & G: Fisheries Labour (Last High Season) (Last Low Season)	This module elicits information on household members’ time allocation to fishing. Specifically, this module asks household members to record the number of weeks, days per week, and hours per day that they allocated to full-time fishing, part-time fishing, fish processing and or fish trading during the last high / low season respectively.
Module D & H: Fisheries Input (Last High Season) (Last Low Season)	This module collects information on inputs to fishing, including ownership, purchases, and rentals. Additionally, this module collects information on use of boats and engines, hired labor, and other inputs in high and low fishing season respectively.

Module E & I: Fisheries Output (Last High Season) (Last Low Season)	This module collects output from fishing activities and owned fishing equipment, including: total catch, sales, consumption, and revenue generated from renting fishing equipment out for high and low season respectively.
Module F & J: Fish Trading (Last High Season) (Last Low Season)	This module elicits information on purchases and sales associated with the household's fish trading activities, high and low season respectively, for the 5 main species of fish.

2.84 Community Questionnaire

The content of the IHS5 Community Questionnaire follows the content of the IHS3 and IHPS 2013 Community Questionnaires. A "community" is defined as the village or urban location surrounding the enumeration area selected for inclusion in the sample and which most residents recognize as being their community. The IHS5 community questionnaire was administered in communities associated with the 710 cross-sectional EAs.[2] Identical to the IHS4 approach, to a group of several knowledgeable residents such as the village headman, the headmaster of the local school, the agricultural field assistant, religious leaders, local merchants, health workers and long-term knowledgeable residents. The instrument gathers information on a range of community characteristics, including religious and ethnic background, physical infrastructure, access to public services, economic activities, communal resource management, organization and governance, investment projects, and local retail price information for essential goods and services. **Table 9** presents the list and description of the community questionnaire modules.

Table 9: Contents of the IHS5 Community Questionnaire

Module	**Description**
Module CB: Roster of Informants	This module lists the group of informants and their age, sex, positions in community, length of residence in the community, education and language spoken.
Module CC: Basic Information	This module collects basic characteristics of the community, including: population, number of households, major religions, languages spoken, common marriage types, land characteristics and use, number of registered voters and ability to address resource priorities.

[2] One important note is that three community interviews were duplicated for the cross-sectional and panel community datasets. When teams approached these EAs they discovered that the communities overlapped to the extent that respondents would have been the same so only one community interview was conducted and matched to both EAs.

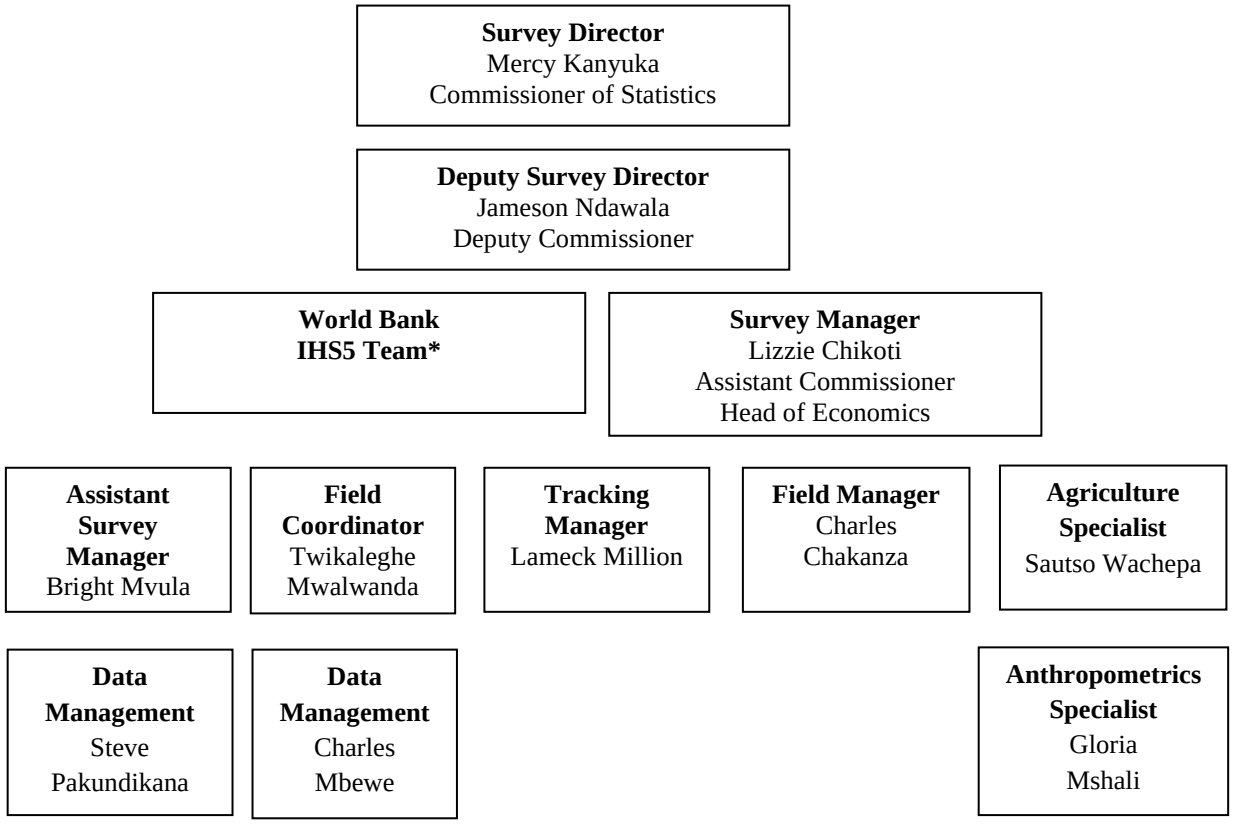
Module CD: Access to basic Services	This module collects information on the community access to and characteristics of transportation networks, markets, ADMARC market, post office, telephone services, churches, schools, health services, and banking services.
Module CE: Economic Activities	This module collects basic information on the primary work activities of community members.
Module CF: Agriculture	This module collects basic information on the prevalence and type of agricultural activities and agricultural facilities.
Module CG: Changes	This module asks respondents to identify changes since 2016 that have made people worse off or better off, such as: drought, flood, changes in prices, changes in access to services, including health facilities, social services, schools, roads, transportation, among others. Additionally, respondent groups are asked to list when these major events occurred and what share of the community they affected.
Module CH: Community needs, Actions & Achievements	This module asks the respondent group to report on any needs (road and bridge maintenance/construction, school and health center improvement, piped water/boreholes/wells and maize mills construction, orphanage construction, public transportation and law enforcement improvement and the addition of agricultural/fishery/livestock extension services) that community members have expressed during the last 3 years. It then details whether or not the community members took any action to meet these needs and how they went about doing so.
Module CI: Communal Resource Management	This module collects information on communal resources owned by the community and how the rules of access are determined. It further elicits information about how compliance with these rules is enforced among both community members and outsiders.
Module CJ: Communal Organization	This module asks the informed respondent group to report on the presence in the community of listed organizations. It further collects information on the number of specific groups, meeting frequency, size of membership, female and younger adult participation.
Module CK	This module asks the informed respondent group to report on selected items available for sale in the community or nearby at the time of the interview. It further collects information the prices of these items if they are available in the community.

3.0 ORGANIZATION OF THE SURVEY

3.1 Survey Management

The IHS5 was executed by the National Statistical Office, under the direction of the Commissioner of Statistics and the IHS5 Management Team. The management team was responsible for questionnaire design, recruitment of personnel, training of personnel, and implementation of the survey. **Figure 1** outlines the composition of the IHS5 Management Team.

Figure 1: IHS5 Management Team



Note: * Composed of Talip Kilic (Senior Economist), Heather Moylan (Survey Specialist), John Ilukor (Economist), Wilbert Vundru Drazi (IHS5 Resident Advisor).

3.2 Training of Field Staff

Field staff for the IHS5 and the IHS5 was selected after advertisements were placed in the national newspapers advertising posts for enumerators as was the case in the IHS4. Interviews were conducted to determine the most qualified candidates.

Training instruction was given to the field staff by the IHS5 Management Team with help from World Bank LSMS-ISA team members. The training consisted of classroom instruction on the contents of the questionnaire, concepts and definitions, interview techniques and methods, and field practices in performing actual interviews to ensure that Enumerators fully understood the questionnaire. Training instructions are detailed in the Enumerator and Field Supervisor's Manuals.

At the end of the training session, trainees were assessed based on tests given during the training process and evaluations by the supervisory personnel. 72 candidates were selected to be Field Enumerators and 18 members of NSO staff were chosen to be supervisors.

3.3 Pre-Enumeration Listing

Pre-enumeration listings were initiated before the start of Quarter 1 and Quarter 3. Mobile listing teams equipped with printed maps of select EAs were used to record all dwellings and the heads of households in the selected cross-sectional IHS5 EAs. Household counts per each listed enumeration areas were relayed to the NSO IHS5 Management, and were recorded. Where applicable, listing forms and maps were transferred directly to field teams after the completion of district listing activities. The Listing for the IHS5 was done using the World Bank's Survey Solutions CAPI software.

3.4 Field Work Implementation

The IHS5 fieldwork began in April 2019 and was administered simultaneously throughout the country until 10 April 2020 when the teams were recalled due to the COVID-19 outbreak. 18 field-based mobile teams consisting of 1 supervisor, 4 enumerators and 1 driver were assigned to cover specific districts. 51 sampled EAs were not visited because of the pandemic.

3.41 Field Supervisors

The IHS5 field-based supervisors were responsible for managing the daily operations of their respective field based mobile team. Each team supervisor received enumeration assignment schedules throughout the fieldwork. Enumeration assignments were further accompanied by (1) enumeration area maps, (2) completed listing forms, (3) the list of selected as well as replacement households to be interviewed in each EA (4) the Survey Solutions assignments for the selected EA from headquarters.[3]

Primary responsibilities included: (1) liaising with IHS5 management on schedules, field operation status, equipment status and needs, and special issues, (2) planning daily field operation schedules including coverage and transportation, (3) liaising with local authorities before commencing interview activities, (3) making Survey Solutions questionnaire assignments on CAPI and syncing completed interviews with their Supervisor account (4) reviewing incoming questionnaires for completion and accuracy, (5) syncing reviewed questionnaires with the Headquarters account, (6) reviewing error reports from Headquarters generated through Stata checking system and assigning questionnaire reviews, and authorizing review/call back based on these reports, (7) administering community questionnaires within each enumeration area.

[3] Assignments for households tracked outside of their original EA were made upon request. To avoid a large number of assignments on the tablets at a time, EA assignments from headquarters were made approximately 48 priors to teams starting interviews in a new EA.

3.32 Enumerators

Field based mobile teams consisted of 4 enumerators to field household interviews over the course of the scheduled fieldwork. An enumerator's major areas of responsibility were to accurately and completely administer the Household, Agriculture, and Fishery questionnaires. The enumerators were responsible for: (1) locating assigned households, (2) relaying the source and purpose of the survey and obtaining respondent permission to implement the interview, (3) implementing all pertinent questionnaire modules, (4) systematically obtaining anthropometric measures for qualified household members, (5) using GPS technology to mark and record household locations and take agricultural field measurements, and (6) participating in the review and correction of questionnaires.

3.40 Field Work Monitoring and Evaluation

The IHS5 field operations were regularly monitored through visits to the field based teams by the NSO IHS5 Managers, the World Bank IHS5 Resident Advisor, and the technical missions from the World Bank LSMS-ISA team. In addition, data transmitted from the field was regularly reviewed for completeness and quality by the NSO IHS5 Managers with the assistance of the World Bank IHS5 Resident Advisor. The incoming data was organized and regularly checked for completeness and quality at the national-, district-, team-, and enumerator-level. The issues that were found in instrument implementation, general quality, or other technical issues were reviewed, and the appropriate corrective action taken by the NSO IHS5 Managers and technical support staff either through revised field notes, additional field visits, remote communication directly with the field supervisors and/or general Whatsapp/SMS messages relayed to all teams.

After the first quarter of fieldwork, field supervisors and assistants were recalled to the cities of the different regions (Mzuzu, Blantyre, Lilongwe and Zomba) to discuss observations and concerns by field supervisors and to address observed concerns in the data. In general, field based teams demonstrated extremely high commitment to collecting high quality data and the successful completion of the IHS5 survey with the assistance of the NSO IHS5 Management team. In a few cases, however, failure to alleviate quality concerns through the above mentioned methods and individual coaching efforts lead to the restructuring of select field teams and or the replacement of field based staff.

4.0 DATA ENTRY AND DATA MANAGEMENT

4.1 Data Entry Platform

To ensure data quality and timely availability of data, the IHS5 was implemented using the World

Bank's *Survey Solutions* CAPI software.[4] To carry out IHS5, 1 laptop computer and a wireless internet router were assigned to each team supervisor, and each enumerator had an 8–inch GPS-enabled Lenovo tablet computer that the NSO provided. The use of *Survey Solutions* allowed for the real-time availability of data as the completed data was completed, approved by the Supervisor and synced to the Headquarters server as frequently as possible. While administering the first module of the questionnaire the enumerator(s) also used their tablets to record the GPS coordinates of the dwelling units. Geo-referenced household locations from that tablet complemented the GPS measurements taken by the Garmin eTrex 30 handheld devices and these were linked with publicly available geospatial databases to enable the inclusion of a number of geospatial variables - extensive measures of distance (i.e. distance to the nearest market), climatology, soil and terrain, and other environmental factors - in the analysis.

4.2 Data Management

The IHS5 *Survey Solutions* CAPI based data entry application was designed to stream-line the data collection process from the field. IHS5 Interviews were collected in "sample" mode (assignments generated from headquarters) as opposed to "census" mode (new interviews created by interviewers from a template) for the NSO to have more control over the sample.

The range and consistency checks built into the application was informed by the LSMS-ISA experience with the IHS3 2010/11, IHPS 2013, IHPS 2016 and IHS4. Prior programming of the data entry application allowed for a wide variety of range and consistency checks to be conducted and reported and potential issues investigated and corrected before closing the assigned enumeration area. Headquarters (the NSO management) assigned work to the supervisors based on their regions of coverage. The supervisors then made assignments to the enumerators linked to their supervisor account. The work assignments and syncing of completed interviews took place through a Wi-Fi connection to the IHS5 server. Because the data was available in real time it was monitored closely throughout the entire data collection period and upon receipt of the data at headquarters, data was exported to Stata for other consistency checks, data cleaning, and analysis.

4.3 Data Cleaning

The data cleaning process was done in several stages over the course of fieldwork and through preliminary analysis. The first stage of data cleaning was conducted in the field by the field-based field

[4] For background and documentation on *Survey Solutions*, please visit https://mysurvey.solutions/. The software platform is available free of charge and is being developed by the World Bank Development Data Group - Data Analytics and Tools Unit (DECAT). To access Survey Solutions Designer, please visit and sign up as a user at https://designer.mysurvey.solutions/. All IHS5 CAPI questionnaires are available free of charge to any interested implementing agency.

teams utilizing error messages generated by the Survey Solutions application when a response did not fit the rules for a particular question. For questions that flagged an error, the enumerators were expected to record a comment within the questionnaire to explain to their supervisor the reason for the error and confirming that they double checked the response with the respondent. The supervisors were expected to sync the enumerator tablets as frequently as possible to avoid having many questionnaires on the tablet, and to enable daily checks of questionnaires. Some supervisors preferred to review completed interviews on the tablets so they would review prior to syncing but still record the notes in the supervisor account and reject questionnaires accordingly. The second stage of data cleaning was also done in the field, and this resulted from the additional error reports generated in Stata, which were in turn sent to the field teams via email or DropBox. The field supervisors collected reports for their assignments and in coordination with the enumerators reviewed, investigated, and collected errors. Due to the quick turn-around in error reporting, it was possible to conduct call-backs while the team was still operating in the EA when required. Corrections to the data were entered in the rejected questionnaires and sent back to headquarters.

The data cleaning process was done in several stages over the course of the fieldwork and through preliminary analyses. The first stage was during the interview itself. Because CAPI software was used, as enumerators asked the questions and recorded information, error messages were provided immediately when the information recorded did not match previously defined rules for that variable. For example, if the education level for a 12 year old respondent was given as post graduate. The second stage occurred during the review of the questionnaire by the Field Supervisor. The Survey Solutions software allows errors to remain in the data if the enumerator does not make a correction. The enumerator can write a comment to explain why the data appears to be incorrect. For example, if the previously mentioned 12-year-old was, in fact, a genius who had completed graduate studies. The next stage occurred when the data were transferred to headquarters where the NSO staff would again review the data for errors and verify the comments from the enumerators and supervisors regarding anomalies that remain.

Additional cleaning was performed after interviews were “Approved” where appropriate to resolve systematic errors and organize data modules for consistency and efficient use. Case by case cleaning was also performed during the preliminary analysis specifically pertaining to out of range and outlier variables.

All cleaning activities were conducted led by the NSO, and the World Bank LSMS-ISA team provided technical assistance.

5.0 USING THE IHS5 DATA

It is strongly recommended that the end user of the IHS5 data familiarize themselves with the

questionnaires and manuals while using the IHS5 data. The naming of IHS5 data files follows the instrument name and module lettering as listed in the questionnaires and variable names, whenever possible, reflect question numbers as presented in relative modules. In the STATA versions of the data, variable labels, whenever possible, perfectly match the question asked in the questionnaires. In some cases, it was necessary to modify the variable labels and cross-referencing the questionnaires will be necessary for accurate use of the data.

To increase the efficiency with which the survey instruments were administered, the IHS5 instruments make extensive use of skip patterns. End users of the IHPS data must be aware of these skip patterns to properly interpret the data. When referencing the available paper questionnaires note that skip patterns are, in most cases, clearly identified by an arrow followed by a number in parentheses (>> 2).[5] The skip codes are explained in detail in the Enumerator Manual.

5.1 File Structure, Key Identifiers

The file structure of the IHS5 data directly reflects the modules in the questionnaires. Where modules in the questionnaire contain data with multiple levels of observation, data files have been divided with additional numeric labels. It is recommended that end users of the IHPS data refer to the questionnaires and manuals when using the data. The index of data files, along with key identifiers relevant for merging data from different modules, are presented in Tables 10-13.

IHS5 data files follow an intuitive naming scheme for easy use by the end user. Each file name gives reference to the instrument component, "HH" (Household), "AG" (Agriculture), "FS" (Fishery) and "COM" (Community) and the specific module as they appear in the questionnaires. For example, file "HH_MOD_B" refers to Household Module B; Household Roster. Similarly, file "AG_MOD_Q", for example, refers to Agriculture Module Q; "Tree / Permanent Crop Production (Over the Last 12 Months)". In modules that contain sub-sections with varying levels of observation, a number has been added to the tail of the file name, "HH_MOD_G1" and "HH_MOD_G2" for example. The numbers are sequential with how the module appears in the questionnaire.

5.2 Household Level Instruments

The cover sheet for the household questionnaire (HH_MOD_A_FILT) captures information on the location of the observation, district, traditional authority (TA) and the specific EA, as well as other observation level identification, for example, household identification for the household instrument. The variable "**ea_id**" has been created and serves as the lowest common level of aggregation for all IHS5 instruments. The variable "**reside**" identifies urban vs. rural Eas and is included in the data set

[5] Skip patterns were automatically taken into account in the CAPI application.

named HH_MOD_A_FILT.

The ea_id is unique for each EA and is made up of the district, traditional authority, and EA codes. To provide unique district identification at the national level in the IHS5 data, district number is the concatenation of the single digit region code ("1" for Northern Region, "2" for Central Region, "3" for Southern Region) and the two digit district code composed with the respective region. For example, the unique district identification for the administrative district of Dedza is "208"; "2" (Central Region) + "08" (Region District Code). The variable "ea_id" is an 8-digit code that provides for the unique identification of sampled Eas. "ea_id" is specifically comprised of the three-digit unique district code, the 2-digit TA code, and the 3-digit enumeration area. For example, the unique enumeration identification, "20807055" is the combination of district variable "hh_a01" ("208"), TA variable "hh_a02" ("07") + EA variable "hh_a03" ("055").[6]

Moreover, each household questionnaire was assigned a household identification number corresponding to the number of the dwelling recorded on the household listing forms. This four-digit number was combined with the unique enumeration area identification to yield the "**case_id**" household unique identification across the IHS5 datasets. For example, "case_id" number "208070550160" is the combination of "ea_id" 20807055" and household number ,"hh_a06", "0160". The variable "case_id" is unique to the household and is repeated in every module of the household, agriculture and fishery data.

For household modules B through E, the level of observation is household member. The variable, "**PID**" refers to the roster row for the household member and when used in conjunction with "**case_id**" can uniquely identify individuals within the household across household modules of similar level of observation.

5.3 Community Level Instruments

The community questionnaire was administered in the 710 Eas and observations are uniquely identified by using the "**ea_id**" variable.

5.4 Confidential Information, Geospatial Variables

To maintain the confidentiality of our respondents, certain parts of the IHS5 database have not been made publicly available. The confidential variables pertain to (i) names of the respondents to the household and community questionnaires, (ii) village and constituency names, (iii) descriptions of

[6] The users that have access to 2018 PHC data or the list of 2018 PHC EAs will not be able to match their databases with the IHS5 data on an EA-basis, since the last three digits of IHS5 ea_id have been replaced with a randomly generated three digit code in the construction of the IHS5 database for confidentiality purposes.

household dwelling and agricultural plot locations, (iv) phone numbers of household members and their reference contacts, (v) GPS-based household and agricultural plot locations, (vi) names of the children of the head/spouse living elsewhere, (vii) names of the deceased household members, (viii) names of individuals listed in the network roster, and (ix) names of field staff.

To enhance the IHS5 data, a set of geospatial variables has been generated using the georeferenced field and household locations in conjunction with various geospatial databases that were available to the survey team. These include simple measures of distance, climatology, soil and terrain and other environmental factors. Time-series on rainfall and vegetation have also been used to describe the survey agricultural season relative to normal conditions. The variables are intended to provide contextual information at the landscape level. The file **IHS5.Geovariables.Description.pdf** provides the name, type, source, reference period, resolution, description, and source of each variable. Household geospatial variables in the public release have been produced using anonymized location data (see below for description of anonymization method).

The geo-variables are stored in two data files, one at the household-plot-level, the other at the household-level. The plot-level file, named **PlotGeovariables_IHS5.dta**, contains several geospatial variables describing the physical landscape and plot distance to household. The observations are uniquely identified by the combination of **case_id gardenid plotid**. The observations included in this file are rainy season, dry season and permanent crop plots that are owned and/or cultivated by the household and that have been visited for GPS-based land area measurement. The rest of the geovariables are stored in **HouseholdGeovariables_IHS5.dta** and the observations are uniquely identified by **case_id**. To partially satisfy the demand for geo-referenced household and community locations while preserving the confidentiality of sample household and communities, we have computed the average of household GPS coordinates in each EA, applied a random offset within a specified range to the average EA value (following the MeasureDHS methodology) and provided the off-set EA latitudes and longitudes as part of **HouseholdGeovariables**. In some remote locations the coordinate modification does not provide sufficient anonymization and the coordinates are suppressed.

More specifically, the coordinate modification strategy relies on random offset of cluster center-point coordinates (or average of household GPS locations by EA) within a specified range determined by an urban/rural classification. For urban areas a range of 0-2 km is used. In rural areas, where communities are more dispersed and risk of disclosure may be higher, a range of 0-5 km offset is used. An additional 0-10 km offset for 10% of rural clusters effectively increases the known range for all rural points to 10 km while introducing only a small amount of noise. Offset points are constrained at the district level, so that they still fall within the correct district for spatial joins, or point-in-polygon overlays. The result is a set of coordinates, representing EA location, that fall within known limits of accuracy. Users should take into account the offset range when considering different types of spatial analysis. Analysis of the spatial relationships between locations in close proximity would not be reliable. However, spatial queries using medium or low-resolution datasets should be minimally affected by the offsets. Zonal statistics (average or range of values within an area corresponding to the known range) could help minimize the effect of offsets when combining with large scale data or high-resolution grids with a high degree of local variation.

Table 10: Structure of the IHS5 Household Database

File Name	Module Name	Level of Analysis	Identification Variable(s)
HH_MOD_A_FILT	Module A: Household Identification	Household	case_id
HH_MOD_B	Module B: Household Roster	Individual	case_id PID
HH_MOD_C	Module C: Education	Individual	case_id PID
HH_MOD_D	Module D: Health	Individual	case_id PID
HH_MOD_E	Module E: Time Use & Labour	Individual	case_id PID
HH_MOD_F	Module F: Housing	Household	Case_id
HH_MOD_F1	Module F1: Land Roster	Garden	case_id gardenid
HH_MOD_G1	Module G: Food Consumption Over Past One Week	Consumption Item	case_id hh_g02
HH_MOD_G2	Module G: Food Consumption Over Past One Week	Food Group	case_id hh_g08*
HH_MOD_G3	Module G: Food Consumption Over Past One Week	Age Group	case_id hh_g10a
HH_MOD_H	Module H: Food Security	Household	case_id
HH_MOD_I1	Module I: Non-Food Expenditures – Over Past One Week & One Month	Consumption Item	case_id hh_i02
HH_MOD_I2	Module I: Non-Food Expenditures – Over Past One Week & One Month	Consumption Item	case_id hh_i05
HH_MOD_J	Module J: Non-Food Expenditures – Over Past Three Months	Consumption Item	case_id hh_j02
HH_MOD_K	Module K: Non-Food Expenditures – Over Past 12 Months	Consumption Item	case_id hh_k02
HH_MOD_L	Module L: Durable Goods	Durable Good	case_id hh_l02
HH_MOD_M	Module M: Farm Implements, Machinery, and Structures	Farm Implement	case_id hh_m0b
HH_MOD_N1	Module N: Household Enterprises	Household	case_id
HH_MOD_N2	Module N: Household Enterprises	Household Enterprise	case_id hh_n09a
HH_MOD_O	Module O: Children Living Elsewhere	Child of Head/Spouse Living Elsewhere	case_id hh_o0a
HH_MOD_P	Module P: Other Income	Income Type	case_id hh_p0a
HH_MOD_Q	Module Q: Gifts Given Out	Gift Type	case_id D hh_q0a
HH_MOD_R	Module R: Social Safety Nets	Program	case_id hh_r0a
HH_MOD_S1	Module S: Credit	Loan	case_id hh_s02
HH_MOD_S2	Module S: Credit	Household	case_id
HH_MOD_T	Module T: Subjective Assessment	Household	case_id

	Of Well-Being		
HH_MOD_U	Module U: Shocks & Coping Strategies	Shock	case_id hh_u0a
HH_MOD_V	Module V: Child Anthropometry	Individual	case_id PID
HH_MOD_W	Module W: Deaths In Household	Deceased Individual	case_id hh_w01
HH_MOD_X	Module X: Filter Questions For Agriculture & Fishery Questionnaires	Household	case_id

Table 11: Structure of the IHS5 Agriculture Databases

File Name	Module Name	Level of Analysis	Identification Variable(s)
AG_META	Agriculture Questionnaire Metadata (Contains time stamps and respondent IDs for each module)	Household	case_id
AG_MOD_B2	Ag-Module B_2: Garden Details – [Rainy Season]	Garden	case_id gardenid
AG_MOD_C	Ag-Module C: Plot Roster – [Rainy Season]	Plot	case_id gardenid plotid
AG_MOD_D	Ag-Module D: Plot Details – [Rainy Season]	Plot	case_id gardenid plotid
AG_MOD_E1	Ag-Module E: Coupon Use – [Rainy Season]	Individual-Coupon Type	case_id ag_e0b ag_e0c
AG_MOD_E2	Ag-Module E: Coupon Use – [Rainy Season]	Individual-Coupon Type	case_id ag_e0e ag_e0g
AG_MOD_E3	Ag-Module E: Coupon Use – [Rainy Season]	Household	case_id
AG_MOD_E4	Ag-Module E: Coupon Use – [Rainy Season]	Coupon Type	case_id ag_e30
AG_MOD_F	Ag-Module F: Other Inputs – [Rainy Season]	Input Type	case_id ag_f0c
AG_MOD_G	Ag-Module G: Crops – [Rainy Season]	Plot-Crop	case_id gardenid plotid crop_code
AG_MOD_H	Ag-Module H: Seeds – [Rainy Season]	Seed Type	case_id crop_code
AG_MOD_I	Ag-Module I: Sales/Storage – [Rainy Season]	Crop	case_id crop_code
AG_MOD_I_1	Ag-Module I_1: Harvest Labour [Rainy Season]	Individual-Crop Type	case_id id_code crop_code
AG_MOD_I2	Ag-Module I2: Garden Details – [Dry Season]	Garden	case_id gardenid
AG_MOD_J	Ag-Module J: Plot Roster – [Dry (Dimba) Season]	Plot	case_id gardenid plotid
AG_MOD_K	Ag-Module K: Plot Details – [Dry (Dimba) Season]	Plot	case_id gardenid plotid

AG_MOD_L	Ag-Module L: Other Inputs - [Dry (Dimba) Season]	Input Type	case_id ag_l0c
AG_MOD_M	Ag-Module M: Crops – [Dry (Dimba) Season]	Plot-Crop	case_id gardenid plotid crop_code
AG_MOD_N	Ag-Module N: Seeds – [Dry (Dimba) Season]	Seed Type	case_id crop_code
AG_MOD_O	Ag-Module O: Sales/Storage – [Dry (Dimba) Season]	Crop	case_id crop_code
AG_MOD_O_1	Ag-Module I_1: Harvest Labour [Dimba Season]	Individual-Crop Type	case_id id_code crop_code
AG_MOD_O2	Ag-Module O_1: Plot Roster Tree Crop Production	Plot	case_id gardenid
AG_MOD_P	Ag-Module P: Tree / Permanent Crop Production Last 12 Months	Plot-Tree Crop	case_id gardenid plotid crop_code
AG_MOD_Q	Ag-Module Q: Tree/Permanent Crop Sales/Storage Last 12 Months	Tree Crop	case_id crop_code
AG_MOD_Q_1	Ag-Module Q_1: Harvest Labour [Tree/Perm Season]	Individual-Crop Type	case_id id_code crop_code
AG_MOD_R1	Ag-Module R: Livestock	AnimalType	case_id ag_r0a
AG_MOD_R2	Ag-Module R: Livestock	Household	case_id
AG_MOD_S	Ag-Module S: Livestock Products	By-product	case_id ag_s0a
AG_MOD_T1	Ag-Module T: Access To Extension Services	Extension Source	case_id ag_t0a
AG_MOD_T2	Ag-Module T: Access To Extension Services	Extension Source	case_id ag_t0b
AG_NETWORK	Network Roster	Roster Member	case_id Id

Table 12: Structure of the IHS5 Fishery Databases

File Name	**Module Name**	**Level of Analysis**	**Identification Variable(s)**
FS_MOD_B_FILT	Module B: Fisheries Calendar	Household	case_id
FS_MOD_C	Module C: Fisheries Labour (Last High Season)	Individual	case_id fs_c00
FS_MOD_D1	Module D: Fisheries Input (Last High Season)	Fishing Gear	case_id Fishing_GearID
FS_MOD_D2	Module D: Fisheries Input (Last High Season)	Boat/Engine	case_id Boats_EnginesID
FS_MOD_D3	Module D: Fisheries Input (Last High Season)	Household	case_id
FS_MOD_E1	Module E: Fisheries Output (Last High Season)	Fish Type	case_id fs_e02
FS_MOD_E2	Module E: Fisheries Output (Last High Season)	Fishing Gear	case_id Rented_Out_GearID
FS_MOD_F1	Module F: Fish Trading	Fish Type	case_id fs_f01

	(Last High Season)		
FS_MOD_F2	Module F: Fish Trading (Last High Season)	Cost Item	case_id CostsID
FS_MOD_G	Module G: Fisheries Labour (Last Low Season)	Individual	case_id PID
FS_MOD_H1	Module H: Fisheries Input (Last Low Season)	Fishing Gear	case_id Fishing_GearID
FS_MOD_H2	Module H: Fisheries Input (Last Low Season)	Boat/Engine	case_id Boats_EnginesID
FS_MOD_H3	Module H: Fisheries Input (Last Low Season)	Household	case_id
FS_MOD_I1	Module I: Fisheries Output (Last Low Season)	Fish Type	case_id fs_i02
FS_MOD_I2	Module I: Fisheries Output (Last Low Season)	Fishing Gear	case_id Rented_Out_GearID
FS_MOD_J1	Module J: Fish Trading (Last Low Season)	Fish Type	case_id fs_j01
FS_MOD_J2	Module J: Fish Trading (Last Low Season)	Cost Item	case_id CostsID

Table 13: Structure of the IHS5 Community Database

File Name	Module Name	Level of Analysis	Identification Variable(s)
COM_CA	Module CA: Community Identification	Community	ea_id
COM_CB	Module CB: Roster Of Informants	Informant	ea_id com_cb01
COM_CC	Module CC: Basic Information	Community	ea_id
COM_CD	Module CD: Access To Basic Services	Community	ea_id
COM_CE	Module CE: Economic Activities	Community	ea_id
COM_CF	Module CF: Agriculture	Community	ea_id
COM_CG	Module CG: Changes	Community	ea_id
COM_CG1	Module CG: Changes	Community	ea_id
COM_CG2	Module CG: Changes	Event	ea_id com_cg35a
COM_CH	Module CH: Community Needs, Actions & Achievements	Need	ea_id com_ch0b
COM_CI	Module CI: Communal Resource Management	Natural Resource	ea_id com_ci0b
COM_CJ	Module CJ: Communal Organization	Communal Group Type	ea_id com_cj0b
COM_CK	Section CK: Prices	Item	ea_id com_ck00a

6.0 Weighting Procedures for the IHS5

For the sample estimates from the IHS5 data to be representative of the population, it is necessary to

multiply the data by a sampling weight, or expansion factor. The basic weight for each sample household is equal to the inverse of its probability of selection (calculated by multiplying the probabilities at each sampling stage).

As indicated in section 2.6, the sample EAs for the IHS5 were selected within each district systematically with PPS from the 2018 Malawi Census frame. At the second stage 16 sample households were selected with equal probability from the listing for each sample EA. Therefore, the overall probability of selection for the IHS5 sample households can be expressed as follows:

$$p_{hi} = \frac{n_h \times M_{hi}}{M_h} \times \frac{m_{hi}}{M'_{hi}},$$

where:

p_{hi} = overall sampling probability for households selected for IHS5 in the i-th sample EA in district h

n_h = number of sample EAs selected in district h for IHS5

M_{hi} = total number of households in the i-th sample EA in district h from the 2018 Malawi Census frame

M_h = total number of households in district h from the 2018 Malawi Census frame

m_{hi} = 16 = number of sample households selected and interviewed for IHS5 in the i-th sample EA in district h

M'_{hi} = total number of households in the new listing for the i-th sample EA in district h

The basic weight for the IHS5 sample households is the inverse of this probability of selection, expressed as follows:

$$W_{hi} = \frac{1}{p_{hi}} = \frac{M_h \times M'_{hi}}{n_h \times M_{hi} \times m_{hi}},$$

where:

W_{hi} = basic weight for the IHS5 sample households in the i-th sample EA in district h

In the case of any sample household that could not be interviewed, a replacement household was randomly selected from the listing to ensure that 16 households were interviewed for the IHS5 cross-sectional survey in each sample EA. However, there were thirteen sample EAs with less than 16 household interviews completed. There were also three sample EAs with 17 households interviewed. In this case m_{hi} was equal to the actual number of household interviews completed in the EA, which has the effect of automatically adjusting the weights for household nonresponse or additional households.

Due to the COVID-19 pandemic, the data collection for IHS5 was suspended around 10 April 2020 before the end of the fourth quarter. For this reason, it was necessary to adjust the basic design weights described above to account for sample EAs that were not enumerated because the data collection was suspended. As described previously, a nationally representative sample of EAs was enumerated each quarter to ensure that the sample was representative over time. Since the sample EAs that were not enumerated were concentrated in the fourth quarter, there was concern about the seasonality effect. Therefore, the weights were adjusted for missing sample EAs separately within each stratum and quarter to minimize any seasonality bias. The weights for the sample households specified above were adjusted as follows:

$$W'_{hqi} = W_{hqi} \times \frac{n_{hq}}{n'_{hq}}$$

where:

W'_{hqi} = adjusted weight for the IHS5 sample households in the i-th EA in the subsample for quarter q in district h

n_{hq} = number of sample EAs in district h selected for quarter q

n'_{hq} = number of sample EAs in district h successfully enumerated in quarter q

Since the IHS5 data collection was completed in all sample EAs for the first 3 quarters, the weight adjustment factor for these quarters was equal to 1. The weight adjustment factors for the EAs in the fourth quarter varied between 1 and 3.

The spreadsheet with the sampling frame information for the 768 sample EAs selected for the IHS5 was used to enter the information on the number of households listed and the number of households with completed IHS5 questionnaires in each sample EA, as well as the sampling parameters for each stratum. Then the specified formula was used for calculating the weight of the sample households in each sample EA. However, in the case of the 51 sample EAs in the fourth quarter that were not enumerated, the weights were calculated as 0 since there were no households interviewed. These missing EAs were represented by the weight adjustment for the enumerated EAs in the stratum and quarter, as described above.

Conceptually the household weights should expand the data to the level of the current population, as long as the listing of households in each sample EA is complete. Although the distribution of the weighted total number of households and total population by district from the final IHS5 data for 12 months appeared reasonable, it was decided to have a further adjustment of the weights based on population projections. In the case of the IHS-3 and IHS-4, the cross-sectional weights were also adjusted based on population projections. Therefore a similar approach was used for adjusting the weights for the IHS5.

6.1. Adjustment of IHS5 Cross-Sectional Weights Based on Population Projections

After calculating the weights for the sample households in the final Malawi IHS5 data set based on the probabilities of selection and the non-interview adjustment as described above, the total weighted population by district from the survey data was tabulated from the survey data and compared to corresponding population projections. Conceptually, if the listing reflects the overall average growth in the number of households across all the sample EAs, the weighted estimates of the total population

would also show a corresponding increase. The basic weights depend on the updating of the sampling frame based on the listing, so if the listing for some sample EAs is not complete, this will lead to a downward bias in the weighted population estimates from the survey data.

The weighted IHS5 population estimates were slightly higher than the corresponding population projections for some districts, and were slightly lower for other districts, due mostly to sampling variability. However, these results indicated that the quality of the listing data for the IHS5 was fairly good. The weights for the IHS-3 and IHS-4 cross-sectional data had been adjusted based on the population projections by district. In order to use a consistent weighting methodology for the IHS5, it was decided to also adjust the weights based on the recent population projections that take into account the results of the 2018 Malawi Census.

The weight adjustment factor based on the projected total population by district can be expressed as follows:

$$A_h = \frac{\hat{P}_{IHS5h}}{\sum_{i\varepsilon h} \sum_j W'_{hi} \times p_{hij}}$$

where:

A_h = adjustment factor for the weights of the IHS5 sample households in district h

$\hat{P}_{IHS5h}$ = projected total population for district h for the mid-point of the data collection period for IHS5, based on demographic analysis

W'_{hi} = basic design weight for the sample households in the i-th sample EA in district h, adjusted for missing sample EAs and non-interviews

p_{hij} = number of persons in the j-th sample household of the i-th sample EA in district h

The denominator of the adjustment factor A_h is the estimated total population in district h from the

IHS5 data using the basic design weights (adjusted for non-interviews). The design weights for all the sample households within a district were multiplied by the corresponding adjustment factor for the district to obtain the final adjusted weights, as follows:

$$W_{Ahi} = W'_{hi} \times A_h ,$$

where:

W_{Ahi} = final adjusted weight for the sample households in the i-th sample EA in district h

After the adjustment factors were applied to the weights of each district, the final weighted survey estimates of total population by district were consistent with the corresponding population projections by district. Of course the accuracy of the estimates of total population based on the adjusted weights depends on the quality of the population projections by district.

The Malawi NSO has produced district-level population projections for each year, based on demographic analysis using the 2018 Malawi Census data and estimates of the different demographic parameters. The reference date for the population projections each year is 1 July. The data collection for the IHS5 was conducted between 22 April 2019 and 10 April 2020, so the mid-point of the data collection period was approximately 16 October 2019. Using the population projections by district for 1 July 2019 and 2020, an interpolation based on exponential growth was used to estimate the population for 16 October 2019, using the following formula:

$$\hat{P}_{IHS5h} = P_{19h} \times e^{ln\left[\left(\frac{P_{20h}}{P_{19h}}\right)\times\left(\frac{t_{IHS5}-t_{19}}{t_{20}-t_{19}}\right)\right]}$$

where:

$\hat{P}_{IHS5h}$ = estimated total population for district h on 16 October 2019

P_{19h} = population projection for district h on 1 July 2019

P_{20h} = population projection for district h on 1 July 2020

$t_{IHS5} - t_{19}$ = number of days between 1 July 2019 and 16 October 2019 (that is, 107 days)

$t_{20} - t_{19}$ = number of days between 1 July 2019 and 1 July 2020 (that is, 366 days)

Table 14 presents the Malawi NSO population projections by district for 1 July 2019 and 2020, the corresponding interpolated population estimates for 16 October 2019, the preliminary weighted total population by district from the IHS5 data, and the corresponding weight adjustment factor for the sample household weights in each district.

It can be seen in **Table 14** that the weight adjustment factors vary from 0.5364 for Likoma to 1.2075 for Zomba City. An adjustment factor less than 1 indicates that the IHS5 data with the original design weights over-**estimated** the population, and a factor greater than 1 indicates that the original weighted survey estimates under-estimated the population based on the projections. The weight adjustment factors for 18 of the 32 districts are smaller than 1, indicating a possible overestimate of the total population based on the original weights, and the factors are greater than 1 for 14 districts, indicating a potential underestimate of the total population. Since the population projections were not made separately for the rural and urban areas, the rural/urban distribution of the weighted IHS5 data reflects the distribution of the sampling frame and the IHS5 listing results for urban and rural sample EAs.

Table 14. Malawi Population Projections by District for 2019 and 2020, Interpolated Population for Mid-Point of IHS5 Data Collection Period, Weighted Preliminary Total Population Estimate from IHS5, and Weight Adjustment Factors

District	2019	2020	IHS5	Weighted Population IHS5	Weight Adjustment Factor
	01-Jul-19	01-Jul-20	16-Oct-19		
Chitipa	239,019	243,252	240,249	246,547	0.9745
Karonga	372,539	380,608	374,880	394,072	0.9513
Nkhata Bay	289,519	294,491	290,964	341,629	0.8517
Rumphi	233,804	238,777	235,247	228,467	1.0297
Mzimba	955,394	970,816	959,877	921,804	1.0413
Likoma	14,803	15,096	14,888	27,756	0.5364
Mzuzu City	229,823	240,005	232,754	250,014	0.9310
Kasungu	864,532	885,624	870,646	835,305	1.0423
Nkhotakota	402,236	410,891	404,747	443,656	0.9123
Ntchisi	326,545	336,263	329,357	336,418	0.9790
Dowa	793,628	814,635	799,713	875,166	0.9138
Salima	492,362	506,655	496,498	490,517	1.0122
Lilongwe, non-city	1,677,174	1,715,103	1,688,175	1,742,661	0.9687
Mchinji	616,755	630,560	620,759	754,935	0.8223
Dedza	850,541	869,712	856,102	985,210	0.8690
Ntcheu	678,328	697,236	683,802	739,101	0.9252
Lilongwe City	1,021,699	1,055,737	1,031,535	1,098,647	0.9389
Mangochi	1,185,332	1,224,716	1,196,713	1,140,143	1.0496
Machinga	760,704	788,256	768,658	693,095	1.1090
Zomba, non-city	763,920	780,755	768,804	704,626	1.0911
Chiradzulu	363,978	370,579	365,896	361,041	1.0134
Blantyre, non-city	462,696	474,284	466,054	461,918	1.0090
Mwanza	134,970	139,244	136,206	126,318	1.0783
Thyolo	734,913	747,086	738,451	856,847	0.8618
Mulanje	700,515	716,793	705,235	771,537	0.9141
Phalombe	441,219	453,359	444,734	497,912	0.8932

Chikwawa	577,665	590,368	581,350	724,759	0.8021
Nsanje	305,123	310,655	306,730	305,205	1.0050
Balaka	450,961	464,103	454,764	446,125	1.0194
Neno	141,358	144,322	142,218	154,442	0.9209
Zomba City	107,420	109,774	108,103	89,525	1.2075
Blantyre City	815,793	830,073	819,942	704,550	1.1638
Malawi	18,005,268	18,449,828	18,134,051	18,749,948	

ANNEX A. Measures of precision from IHS-4 data for key indicators: value of estimates, standard errors, coefficients of variation, 95% confidence intervals, design effects and number of sample households

Table A1. Estimates of average annual household consumption per capita by domain, Malawi IHS-4

Domain	Estimate	SE	CV	95% confidence interval		DEFF	No. sample households
				Lower	Upper		
Malawi	831,433	65,386	0.079	702,770	960,096	2.4	12,447
Residence							
Urban	1,666,388	340,101	0.204	997,154	2,335,621	2.6	2,272
Rural	634,930	16,179	0.025	603,094	666,766	1.2	10,175
Region							
North	784,640	34,218	0.044	717,309	851,972	3.9	2,491
Central	808,185	24,981	0.031	759,029	857,340	6.0	4,220
Southern	862,781	138,404	0.160	590,437	1,135,124	2.4	5,736

Table A2. Estimates of average annual household consumption per capita by district, Malawi IHS-4

District	Estimate	SE	CV	95% confidence interval		DEFF	No. sample households
				Lower	Upper		
Chitipa	483,610	16,231	0.034	451,672	515,548	0.8	384
Karonga	644,070	66,948	0.104	512,334	775,807	8.1	384
Nkhatabay	788,158	39,299	0.050	710,828	865,488	1.6	383
Rumphi	731,841	66,206	0.090	601,563	862,118	2.7	384
Mzimba	780,628	50,987	0.065	680,298	880,957	1.4	380
Likoma	892,512	28,527	0.032	836,378	948,646	0.0	192
Mzuzu City	1,340,531	69,432	0.052	1,203,906	1,477,155	1.2	384
Kasungu	714,554	30,980	0.043	653,593	775,515	3.8	384
Nkhotakota	833,785	94,800	0.114	647,243	1,020,326	4.8	383
Ntchisi	675,042	55,955	0.083	564,936	785,147	2.5	383
Dowa	722,410	29,600	0.041	664,165	780,654	2.3	384
Salima	609,150	74,434	0.122	462,683	755,617	4.3	384
Lilongwe	708,472	36,618	0.052	636,416	780,528	5.4	575
Mchinji	753,950	41,921	0.056	671,460	836,440	1.8	384
Dedza	622,463	31,334	0.050	560,805	684,121	1.4	384
Ntcheu	658,567	63,016	0.096	534,567	782,567	9.3	383
Lilongwe City	1,453,604	122,594	0.084	1,212,370	1,694,839	7.4	576
Mangochi	727,675	154,766	0.213	423,136	1,032,215	0.9	383
Machinga	544,174	24,794	0.046	495,387	592,962	3.5	384
Zomba Non-City	644,102	38,719	0.060	567,912	720,291	2.9	384
Chiradzulu	514,326	24,912	0.048	465,306	563,346	2.5	383
Blantyre	703,296	56,807	0.081	591,514	815,078	2.5	380
Mwanza	717,077	85,313	0.119	549,203	884,951	2.3	380
Thyolo	508,687	27,386	0.054	454,798	562,575	4.4	380

Mulanje	603,215	62,622	0.104	479,991	726,439	6.6	384
Phalombe	440,317	15,013	0.034	410,776	469,859	0.9	382
Chikwawa	573,710	32,043	0.056	510,657	636,764	2.6	384
Nsanje	544,377	21,050	0.039	502,956	585,799	0.5	384
Balaka	603,817	48,554	0.080	508,276	699,358	4.8	384
Neno	729,565	34,391	0.047	661,893	797,238	0.6	376
Zomba City	1,537,086	162,231	0.106	1,217,856	1,856,315	1.5	384
Blantyre City	2,486,989	1,055,874	0.425	409,296	4,564,681	2.6	384

Table A3. Estimates of absolute poverty rate by domain, Malawi IHS-4

Domain	Estimate (%)	SE (%)	CV	95% confidence interval		DEFF	No. sample households
				Lower (%)	Upper (%)		
Malawi	51.5	1.1	0.021	49.4	53.6	5.7	12,447
Residence							
Urban	17.7	1.9	0.108	14.0	21.5	5.9	2,272
Rural	59.5	1.0	0.017	57.5	61.4	4.1	10,175
Region							
North	49.5	2.8	0.057	44.0	55.0	3.8	2,491
Central	47.5	1.4	0.030	44.7	50.3	4.6	4,220
Southern	56.0	1.7	0.030	52.8	59.3	6.3	5,736

Table A4. Estimates of absolute poverty rate by district, Malawi IHS-4

District	Estimate (%)	SE (%)	CV (%)	95% confidence interval		DEFF	No. sample households
				Lower (%)	Upper (%)		
Chitipa	73.8	2.5	0.033	69.0	78.6	0.5	384
Karonga	57.1	7.0	0.123	43.3	71.0	5.4	384
Nkhatabay	57.7	3.1	0.053	51.7	63.7	0.8	383
Rumphi	53.6	4.5	0.084	44.8	62.4	1.4	384
Mzimba	42.9	5.1	0.120	32.8	53.1	1.9	380
Likoma	31.4	1.2	0.039	29.0	33.8	0.0	192
Mzuzu City	9.7	3.2	0.329	3.4	16.0	2.2	384
Kasungu	53.0	3.1	0.058	46.9	59.0	2.5	384
Nkhotakota	53.4	6.3	0.118	41.0	65.8	4.8	383
Ntchisi	53.5	5.7	0.106	42.3	64.6	2.9	383
Dowa	48.8	2.1	0.042	44.7	52.8	1.0	384
Salima	58.4	4.8	0.082	49.0	67.8	3.1	384
Lilongwe	47.9	3.1	0.065	41.8	54.1	4.5	575
Mchinji	50.5	4.1	0.080	42.6	58.5	3.1	384
Dedza	63.1	3.4	0.054	56.4	69.8	2.9	384
Ntcheu	54.1	5.0	0.093	44.3	64.0	4.6	383
Lilongwe City	18.0	2.9	0.163	12.2	23.8	5.0	576
Mangochi	59.5	5.9	0.099	47.9	71.1	11.7	383
Machinga	72.4	3.9	0.053	64.8	80.0	3.6	384
Zomba Non-City	55.9	3.6	0.065	48.8	63.1	1.7	384
Chiradzulu	66.4	3.8	0.057	59.0	73.8	3.3	383
Blantyre	38.9	4.5	0.117	30.0	47.8	2.1	380
Mwanza	53.6	5.7	0.107	42.3	64.9	1.1	380
Thyolo	67.3	4.5	0.067	58.5	76.1	4.6	380
Mulanje	69.2	3.6	0.053	62.0	76.4	2.8	384
Phalombe	83.2	1.6	0.019	80.1	86.2	0.5	382
Chikwawa	63.2	5.7	0.090	52.0	74.4	5.9	384
Nsanje	74.3	2.3	0.031	69.7	78.9	0.6	384
Balaka	61.3	4.4	0.071	52.7	69.9	2.6	384
Neno	46.9	3.3	0.070	40.4	53.3	0.5	376
Zomba City	15.8	3.4	0.216	9.1	22.5	1.0	384
Blantyre City	8.0	2.2	0.270	3.8	12.3	4.5	384

ANNEX B : CODES NOT INCLUDED IN THE QUESTIONNAIRE
DISTRICT CODES AND COUNTRY CODES

DISTRICT CODES:

Chitipa.....101
Karonga.....102
Nkhatabay.....103
Rumphi.....104
Mzimba.....105
Likoma.....106
Mzuzu City.....107
Kasungu.....201
Nkhotakota.....202
Ntchisi.....203
Dowa.....204
Salima.....205
Lilongwe Non-City..206
Mchinji.....207
Dedza.....208
Ntcheu.....209
Lilongwe City.....210
Mangochi.....301
Machinga.....302
Zomba Non-City.....303
Chiradzulu.....304
Blanytyre Non-City...305
Mwanza.....306
Thyolo.....307
Mulanje.....308
Phalombe.....309
Chikwawa.....310
Nsanje.....311
Balaka.....312
Neno.....313
Zomba City.....314
Blantyre City.....315

COUNTRY CODES:

Angola.....501
Australia.....502
Botswana.....503
Canada.....504
China.....505
Lesotho.....506
Mozambique.....507
Namibia.....508
New Zealand.....509
South Africa.....510
Swaziland.....511
Tanzania.....512
United Kingdom (UK)..513
United States of America (USA).....514
Zambia.....515
Zimbabwe.....516
Other Country (Specify).....517

OCCUPATION CODES

MAJOR GROUP 0/1: PROFESSIONAL, TECHNICAL, & RELATED WORKERS	
01	**Physical Scientists and related technicians.** Chemists, Physicists
02	**Architects, Surveyors and related workers.** Architects, Planners, Surveyors, Draughtsmen and related workers
03	**Engineers and related workers.** Civil, Mechanical, Electrical, Mining and Other Engineers; Mining Technicians
04	**Aircraft's and ships' officers.** Pilots, Navigators, deck officers, flight and ships' officers
05	**Life scientists and related technicians**. Agronomists, biologists, zoologists.
06	**Medical, dental and related workers.** Doctors, Dentists, Medical and Dental Assistants, Nurses, X-ray and other medical technicians. (**Excluding traditional healers (which are group 59)**)
07	**Veterinary and related workers.** Veterinarians and related workers not elsewhere classified
08	**Statisticians, mathematicians, systems analysts.** Statisticians, actuaries, systems analysts and related technicians
09	**Economists**
11	**Accountants**, (private or government); (for book-keepers see 33)
12	**Jurists.** Lawyers, Judges
13	**Teachers**. University Lectures and teachers.
14	**Workers in Religion.** Priests, nuns lay brothers etc, and related workers in religion not elsewhere classified
15	**Writers.** Authors, journalists, critics and related writers.
16	**Artists.** Sculptors, painters of pictures, photographers and cameramen.
17	**Composers and Performing artists.** Composers, musicians, singers, dancers, actors, producers, performing artists.
18	**Athletics, sportsmen and related workers.** Athletes, etc.
19	**Professional and technical workers not elsewhere classified**. Librarians, archivists, curators, sociologists, social workers and occupational specialists, translators, interpreters and other professional and technical workers not elsewhere classified.
MAJOR GROUP 2: ADMINISTRATION AND MANAGERIAL WORKERS	
20	**Legislative Officials and government senior administrators.** Legislative officials.
21	**Managers.** General Managers, production managers (except farm managers) and managers not elsewhere classified.
22	**Traditional Leaders.** Village Headmen, Group Village Headmen, Sub-Traditional Authorities, Traditional Authorities, Senior Traditional Authorities/Chiefs, Paramount Chiefs.
MAJOR GROUP 3: CLERICAL AND RELATED WORKER	
30	**Clerical supervisors**
31	**Government administrative/secretarial officials**
32	**Stenographers and related workers.** Stenographers, typists, card and tape punching machine operators.
33	**Book-keepers, cashiers and related workers.** Book-keepers and cashiers.
34	**Computing and machine operators of book-keeping machines, calculators and automatic data processing machines (computers).**
35	**Transport and communication supervisors**. Railway Stations Masters, postmasters, communication supervisors not elsewhere classified stated.
36	**Transport conductors.** Bus conductors
37	**Mail distribution clerks.** Registry clerks
38	**Telephone and telegram operators Including switchboard (PBX) operators.**
39	**Clerical and related workers not elsewhere classified.** Stock Clerk Correspondence clerks, receptionists, and travel agency clerks, Library and filling clerks and other clerks and not elsewhere classified.
MAJOR GROUP 4: SALES WORKERS	

40	**Managers (wholesale & retail trade)**
41	**Working proprietors (wholesale and retail trade)**
42	**Sales supervisors and buyers**
43	**Technical salesmen, commercial travellers, manufactures agency**
44	**Auctioneers and salesmen of insurance, real estate, securities, and business services.**
45	**Salesmen and shop assistants, and related workers** (demonstrators, street vendors, canvassers, news vendors).
49	**Sales workers not elsewhere classified.**
MAJOR GROUP 5: SERVICE WORKERS	
50	**Managers (catering &lodging services)**
51	**Working proprietors (catering & lodging services)**
52	**Housekeeping and related service supervisors (Excluding housewives)**
53	**Cooks, waiters, bartenders and related workers**
54	**Maids and related housekeeping service workers not elsewhere classified, house girls, houseboys, garden boys**
55	**Buildings caretakers, watch guards, charworkers, cleaners and related workers.**
56	**Launderers, dry-cleaners and pressers.**
57	**Hairdressers, barbers, beauticians and related workers.**
58	**Protective service workers.** Fire fighters, policemen and detectives, protective workers not elsewhere classified.
59	**Service workers not elsewhere classified.** Traditional healers, guides, undertakers and embalmers, other service workers.
MAJOR GROUP 6: AGRICULTURAL, ANIMAL HUSBANDRY AND FORESTRY WORKERS, FISHERMEN AND HUNTERS	
60	**Farm managers and supervisors**
61	**Farmers (general farm owner/operators and specialised farmers)**
62	**Agricultural and animal husbandry workers.** General farm workers and labourers, dairy farm workers and gardeners, farm machine operators, agricultural and animal husbandry workers not elsewhere classified. (Not ganyu farm labourers-ganyu work covered in separate questions)
63	**Forestry workers.** Loggers and other forestry workers not elsewhere classified.
64	**Fishermen, hunters and related workers.**
MAJOR GROUP 7/8/9: PRODUCTION AND RELATED WORKERS, TRANSPORT EQUIPMENT OPERATORS AND LABOURERES NOT ELSEWHERE CLASSIFIED	
70	**General foreman and production supervisors.**
71	**Miners, Quarrymen, well drillers** including mineral and stone treaters, well borers and related workers.
72	**Metal processors**, Including melters and reheaters, casters, moulders and coremakers. Annealers, platers and coaters.
73	**Wood preparation and workers and paper makers.** Wood treaters, sawyers, makers and related wood processing and related workers, paper pulp prepares and paper makers related workers.
74	**Chemical processors and related workers.** Crushers, grinders, mixers, heat treaters, filter and separator operators, still operators, chemical processors and related workers not elsewhere classified.
75	**Spinners, weavers, dyers, fibre preparers.** Spinners, Weaving and Knitting, Machine setters and operators bleachers dyers and textile product finishers; related workers not elsewhere classified.
76	**Tanners, skin preparers and pelt dressers.**
77	**Food and beverage processors.** Grain millers, sugar processors and refiners, butchers and daily product processors, bakers tea and coffee prepares, brewers, beverages makers and other food and beverage processors.
78	**Tobacco preparers and product makers.** Tobacco preparers, cigarette makers and tobacco preparers and tobacco product workers not elsewhere classified.

79	**Tailors, dressmakers, sewers, upholsters.** Tailors dressmakers for tailors, hat makers, cutters, sewers, upholsters and related workers not elsewhere classified.
80	**Shoemakers and leather goods makers.** Shoemaker repairers, shoe cutters, lasters, sewers and related workers; leather goods makers.
81	**Cabinet makers and related wood workers.** Cabinet makers, wood-working machine operators not elsewhere classified.
82	**Stone cutters and carvers.**
83	**Blacksmith, toolmakers & machine tool operators.** Blacksmith, operators, forge-press operators, toolmakers, machine tool setters & operators, metal grinders, polishers, sharpeners.
84	**Machinery fitters, machine assemblers.** Machinery fitters and assemblers, clock makers, motor and precision instrument makers, vehicle machine and aircraft engine mechanics (except electrical)
85	**Electrical fitters and related electrical workers.** Electrical fitters wiremen and linesmen, electrical and electronics workers, electronic equipment assemblers, radio repairmen telephone and telegram installers and related workers not elsewhere classified.
86	**Broadcasting station operators and cinema projectionists.**
87	**Plumbers, welders, sheet metal workers.** Plumbers and pipe fitters, and frame cutters, sheet structural metal prepares, metal workers, structural metal prepares and erectors.
88	**Jewellery and precious metal workers.**
89	**Potters, glass formers and related workers.** Potters, glass formers and cutters ceramic kinsmen, grass engravers ceramic and glass painters and decorators and related workers not elsewhere classified
90	**Rubber and plastic product makers.** Rubber and plastic product makers not elsewhere classified (not footwear), tyre makers, vulcanisers and retreaders.
91	**Paper and paper-board product makers.**
92	**Printers and related workers.** Compositors, typesetters, printing pressmen, printing and photo engravers book binders, photographic darkroom operators and related workers not elsewhere classified.
93	**Painters.** House painters and the like (not artists).
94	**Production and related workers.** Musical instrument makers and tuners, basketry weavers not elsewhere classified and brush makers, other production related workers.
95	**Bricklayers, carpenters and other bricklayers**. stonemasons, tile setters, reinforced construction workers concetors, roof**e**rs, carpenters and joiners, plaster, glaziers and construction workers not elsewhere classified. (Not ganyu labourers - ganyu work covered in separate questions.)
96	**Operators of stationery engines and power generating machines.** Operators and operators of related equipment other stationery engines (i.e. not vehicles tractors etc) and related equipment not elsewhere classified.
97	**Material handling and related equipment operators.** Dockers and handlers, riggers, crane and hoist operators, Dockers and freight handlers/operators, earth moving and related machinery operators and material-handling equipment operators not elsewhere classified.
98	**Transport equipment operators.** Vehicles drivers, railway engine drivers and firemen, ships rating crew, railway breakmen shunters, signalmen and transport equipment operators not elsewhere classified.
99	**Labourers not elsewhere classified.** Workers not reporting occupation, or occupation not adequately describe or not classified. (Not ganyu labourers-ganyu work covered in separate questions.)

INDUSTRY CODES

AGRICULTURE, HUNTING, FORESTRY & FISHING	
01	Growing of non-perennial crops (cereals, rice, vegetables, sugar cane, tobacco) Growing of perennial crops (grapes, citrus fruits, other fruits, beverage crops, spices) Plant propagation Animal Production (cattle, horses, camels, sheep, goats, swine/pigs, poultry) Mixed farming Support activities to agriculture & post-harvest crop activities (activities for crop production & animal production, seed processing for propagation).
02	Forestry and logging (silviculture, gathering of non-wood forest products)
03	Fishing and aquaculture (marine and freshwater fishing and aquaculture)
MINING AND QUARRYING	
05	Mining of coal and lignite
06	Extraction of crude petroleum and natural gas
07	Mining of metal ores (iron, non-ferrous metal ores, uranium, thorium)
08	Other mining and quarrying (stone, sand, clay, chemical and fertilizer minerals, extraction of peat, salt)
09	Mining support service activities (for petroleum, natural gas extraction, other mining and quarrying support activities)
MANUFACTURING	
10	Processing and preserving of meat Processing and preserving of fish, crustaceans and molluscs Processing and preserving of fruit and vegetables Manufacture of vegetable and animal oils and fats Manufacture of dairy products Manufacture of grain mill products, starches and starch products Manufacture of grain mill products Manufacture of bakery products Manufacture of sugar Manufacture of cocoa, chocolate and sugar confectionery Manufacture of macaroni, noodles, couscous and similar farinaceous products Manufacture of prepared meals and dishes Manufacture of other food products n.e.c. Manufacture of prepared animal feeds
11	Distilling, rectifying and blending of spirits Manufacture of wines Manufacture of malt liquors and malt Manufacture of soft drinks; production of mineral waters and other bottled waters
12	Manufacture of tobacco products
13	Preparation and spinning of textile fibres Weaving of textiles Finishing of textiles Manufacture of knitted and crocheted fabrics Manufacture of made-up textile articles, except apparel Manufacture of carpets and rugs Manufacture of cordage, rope, twine and netting

	Manufacture of other textiles n.e.c.

MANUFACTURING (CONT'D)	
14	Manufacture of wearing apparel, except fur apparel Manufacture of articles of fur Manufacture of knitted and crocheted apparel
15	Tanning and dressing of leather; dressing and dyeing of fur Manufacture of luggage, handbags and the like, saddlery and harness Manufacture of footwear
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
17	Manufacture of paper and paper products
18	Printing Service activities related to printing Reproduction of recorded media
19	Manufacture of coke and refined petroleum products
20	Manufacture of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms, Manufacture of other chemical products (pesticides, paints, varnishes, printing ink, soap and detergents, man-made fibres
21	Manufacture of pharmaceuticals, medicinal chemical and botanical products
22	Manufacture of rubber and plastics products
23	Manufacture of glass and glass products, Manufacture of refractory products Manufacture of clay building materials Manufacture of other porcelain and ceramic products Manufacture of cement, lime and plaster Manufacture of articles of concrete, cement and plaster Cutting, shaping and finishing of stone
24	Manufacture of basic iron and steel Manufacture of basic precious and other non-ferrous metals Casting of iron and steel Casting of non-ferrous metals
25	Manufacture of fabricated metal products, metalworking service activities
26	Manufacture of electronic components and boards Manufacture of computers and peripheral equipment Manufacture of communication equipment Manufacture of consumer electronics Manufacture of measuring, testing, navigating and control equipment Manufacture of watches and clocks Manufacture of optical instruments and photographic equipment Manufacture of magnetic and optical media
27	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus Manufacture of batteries and accumulators Manufacture of fibre optic cables Manufacture of other electronic and electric wires and cables Manufacture of wiring devices Manufacture of electric lighting equipment Manufacture of domestic appliances Manufacture of other electrical equipment
28	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines Manufacture of fluid power equipment Manufacture of other pumps, compressors, taps and valves Manufacture of bearings, gears, gearing and driving elements Manufacture of ovens, furnaces and furnace burners Manufacture of lifting and handling equipment

	Manufacture of office machinery and equipment (except computers and peripheral equipment) Manufacture of power-driven hand tools Manufacture of other general-purpose machinery Manufacture of agricultural and forestry machinery Manufacture of metal-forming machinery and machine tools Manufacture of machinery for metallurgy Manufacture of machinery for mining, quarrying and construction Manufacture of machinery for food, beverage and tobacco processing Manufacture of machinery for textile, apparel and leather production Manufacture of other special-purpose machinery
29	Manufacture of motor vehicles Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers Manufacture of parts and accessories for motor vehicles
30	Building of ships and floating structures Building of pleasure and sporting boats Manufacture of air and spacecraft and related machinery Manufacture of military fighting vehicles Manufacture of motorcycles Manufacture of bicycles and invalid carriages Manufacture of other transport equipment n.e.c.
31	Manufacture of furniture
32	Manufacture of jewellery and related articles Manufacture of imitation jewellery and related articles Manufacture of musical instruments Manufacture of sports goods Manufacture of games and toys Manufacture of medical and dental instruments and supplies
33	Repair of fabricated metal products Repair of machinery Repair of electronic and optical equipment Repair of electrical equipment Repair of transport equipment, except motor vehicles Repair of other equipment Installation of industrial machinery and equipment
ELECTRICITY, GAS AND WATER	
35	Electricity, gas, steam and air conditioning supply
36	Water collection, treatment and supply
37	Sewerage
38	Waste collection, treatment and disposal activities; materials recovery
39	Remediation activities and other waste management services
CONSTRUCTION	
41	Construction of buildings
42	Civil engineering
43	Specialized construction activities (Demolition, Site preparation, Electrical, plumbing and other construction installation activities)

WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	
45	Wholesale and retail trade and repair of motor vehicles and motorcycles
46	Wholesale on a fee or contract basis Wholesale of agricultural raw materials and live animals Wholesale of food, beverages and tobacco Wholesale of household goods

	Wholesale of machinery, equipment and supplies Wholesale of solid, liquid and gaseous fuels and related products Wholesale of metals and metal ores Wholesale of construction materials, hardware, plumbing and heating equipment and supplies Wholesale of waste and scrap and other products n.e.c.
47	Retail trade, except of motor vehicles and motorcycles
TRANSPORTATION AND STORAGE	
49	Land transport and transport via pipelines
50	Water transport
51	Air transport
52	Warehousing, storage and support activities for transportation
53	Postal and courier activities
ACCOMMODATION AND FOOD SERVICE ACTIVITIES	
55	Accommodation
56	Food and beverage service activities
INFORMATION AND COMMUNICATION	
58	Publishing activities
59	Motion picture, video and television programme production, sound recording and music publishing activities
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
FINANCIAL AND INSURANCE ACTIVITIES	
64	Financial service activities, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsory social security
66	Activities auxiliary to financial service and insurance activities
REAL ESTATE ACTIVITIES	
68	Real estate activities with own or leased property Real estate activities on a fee or contract basis
PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	
77	Rental and leasing activities
78	Employment activities
79	Travel agency, tour operator, reservation service and related activities
80	Security and investigation activities
81	Services to buildings and landscape activities

82	Office administrative, office support and other business support activities
PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	
84	Administration of the State and the economic and social policy of the community Provision of services to the community as a whole
EDUCATION	
85	Pre-primary and primary education Secondary education Higher education Other education (Sports and recreation education, Cultural education) Educational support activities
HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	
86	Human health activities
87	Residential care activities
88	Social work activities without accommodation
ARTS, ENTERTAINMENT AND RECREATION	
90	Creative, arts and entertainment activities
91	Libraries, archives, museums and other cultural activities
92	Gambling and betting activities
93	Sports activities and amusement and recreation activities
OTHER SERVICE ACTIVITIES	
94	Activities of membership organizations
95	Repair of computers and personal and household goods
96	Other personal service activities (Washing and (dry-) cleaning of textile and fur products, Hairdressing and other beauty treatment, Funeral and related activities)
ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFFERENTIATED GOODS- AND SERVICES-PRODUCING ACTIVITIES OF HOUSEHOLDS FOR OWN USE	
97	Activities of households as employers of domestic personnel
98	Undifferentiated goods- and services-producing activities of private households for own use
ACTIVITIES OF EXTRATERRITORIAL ORGANIZATIONS AND BODIES	
99	Activities of extraterritorial organizations and bodies
00	ACTIVITIES NOT ADEQUATELY DEFINED

COMMUNITY, SOCIAL & PERSONNEL SERVICES	
91	Public administration and defence
92	Sanitary and similar services
93	Educational, commercial and driving schools Private schools Government schools Research and scientific institutes Medical, dental and other services Animal care centres Non-governmental organisations Agricultural cooperatives Welfare institutions Business professional and labour associates Religious organisations Political organisations

94	Motion picture distribution and projection Radio broadcasting Concert artists Libraries and museums Amusement and recreational services including clubs
95	Electrical repair shops Repairs of motor vehicles, and motor cycles Watch, clock repairs Bicycles, type writer, camera etc. repairs Laundries Barber and beauty Photographic studios Security services Funeral services
96	Private households with employed persons
00	ACTIVITIES NOT ADEQUATELY DEFINED

Food-Unit Combinations Covered for IHS5 Non-Standard Units

em Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Cereals, Grains & Cereal Products:				
Maize ufa mgaiwa (normal flour)	101	PAIL	SMALL	4A
	101	PAIL	MEDIUM	4B
	101	PAIL	LARGE	4C
	101	No. 10 PLATE		6
	101	No. 12 PLATE		7
	101	TINA LARGE		23F
Maize ufa refined (fine flour)	102	PAIL	SMALL	4A
	102	PAIL	MEDIUM	4B
	102	PAIL	LARGE	4C
	102	No. 10 PLATE		6
	102	No. 12 PLATE		7
	102	TINA LARGE		23F
Maize ufa madeya (bran flour)	103	PAIL	SMALL	4A
	103	PAIL	MEDIUM	4B
	103	PAIL	LARGE	4C
	103	No. 10 PLATE		6
	103	No.12 PLATE		7
	103	TINA LARGE		23F
Maize grain (not as ufa)	104	PAIL	SMALL	4A
	104	PAIL	MEDIUM	4B
	104	PAIL	LARGE	4C

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Vegetables:				
Onion	401	PIECE	SMALL	9A
	401	PIECE	MEDIUM	9B
	401	PIECE	LARGE	9C
	401	HEAP	SMALL	10A
	401	HEAP	MEDIUM	10B
	401	HEAP	LARGE	10C
Cabbage	402	PIECE	SMALL	9A
	402	PIECE	MEDIUM	9B
	402	PIECE	LARGE	9C
Tanaposi/Rape	403	HEAP	SMALL	10A
	403	HEAP	MEDIUM	10B
	403	HEAP	LARGE	10C
Vegetables (Continued):				
Nkhwani	404	HEAP	SMALL	10A
	404	HEAP	MEDIUM	10B
	404	HEAP	LARGE	10C
Chinese cabbage	405	HEAP	SMALL	10A
	405	HEAP	MEDIUM	10B
	405	HEAP	LARGE	10C
Other cultivated green leafy vegetables	406	HEAP	SMALL	10A
	406	HEAP	MEDIUM	10B
	406	HEAP	LARGE	10C

	104	No. 10 PLATE		6	Gathered wild green leaves	407	HEAP	SMALL	10A
	104	No. 12 PLATE		7		407	HEAP	MEDIUM	10B
	105	5 LITRE BUCKET (Chigoba)		4D		407	HEAP	LARGE	10C
	105	BASIN	SMALL	4E					
Green maize	105	PIECE	SMALL	9A	Tomato	408	PIECE	SMALL	9A
	105	PIECE	MEDIUM	9B		408	PIECE	MEDIUM	9B
	105	PIECE	LARGE	9C		408	PIECE	LARGE	9C
						408	HEAP	SMALL	10A
						408	HEAP	MEDIUM	10B
						408	HEAP	LARGE	10C

Standard units like KGs, GRAMs and/or Litres are acceptable appropriate items e.g. 101 to 105

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*	*Item Name [Module G]*	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Rice	106	PAIL	SMALL	4A					
	106	PAIL	LARGE	4C	Cucumber	409	PIECE		9
	106	No. 10 PLATE		6		409	HEAP	SMALL	10A
	106	No. 12 PLATE		7		409	HEAP	MEDIUM	10B
	106	5 LITRE BUCKET (Chigoba)		4D		409	HEAP	LARGE	10C
	106	TINA LARGE		23F					
Finger millet (mawere)	107	No. 10 PLATE		6	Pumpkin	410	PIECE	SMALL	9A
	107	No. 12 PLATE		7		410	PIECE	MEDIUM	9B
	107	BASIN	SMALL	4E		410	PIECE	LARGE	9C
	107	TINA LARGE		23F					
Sorghum (mapira)	108	PAIL	SMALL	4A	Okra / Therere	411	HEAP	SMALL	10A
	108	PAIL	LARGE	4C		411	HEAP	MEDIUM	10B

	108	No. 10 PLATE		6
	108	No. 12 PLATE		7
	108	TINA LARGE		23F
	108	BASIN	SMALL	4E
	108	5 LITRE BUCKET (Chigoba)		4D
Pearl millet (mchewere)	109	PAIL	SMALL	4A
	109	PAIL	LARGE	4C
	109	BASIN	SMALL	4E
	109	TINA LARGE		23F
	111	LOAF (300G)		
Bread	111	LOAF (600G)		25A
	111	LOAF (700G)		25B
	111	PIECE		9
Buns, scones	112	PIECE		9
Biscuits	113	PACKET (150 GRAMS)		26B
Spaghetti, macaroni, pasta	114	PACKET 250G		26C
	114	PACKET 400G		26D
	114	PACKET 500G		26E
	114	PACKET 1KG		26F

KGs, GRAMs and/or Litres are acceptable for appropriate items e.g 106 to 114, 504 to 509, 803

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Roots,Tuber & Plantains:				
Cassava tubers	201	PAIL	SMALL	4A
	201	PAIL	LARGE	4C
	411	HEAP	LARGE	10C
Mushroom	413	HEAP		10
Meat, Fish, and Animal Products				
Eggs	501	PIECE		9
Sun-Dried fish (Large Variety)	502	PIECE	SMALL	9A
	502	PIECE	MEDIUM	9B
	502	PIECE	LARGE	9C
Sun-Dried fish (Medium Variety)	502	PIECE	SMALL	9G
	502	PIECE	MEDIUM	9H
	502	PIECE	LARGE	9I
	502	HEAP	SMALL	10G
	502	HEAP	MEDIUM	10H
	502	HEAP	LARGE	10I
Sun-Dried fish (Small Variety)	502	HEAP	SMALL	10D
	502	HEAP	MEDIUM	10E
	502	HEAP	LARGE	10F
Fresh fish (Large Variety)	503	PIECE	SMALL	9A
	503	PIECE	MEDIUM	9B
	503	PIECE	LARGE	9C

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*

	201	PIECE	SMALL	9A
	201	PIECE	MEDIUM	9B
	201	PIECE	LARGE	9C
Cassava flour	202	PAIL	SMALL	4A
	202	PAIL	MEDIUM	4B
	202	PAIL	LARGE	4C
	202	No. 10 PLATE		6
	202	No. 12 PLATE		7
	202	TINA LARGE		23F
White sweet potato	203	PIECE	SMALL	9A
	203	PIECE	MEDIUM	9B
	203	PIECE	LARGE	9C
	203	HEAP	SMALL	10A
	203	HEAP	MEDIUM	10B
	203	HEAP	LARGE	10C
Orange sweet potato	204	PIECE	SMALL	9A
	204	PIECE	MEDIUM	9B
	204	PIECE	LARGE	9C
	204	HEAP	SMALL	10A
	204	HEAP	MEDIUM	10B
	204	HEAP	LARGE	10C
Irish potato	205	PAIL	SMALL	4A
	205	PAIL	MEDIUM	4B
	205	PAIL	LARGE	4C

Fresh fish (Medium Variety)	503	HEAP	SMALL	10G
	503	HEAP	MEDIUM	10H
	503	HEAP	LARGE	10I
	503	PIECE	SMALL	9G
	503	PIECE	MEDIUM	9H
	503	PIECE	LARGE	9I
Fresh fish (Small Variety)	503	HEAP	SMALL	10A
	503	HEAP	MEDIUM	10B
	503	HEAP	LARGE	10C
Beef	504	PIECE		9
Goat	505	PIECE		9
Pork	506	PIECE		9
Mutton	507	PIECE		9
Chicken - Whole	508A	PIECE		9
Chicken - Pieces	508B	PIECE		9
Other poultry - guinea fowl, doves, etc. **	509	PIECE		9
Small animal – rabbit, mice, etc. **	510	PIECE		9
Termites, other insects (eg Ngumbi, caterpillar) **	511	No. 10 PLATE		6
	511	No. 12 PLATE		7
	511	TINA LARGE		23F
	511	HEAP		10
Smoked fish (Large Variety)	502	PIECE	SMALL	9A
	502	PIECE	MEDIUM	9B
	502	PIECE	LARGE	9C

	205	HEAP	SMALL	10A
	205	HEAP	MEDIUM	10B
	205	HEAP	LARGE	10C
	205	5 LITRE BUCKET (Chigoba)		4D

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Potato crisps	206	PACKET	25G	26A
	206	SATCHET/TUBE	25g	27A
	206	SATCHET/TUBE	50g	27B
	206	SATCHET/TUBE	100g	27C
Plantain, cooking banana	207	BUNCH	SMALL	8A
	207	BUNCH	MEDIUM	8B
	207	BUNCH	LARGE	8C
	207	PIECE		9
	207	CLUSTER	SMALL	8D
	207	CLUSTER	MEDIUM	8E
	207	CLUSTER	LARGE	8F
Cocoyam (masimbi)	208	PIECE		9
	208	HEAP		10
Nuts & Pulses:				
Bean, white	301	PAIL	SMALL	4A
	301	No. 10 PLATE	FLAT	6A
	301	No. 10 PLATE	HEAPED	6B
	301	No. 12 PLATE	FLAT	7A
	301	No. 12 PLATE	HEAPED	7B
	301	TINA LARGE	FLAT	23C

Smoked fish (Medium Variety)	502	PIECE	SMALL	9G
	502	PIECE	MEDIUM	9H
	502	PIECE	LARGE	9I
	502	HEAP	SMALL	10G

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Smoked fish (Medium Variety)	502	HEAP	MEDIUM	10H
	502	HEAP	LARGE	10I
Smoked fish (Small Variety)	502	HEAP	SMALL	10D
	502	HEAP	MEDIUM	10E
	502	HEAP	LARGE	10F
Fruits:				
Mango	601	PAIL SMALL		4
	601	PAIL LARGE		5
	601	PIECE	SMALL	9A
	601	PIECE	MEDIUM	9B
	601	PIECE	LARGE	9C
	601	HEAP		10
Banana	602	CLUSTER	SMALL	28A
	602	CLUSTER	MEDIUM	28B
	602	CLUSTER	LARGE	28C

	301	TINA LARGE	HEAPED	23D
	301	BASIN	SMALL	4E
	301	HEAP		10
Bean, brown	302	PAIL SMALL		4A
	302	No. 10 PLATE	FLAT	6A
	302	No. 10 PLATE	HEAPED	6B
	302	No. 12 PLATE	FLAT	7A
	302	No. 12 PLATE	HEAPED	7B
	302	TINA LARGE	FLAT	23C
	302	TINA LARGE	HEAPED	23D
	302	BASIN	SMALL	4E
	302	HEAP		10
	602	PIECE	SMALL	9A
	602	PIECE	MEDIUM	9B
	602	PIECE	LARGE	9C
Citrus – naartje, orange, etc. **	603	PIECE		9
Pineapple	604	PIECE		9
Papaya	605	PIECE		9
Guava	606	PIECE	SMALL	9A
	606	PIECE	MEDIUM	9B
	606	PIECE	LARGE	9C
Avocado	607	PIECE		9

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Pigeonpea (nandolo)	303	PAIL SMALL		4A
	303	No. 10 PLATE	FLAT	6A
	303	No. 10 PLATE	HEAPED	6B
	303	No. 12 PLATE	FLAT	7A
	303	No. 12 PLATE	HEAPED	7B
	303	TINA LARGE	FLAT	23C
	303	TINA LARGE	HEAPED	23D

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Wild fruit (masau, malambe, etc.)**	608	No. 10 PLATE		6
	608	No. 12 PLATE		7
	608	TINA LARGE		23F
	608	PIECE		9
	608	HEAP		10
Apple	609	PIECE		9
Milk and Milk Products				

	303	BASIN	SMALL	4E
	303	HEAP		10
Groundnut (Shelled)	304A	PAIL SMALL		4A
	304A	No. 10 PLATE	FLAT	6A
	304A	No. 10 PLATE	HEAPED	6B
	304A	No. 12 PLATE	FLAT	7A
	304A	No. 12 PLATE	HEAPED	7B
	304A	TINA LARGE	FLAT	23C
	304A	HEAP		10
Groundnut - Dried (UnShelled)	304B	PAIL SMALL		4A
	304B	No. 10 PLATE	HEAPED	6B
	304B	No. 12 PLATE	HEAPED	7B
	304B	TINA LARGE	HEAPED	23D
	304B	BASIN -SMALL		4E
	304B	BASIN - MEDIUM		4F
	304B	HEAP		10
Groundnut -Fresh (UnShelled)	304C	PAIL SMALL		4A
	304C	PAIL LARGE		4C
	304C	No. 10 PLATE	HEAPED	6B
	304C	No. 12 PLATE	HEAPED	7B
	304C	TINA LARGE	HEAPED	23D
	304C	HEAP		10

Powdered milk	702	SATCHET/TUBE		22
	702	TABLE SPOON		20B
Margarine - Blue band	703	PIECE		9
	703	SATCHET/TUBE		22
Chambiko - soured milk	705	SATCHET/TUBE		22
Yoghurt	706	PACKET		26
Cheese	707	PIECE		9
Sugar, Fats & Oil:				
Sugar	801	No. 10 PLATE		6
	801	PACKET		26
	801	TEASPOON		20
	801	SATCHET/TUBE		22
Sugar Cane	802	PIECE		9
Cooking Oil	803	SATCHET/TUBE	SMALL	22A
	803	SATCHET/TUBE	MEDIUM	22B
	803	SATCHET/TUBE	LARGE	22C
Spices & Miscellaneous:				
Salt	810	No. 10 PLATE	FLAT	6A
	810	No. 10 PLATE	HEAPED	6B
	810	No. 12 PLATE		7
	810	TINA LARGE		23F
	810	HEAP		10
	810	TABLESPOON		20B

	304C	BASIN -SMALL		4E
	304C	BASIN - MEDIUM		4F

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Groundnut flour	305	No. 10 PLATE	FLAT	6A
	305	No. 10 PLATE	HEAPED	6B
	305	No. 12 PLATE	FLAT	7A
	305	No. 12 PLATE	HEAPED	7B
	305	TINA SMALL	FLAT	23A
	305	TINA SMALL	HEAPED	23B
	305	TINA LARGE	FLAT	23C
	305	TINA LARGE	HEAPED	23D
Soybean flour	306	PAIL SMALL		4A
	306	No. 10 PLATE		6
	306	No. 12 PLATE		7
	306	TINA LARGE	FLAT	23C
	306	TINA LARGE	HEAPED	23D
	306	BASIN	LARGE	4G
Ground bean (nzama)	307	No. 10 PLATE	FLAT	6A
	307	No. 10 PLATE	HEAPED	6B
	307	No. 12 PLATE	FLAT	7A

Spices	811	TEASPOON	20A
Yeast, baking powder, bicarbonate of soda	812	TEASPOON	20A

Item Name [Module G]	*Item Code [Module G]*	*Unit in Photo Aid*	*Size*	*Unit Code in Module G*
Cooked Foods from Vendors:				
Maize - boiled or roasted (vendor)	820	PIECE		9
Chips (vendor)	821	No. 10 PLATE		6
	821	No. 12 PLATE		7
Cassava - boiled (vendor)	822	PIECE		9
Cassava - Roasted (vendor)		PIECE		9
Eggs - boiled (vendor)	823	PIECE		9
Chicken (vendor)	824	PIECE		9
Meat (vendor)	825	PIECE		9
Fish (vendor)	826	PIECE		9
Mandazi, doughnut (vendor)	827	PIECE		9
Samosa (vendor)	828	PIECE		9
Boiled sweet potatoes	829	PIECE		9
Roasted sweet potatoes	830	PIECE		9
Boiled groundnuts	831	No. 10 PLATE		6
	831	No. 12 PLATE		7
	831	TINA SMALL		23E

	307	No. 12 PLATE	HEAPED	7B			831	TINA LARGE	23F
	307	TINA LARGE	HEAPED	23D					
Cowpea (khobwe)	308	No. 12 PLATE	FLAT	7A		Roasted groundnuts	832	TABLESPOON	20B
	308	No. 12 PLATE	HEAPED	7B			832	TEASPOON	20A
	308	TINA LARGE	FLAT	23C					
	308	TINA LARGE	HEAPED	23D		Popcorn	833	PACKET	26
	308	BASIN	SMALL	4E					
	308	HEAP		10		Zikondamoyo / Nkate	834	PIECE	9
Macademia nuts	309	PACKET SMALL		26G		KALONGONDA (Mucuna)	835	No. 10 PLATE	6
	309	PACKET LARGE		26I			835	No. 12 PLATE	7