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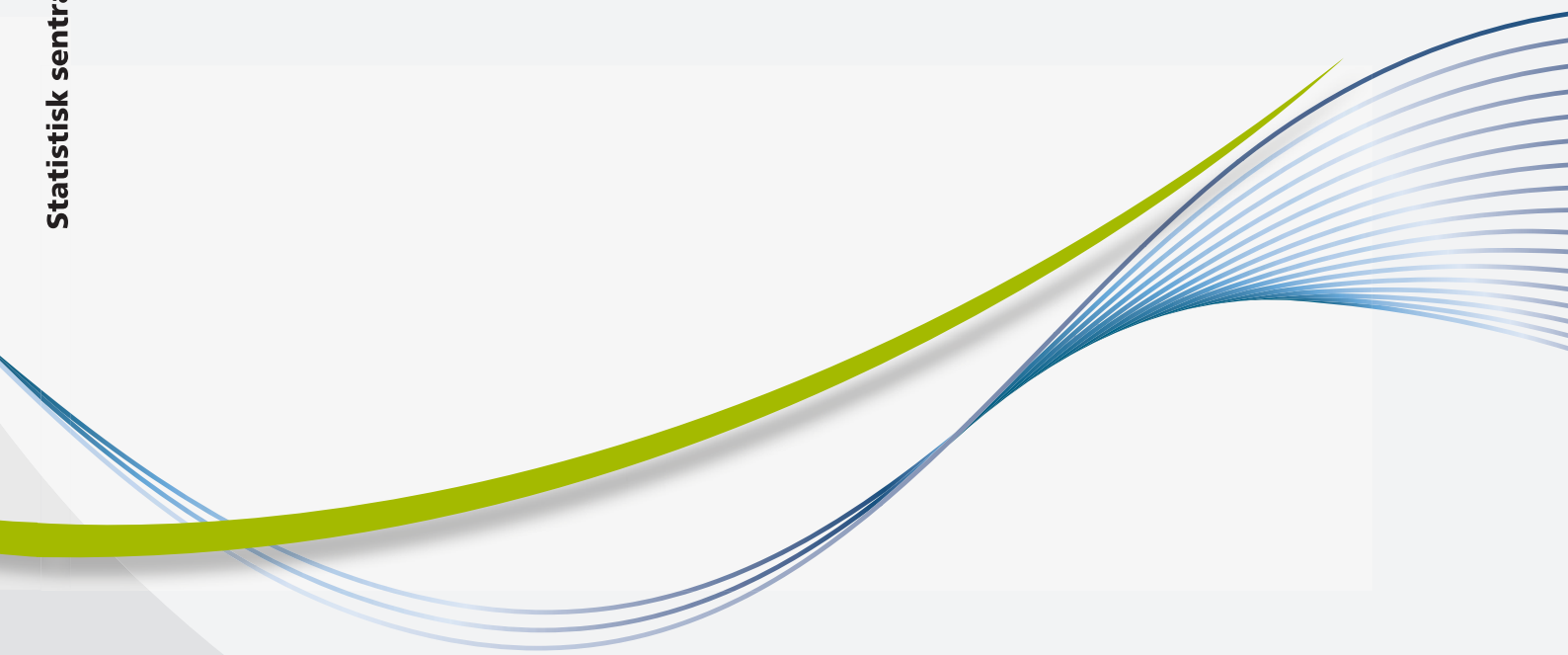
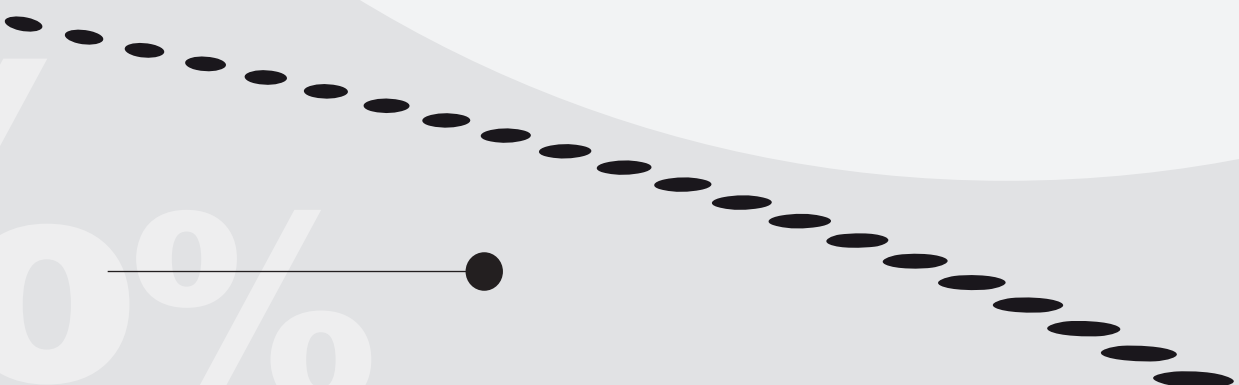
Guidelines for design of a core survey for a household survey system





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Symbols in tables	**Symbol**
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Nil	-
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Preface

Statistics Norway has cooperated with a range of national statistical institution partners in developing countries since the mid-1990s to plan, conduct, process, tabulate and further analyze household surveys. A central focus in most of these partnership arrangements has been to assist in developing capacity for a household survey system built around a core set of questions, usually the Millennium Development Goal indicators supplemented by national priority variables. This approach has allowed for publishing trend data showing the development over years.

During these cooperation programs we have responded to demands to document various steps of the process by writing technical papers and referring to text books. But both we and the partners have been missing a comprehensive practical documentation and guidelines for a household survey system built around a core set of information. Hence Statistics Norway has been urged to build and present such a comprehensive set of guidelines, which we now are proud of doing.

We would like to thank our colleagues in Angola, Mozambique, Malawi, Palestine, South Sudan, Uganda, Zambia, and Zimbabwe who encouraged us to take upon the challenge and contributed through various steps of the exercise. We hope these guidelines may guide both our and their further capacity building for household survey systems.

Statistics Norway, 31st August 2015
Irene Tuveng, Head of Division for Development Cooperation

Abstract

This report builds upon experience gained jointly with development partners in several national statistical offices, mainly in Angola, Malawi, Mozambique and South Sudan over a period of 15 years and demonstrates how to build a survey to document a given set of information needs in a regular manner with a core survey. The survey may be implemented as a self-standing exercise or combined with various subject matter modules. The welfare dimensions of the Millennium Development Goals have been the core information for regular reporting.

The report aims at documenting and justifying all steps of a core survey. This includes how to write a concept paper presenting the survey to a broader audience, how to design the questionnaire whether in paper or electronic format, sampling, planning and implementation of field work including training, manuals and control forms, data entry and quality control, time-line, budget and economic supervision, dummy tables, and recommendations for dissemination, storage of data, meta-data, and technical documentation.

The objectives and outline were prepared by Wold. Iversen and Schøning were instrumental in preparing the final prototype questionnaire building upon our cooperation with colleagues in the partner national statistical offices. They further prepared the draft prototype questionnaire and manuals which are enclosed as appendices. Jointly with Øvensen, they prepared inputs on survey implementation, field work and data processing. Opdahl and Jentoft prepared the first draft on sampling and Kristiansen the chapter on dissemination. Wold and Iversen wrote all contributions into a final report.

We like to thanks colleagues in several partner countries for a joint learning process over several years and the Norwegian Ministry of Foreign Affairs for providing the main bulk of funding for this cooperation.

Accronyms

ADP	Accelerated Data Program
AIDS	Acquired immune deficiency syndrome
CAPI	Computer Assisted Personal Interviews
CP	Concept Paper
CSPro	Census and Survey Processing System
CWIQ	Core Welfare Indicator Questionnaire
DDI	Data Documentation Initiative
DHS	Demographic and Health Surveys
EA	Enumeration Area
EHES	European Health Examination Survey
FFS	Fertility and Family Surveys
GER	Gross Enrolment Ratio
GPS	Global Positioning System
HIV	Human Immune deficiency virus
ICT	Telecommunications and Communication Technologies
ID	Identification Document
IDP	Internally Displaced People
IHSN	International Household Survey Network
ILO	International Labour Organization
JMP	Joint Monitoring Programme for Water Supply and Sanitation
KISS	Keep It Short and Simple
LAN	Local Area Network
LSMS	Living Standards and Measurement Surveys
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Surveys
MIS	Malaria Indicator Surveys
NER	Net enrolment rate
NGOs	Non-Government Institutions
NSDS	National Statistical Development Strategy
NSO	National Statistical Organization
OCR	Optical Character Reading
OMR	Optical Character Reading
PAPFAM	Pan Arab Project for Family Health Surveys
PDA	Personal Digital Assistant
PSTN	Public mobile-telephone service
RHS	Reproductive Health Surveys
SAS	Statistical Analysis System
SNA	System of National Accounts
SPSS	Statistical Package for the Social Sciences
SQL	*Structured Query Language*
STATA	Statistics, data
TIFF	*Tagged Image File Format*
U5MR	Under-five mortality rate
UIS	Urban Inequities Surveys
UN	United Nation
UNICEF	United Nations Children's Fund
WCS	Welfare Core Survey
WHO	World Health Organisation
WHS	World Health Surveys

Contents

1. Summary with outline of this report

1.1. Summary

The main task of any national statistical office is to provide regular and consistent information on economic, social and environmental development in their country in a manner which allows for evidence based policy decisions and public discussions. Any ad hoc institution with qualified staff may collect, process and disseminate ad hoc information, but only a national institution can build the capacity, ensure the funding and present information over time and across the country.

In the area of social development only a household survey system linked to the decennial population and household censuses may build and maintain the capacity within a national statistical institute for collection, processing and dissemination of this information.

A household survey system needs a combination of annual core information and a plan for sector information in each inter-censual period. This document presents how to justify and build capacity for the design, collection, processing and dissemination of this information. A core survey should address the core welfare dimensions in a country, such as on the priority policy issues of the country. For this prototype the Millennium Development Goals provide the policy issues. In any given country, the NSO would usually consider both the country development plans and the international MDGs when designing a core survey. When the extended set of development goals, targets and indicators are agreed upon by the UN General Assembly in second half of 2015, the global development and statistical communities are likely to agree upon a set of extended development indicators in 2016 and hence it may be due time to consider this new set of global development indicators in combination with national development goals.

This report presents the Millennium Development Goals with their detailed requirements, review how the main global prototype surveys such as the Living Standard Measurement Study, the Multiple Indicator Cluster Survey, the Demographic and Health Survey and a survey program implemented by the Malawi National Statistical Office with assistance from Statistics Norway, the Welfare Monitoring Survey may serve as inputs to the questionnaire design.

It is strongly recommended to write a detailed concept paper to present the objectives of welfare core survey, both as such and as the base for a household survey system. It is essential that the concept paper addresses the issues of interest for policy makers, the technical issues and a budget. This would allow all stakeholders to participate in the discussion of a core survey. Such an active participation from all stakeholders are essential to maintain the support for a household survey system over a 10 year inter-censusal period.

The main part of the report is then the justification, presentation and discussion of all technical aspects of a core welfare survey. Based upon MDG indicators and the necessary back ground variables, a questionnaire for scanning is presented. It is recommended to use either such a scanning approach or to use an electronic version of the questionnaire. The electronic version will be available for downloading from 2016 at www.ssb.no .

The main focus of the data entry presentation is on technicalities. The main challenge for data entry is to balance the need for quality data with the need for a smooth data entry process. The need for tight supervision from professional statisticians is stressed. This is the only way to reduce the need for data revision. Electronic data collection with CAPI allows for moving the quality control closer to the data collection by ensuring that only legal characters may be entered and that inconsistencies are flagged for the enumerators already in the interview-situation. But this possibility requires an even better data entry design. An electronic scheme for data-revision will be made available for downloading from 2016 at www.ssb.no .

A detailed plan for training and field work with manuals and quality control schemes is presented. The need for proper economic supervision and a sampling approach which would allow for cutting the sample short to stay within the budget framework in case of delays is presented.

A detailed set of dummy tables for both standard tables and highlights are listed.

The report is winded up by recommendations for how to disseminate statistics to a wider audience, and how to store metadata and micro-data and the overall documentation of the work. This will allow both for further analysis and for ensuring the institutional memory for the next survey-round.

1.2. Outline

The report includes twelve chapters and is accompanied by seven appendices. An introduction chapter presents the objectives and justification of a household survey system built upon a light core survey. It also highlights the advantages of a core survey repeated on a regular basis building capacity both in the national statistical office conducting, processing and disseminating the survey-findings and among the users for policy analysis and evidence based policy decisions reflecting the statistical findings. A separate chapter presents the concept papers which always should be developed in order to present and market the survey for policy makers, the government and potential funding agencies.

The Welfare Core Survey question-list starts with a review of which MDG indicators that may be captured by a household survey either in a core survey module or in extra modules. The standard global questionnaires are then reviewed in order to identify the questions to be included in the Welfare Core Survey. This should be a standardized and fairly short questionnaire, providing only the information needed for computing the relevant indicators and the background information needed to group the population into the relevant subgroups. We also review and identify questions which may be included in additional modules within an integrated national household survey program. The Welfare Core Survey should be a light survey approach. Hence it will be restricted as far as possible to one respondent, the male or female household head, responding on behalf of the household and household members. It should be light enough to allow a mobile team to list and enumerate an enumeration area in a couple of days, allowing for a steady flow of completed questionnaires and an early start of the data entry process.

The next chapters present the questionnaire design options whether paper forms for scanning or an electronic version for tablet PCs. For both the scanning an CAPI/tablets option, preprogrammed data entry procedures, including data verification, data cleaning, establishing raw data files and analysis files are presented, partly in the chapter and partly as soft copies to be made available at www.ssb.no during 2016. The questionnaire design is followed by a presentation of sampling alternatives and the preferred options.

The basic principles for survey sampling are presented including how to balance a sample ensuring a proper accuracy both at provincial and country level. A two stage sampling with proper stratification at the first level is recommended.

The field work chapter addresses the issues to consider and present a main option. Based upon this main option, a logistics system for time and quality control is presented. This includes a brief summary of the principles for the manual for enumerators, supervisors and officers. The manuals are included in the separate appendices document. The budget and approach for economic supervision is addressed in a dedicated chapter. One chapter is devoted to the preprogrammed dummy summary tables and the layout of the main WCS tabulation report. A final chapter addresses the dissemination of highlights and overall results.

2. Introduction

2.1. The need for a systematically designed household survey system

All countries have a need for systematic information and statistics on the situation in the country both nationally and internationally. Nationally there is a need for following the national development plan and other main national policy initiatives as well as for informing the public at large both across the country and for consistent information to show the trends over years. Internationally there is a need to provide information and statistics which is consistent and comparable with international standards both for the current situation and the trends over time.

In most countries a National Statistical Development Strategy (NSDS) will outline the means for the provision of this type of information. A statistical business register, annual economic statistics, price indices, and national accounts compilation provides economic information according to international standards agreed upon by the UN Statistical Commission. But there are still no general recommendations for a system for population and social statistics.

Hence each country will have to balance the need for information on population and social conditions for their own planning and for international reporting and establish a system for systematic provision of this type of information and statistics. Without a systematic plan and approach for this area of statistics, many countries end up with both a number of inconsistencies and duplication of data. If the statistical office change the definition of poverty or switch between school enrollment and attendance, the ministries are not able to tell whether a policy achieves what was planned. The population will not get the information they need in order to decide whether to support the government in an election or rather vote for the opposition parties.

All NSDSs recommend a household survey system. A household survey system would usually include a list of social surveys to be undertaken in the years between two consecutive decennial censuses. But a rotating set of surveys are not enough to ensure consistent information on the development of the indicators. Information in any given sector would usually only be included once or twice during that period. And information from sectors which are not the main priority for a survey may often not ensure the consistency over time, such as for the following reasons:

- Any sector survey tends to ask in details for the priority sector. That will tend to give a higher income, a large workforce, a higher consumption and so on compared with summary questions.
- A donor organization may not only has its own priorities, but even its own definition of main variables. That tend to give biased estimates, such as switching from having received the recommended number of vaccinations to having received them on time, or switching from school enrollment to school attendance, or switching from having worked during the last 7 days to the last 4 weeks or even to the last year.
- Some definitions are tricky and will often change from survey to survey. Any census will collect information on de facto population, but very few also include information on de jure population. Hence it is difficult to compare a survey sample with the census results. Some surveys include the male head of household in polygamous households in the household of each and all of his wives. Hence the husband may be included in several households. Others only include him with the main wife. If he lives away from his village he may even be included as a one-person household in an urban area or as a member of his brothers household in a fishing village.

2.2. How to provide regular, systematic and consistent information and statistics?

The best way to ensure regular, systematic and consistent information and statistics on social issues is to design a priority core which is to be included every time a social sector survey is conducted.

This will allow the national statistical office to work with planners in the line ministries to agree upon the core information needed, to ensure provision of statistics for national priority policy issues, to ensure consistency with international standards and not at least to build national capacity and experience on the applied

survey methodology and hence to ensure a proper quality of the data and being able to negotiate with funding agencies to accept using the national standards. It will also allow the users of data to follow the trends, comments upon the results and hence ensure that the high quality is retained over the years.

2.3. Why a Welfare Core Survey?

A welfare survey system with a fixed core which is implemented in a regular manner will respond to all these challenges. It will ensure three main outputs and three main outcomes:

- *Statistical output*: Regular, annual or bi-annual welfare statistics presenting both the levels and development trends of priority welfare information
- *Policy and planning output*: It will be able to provide information in a format which would allow policymakers to do evidence based planning. If the information the first year(s) is slightly off track, the policymakers may sit down with the national statistical office to adjust the variables to suit the planning better in the coming years.
- *Coordination and NSDS output*: A standard set of background variables, descriptive variables and methods would make it easier to ensure coordination with sector surveys, censuses and administrative records.
- *Statistical outcome*: A standard format will allow the statistical office to gain experience and build capacity to ensure efficiency, quality and timeliness.
- *Policy and planning outcome*: A standard set of statistics will allow policymakers and public at large to utilize the information collected in an enhanced and more regular manner.
- *Coordination and funding outcome*: A standard set of statistics will improve the negotiation power of the national statistical office towards donors pushing for their own special standards. It will be easier to push the donors to accept the national standards or provide larger funding to collect both set of variables. An established household survey system with a core survey providing regular trend statistics which is used by the policymakers and planners in the country may allow for lower costs, higher demands, higher political support in the cabinet and possible a larger share of national budget funding.

2.4. Objectives of the survey

Overall objective

The overall objective of this survey is twofold:

- First, to provide information which may guide the resource allocation and policy decisions over time in a country in order to ensure economic and social development
- Second, to build a sustainable national capacity for providing regular statistics at a proper quality in a timely and efficient manner

Three major data provision objectives

The Welfare Core Survey has three major data provision objectives, as follows:

- To provide information on the level of socio-economic MDG-indicators, national development plan indicators and core sector information at a given point in time
- To provide information on the changes in socio-economic MDG-indicators, national development plan indicators and core sector information over a decennial period allowing for monitoring of the impact of resource allocation and policy decisions over time
- To provide a means to link more detailed sector information to the basic socio-economic information

Three national capacity building objectives

In order to provide this information in a regular manner, there are three institutional objectives:

- To improve and sustain national capacity for the collection, processing and dissemination of this information both at a given point in time and in a regular manner such as every year or every second year
- To improve and sustain national capacity for quality control, time line control and efficient collection, processing and dissemination at an affordable price

- To improve and sustain national capacity for combining the core information with other sector information in a decennial household survey program

Specific objectives

The list of specific objectives includes both data provision objectives and institutional development objectives.

Specific data provision objectives

The first set of data provision objectives is to collect survey based information for all MDGs and other priority indicators which may be provided through an ordinary household survey, i.e. a household survey with ordinary statistical enumerators and a reasonable sample size.

The second set of data provision objectives is the provision of a basic but still comprehensive set of indicators within the following sectors:

- Background information allowing for comparison on geographical and other basic background information with the census and other surveys
- Demographics
- Education
- Employment
- Housing standard and amenities
- Maternal and child health

Specific institutional development objectives

In order to fulfill the major institutional objectives, the following specific institutional objectives need to be fulfilled:

- To improve and sustain national capacity for questionnaire design for provision of national priority information
- To improve and sustain national capacity for quality control at every stage of the data collection, data processing and data publication
- To improve and sustain national capacity for budget control and efficiency
- To improve and if need be build and sustain national capacity for a meta data approach which allows for dissemination of trends and combining and comparing information collected in a core survey, sector modules and other household surveys
- To ensure the utilization of new technology for data collection, verification and processing at the national level

A household survey system based upon regular Welfare Core Surveys

The Welfare Core Survey as presented in this document is the steady core of a flexible Welfare Core Survey household survey system implemented on a regular basis such as every year or every second year by a national statistical institute.

A household survey system built around a Welfare Core Survey		
Year 0	Population and Housing Census	
Year 1	Welfare Core Survey	
Year 2	Welfare Core Survey	Household Budget Module over 12 months
Year 3	Welfare Core Survey	Agricultural sample census w/ large sample
Year 4	Welfare Core Survey	Demographic and Health Module
Year 5	Welfare Core Survey	
Year 6	Welfare Core Survey	
Year 7	Welfare Core Survey	Household Budget Module over 12 months
Year 8	Welfare Core Survey	
Year 9	Welfare Core Survey	Demographic and Health Module
Year 10	Population and Housing Census	

2.5. The statistical outputs and outcomes of a Welfare Core Survey system

The statistical outputs.

A Welfare Core Survey will repeat the background variables, the main descriptive variables and methods from year to year ensuring consistency and even a special focus on the changes from year to year and the trends over many years. Obviously a short or light survey is easier to process and publish than a large one. But the survey statistician would recognize another main advantage with a Welfare Core Survey. As a survey statistician you are tempted and often just told by the users or the funding agency to do some last minute changes. Unfortunately these changes are often not followed up in the control routines and revisions by enumerators, supervisors and officers. Hence the data set may easily end up with a number of inconsistencies adding a considerable time lag through the data entry, processing and revision phase. On the other hand, with a Welfare Core Survey you may improve the control routines and quality checks based upon the experience from the first survey into the second survey.

A short survey which is repeated lends itself for electronic means of data collection. The move from paper forms to scanning and optical reading reduced the key punching errors, but unfortunately also introduced some reading errors. Hence post enumeration verification remained a critical stage which often has delayed survey data processing. The use of handhelds PDAs and now Tablet PCs have allowed for electronic checking in the field, but available time ahead of field work is often too short for proper programming. However, a core survey where the main content is repeated from year to year allows again for developing the verification procedures from one year to the next. A Welfare Core Survey will justify using the necessary time and staff to develop sophisticated and balanced checking procedures as well as for revision of these for the second round of the Welfare Core Survey based upon actual staff performance.

There is a growing need for estimates for smaller population groups such as for districts. Ad hoc large sample survey are both very expensive, require often very long processing periods and may even be inconsistent if the supervision ends up being done by one officer for each region due to the lack of overall national supervision. With the experience and capacity developed from a standard Welfare Core Survey, the national statistical office will be ready to ensure consistency even when splitting into regional teams. They will also have built the capacity to ensure a fast turn-around.

It is essential to stress that while a Welfare Core Survey is designed to collect, process, report and disseminate a core set of statistical information, it is also well designed for extra modules. As long as the Welfare Core Survey is retained, you may add any type of household module. Ideally the information included in the core should just be transferred to the sector module. The sector module will then have a small base for the specialized and detailed questions.

Some types of information have regular seasonal fluctuations, such as income and consumption, food security, prices, labor market and wasting. Hence it is essential that the national statistical office conduct their field work in the same season every year. The alternative is to collect the information throughout the 12 months period. With two or three such surveys, one may calculate seasonal correction factors to be applicable for many years to come.

The statistical outcomes

When designing a household survey, the survey statistician will always face a number of critical decisions in order to balance the need for the ideal data set, with the need to make sure that all question are perceived the same way by the respondent, handled the same way by the enumerators, checked as planned by the supervisors and entered in the computer according to the correct logic. With proper training the survey statistician may learn about some pitfalls and make corrections. But inevitably the whole team will learn throughout the field work and processing work. This will however usually be too late to make the necessary corrections in an ad hoc survey.

However, when being aware that the survey is to be repeated, all levels from officers to supervisors and enumerators are building up experience and ability to spot and correct the problems for the second and third Welfare Core Survey. The team will be encouraged to summarize the experience and adjust the design, the training, the field work and the processing for the following rounds.

2.6. The special features of a Welfare Core Survey

Retain core information in the core module even when you add a sector module

The core survey approach is based upon a core module with basic information from several sectors. This core information may be processed and published according to established routines. When you add a sector module, it is essential that the questions for this sector in the core, are retained as before within the core. When using paper questionnaires or scanning, the interviewer may either repeat the questions or just transfer the answers. When using CAPI, this information may be pre-programmed to pop up automatically for the sector module.

A Meta Data-Base

It is essential that the national statistical office create a meta-database with standard formulation of each variable and retain the exact formulation of the questions even when including global surveys. This may be used as an argument to give preference to national standards rather than a special donor standard.

Careful consideration of each variable to national needs and international standards

On the other hand this requires a careful consideration on the choice of standard formulation for each question. It is essential to review all international standards sector by sector when designing the core. However always remember that the national requirements are the most important. Any national statistical office will in the long term be more dependent upon support from the national than the international stakeholders. Of course, be aware that even international stakeholders may have chosen different standards such as the DHS and the MICS for health related issues.

How to combine a Welfare Core Survey with a research approach

A large survey designed for research should ideally be conducted in a typical and common situation. This is especially important for sectors with large fluctuations such as a large scale agricultural survey. But since you do not know the situation ad hoc, you are dependent upon a possibility to adjust for special fluctuations.

Hence for a sector survey designed for research, the link to a Welfare Core Survey system is a very proper approach. If the season ends up being very special due to drought or flood, the series of Welfare Core Surveys may be used to check which regions of the country really faced a special situation. It may then be used to adjust the research information.

How to combine a Welfare Core Survey with a panel approach

As for any household survey you will usually use the last population and housing census as the sampling frame. If the NSO has designed a Master Sample you would use that, otherwise you may have to design a sample from scratch. As for any household survey system you may choose to draw a fresh sample for every survey or use a panel approach. As being discussed later in this document, a rotating panel approach where any household is retained for two years in the sample and supplemented with a fresh sample, is recommended by the Statistics Norway experience. Retaining the households for two years will ensure some stability, while including a 50 per cent fresh sample will avoid any repetition bias.

For special surveys such as the Melinda and Bill Gates agricultural panel surveys, you may well retain the same set of households for two years, but already the third year you may well face a bias. Several NSOs have learned this the hard way when replacing a 5 year panel sample with a fresh one. What were smooth trends have a high probability of turning into a leap change.

How to retain a Welfare Core Survey with donor pressure for a special survey

As addressed in paragraph 1.3.1 the Welfare Core Survey may well be combined with a sector survey. It is however essential that the Welfare Core Survey is retained intact in order to be able to utilize all advantages. The information from the Welfare Core Survey may then be transferred to the sector module electronically by the enumerator or repeated.

From a professional view this is straight forward. But since the donor surveys may well be promoted by a donor representative without proper statistical experience this may be a challenge. The best approach may then be to repeat the questions both in the Welfare Core Survey and the sector survey module.

How a Welfare Core Survey may smooth the transition to improved professional capacity and statistics

It is the clear experience from the institutional cooperation of Statistics Norway that a Welfare Core Survey will increase the capacity of an NSO as an institution and the staff. In the next round this builds confidence of the staff themselves and ensures an improved acknowledgement and confidence of the NSO among the user institutions. In short , it creates a positive spiral.

2.7. The policy base for a Welfare Core Survey

The policy output

When selecting the content of the core module itself for a Welfare Core Survey, there are three main concerns, as follows:

- First, there is a need to select information for national policy makers and/or for national policy discussions.
- Second, there is a need to consider the overall national statistical system and making sure that this system will provide the essential information on outputs, outcomes and impact of national policy.
- Third, there is a need to follow international standards for each variable.

If the country is dependent upon donor funding, there is also a need to include major donor surveys in the survey system.

At the national level the main requirement for a Welfare Core Survey is to deliver statistical information as requested by the national policy makers. This would often be for the national development plan. This may usually overlap with the MDGs and hence the MDG are prime candidates for a prototype Welfare Core Survey.

The policy outcome

It is essential for any Welfare Core Survey, any household survey system, any NSDS and any national statistical office to build and retain a dialogue with the policy makers and planners. When the reports from the first Welfare Core Survey is presented it should be followed up with an active dialogue to present interpretation of the results. It should be considered to establish joint working groups with the main line ministries to

write additional analytic reports. This process will build the capacity for better understanding and cooperation between statisticians, analysts and users.

2.8. Policy bases for a Welfare Core Survey

As stressed above in order to justify and get support for a core survey system it is essential that it builds upon and serves specific policy areas. This may be a national development plan, an international policy agenda and/or specific policy areas of large public interest.

In Statistics Norway this has been the living condition policy area. This was introduced by our Swedish sister-agency Statistics Sweden in the 1960s (Johansson 1970) and further elaborated upon by Statistics Norway as the rotating living condition panel survey system (SSB 1975). This allowed us to retain a core of living condition issues and questions and add modules in a rotating manner.

The World Bank developed core surveys for several areas, both research areas and policy areas such as the Living Standard Measurement Study, the Social Dimension of Adjustment policy agenda, and the Core Welfare Indicator Questionnaire (World Bank 2000a, 1992, 2000b).

However, when UN introduced the Millennium Development Goals from 2000 (UN Statistics Division 2008), this has been the global priority set of indicators and the priority policy area for an international prototype survey as this one.

When the Sustainable Development Goals are finalized and approved by the UN General Assembly in the fall of 2015, this may serve as the policy base for a revised global prototype. But in 2014, the MDG is the obvious priority policy area and used at the starting point for this prototype welfare core survey.

The MDGs as a universal core

Over the last 10-15 years, all countries across the globe have reported on the levels, trends and possible improvements in the 8 Millennium Development Goals, the 15 targets and the 60 indicators with sex and urban/rural breakdown. Currently there are several discussion on the Post-MDG statistics, but so far the discussions on Post-MDGs are rather focusing on aggregated sector variables than extending the MDGs rather than individual, or household level indicators replacing the current MDGS.

Many countries are also now committing themselves to an End-Line MDG survey measuring their achievements. Hence the MDG indicators have grown into a universal set of development goals which lend themselves to serve as a universal core set of indicators.

Goals and targets versus intermediate and back ground variables

As the name says, the MDGs focus on goals, from policy outcomes to end goals. In order to design, monitor or evaluate policy you need information on both inputs, outputs, outcomes and impact on goals. Information on inputs and outputs such as financial inputs from the government budget, physical inputs like building material and the finished infrastructure being schools, health posts and roads, will come from the monitoring and evaluation system, administrative records and management information systems.

But for the outcomes and end goals proper statistics is needed, not only for the population at large, but even for sub-groups according to demography, geography, economic situation etc.

A national social statistical system combining administrative information with an Welfare Core Survey

It should be underscored that the Welfare Core Survey is not supposed to serve as a selfstanding social statistics exercise, but rather a core element in the information matrix providing information on inputs, outputs, outcomes and impact for the main social sectors.

While the MDGs were identified and selected in order to provide information on end-goals, when it was developed the information needs even for outcomes and outputs where also discussed and included among the MDG indicators when needed in order to fill information gaps.

When designing a core module at the national level, it is essential to repeat this exercise within the framework on a National Strategy for Development of Statistics.

In this document we are presenting a generic solution with a focus on the MDG indicators, assuming the remaining information is provided by other elements in the NSDS.

Coordination and NSDS output

As already addressed, while the SNA system recommendations give the standards for economic statistics, there are no similar general standards for social statistics. Hence any national statistical office has the challenge to build the bridges across international statistical standards, national sector standards, and the national policy needs across the sectors.

Hence a standard set of background variables, descriptive variables and methods from a Welfare Core Survey would make it easier to ensure coordination with sector surveys, censuses and administrative records.

Coordination and funding outcome

Any national statistical office will have to negotiate with the various funding agencies. The basic funding will usually come from the government budget. But in many developing countries there is a substantial donor funding and then many countries meet a demand from funding agencies to use their statistical standards. The funding agency may naturally be more interested in international comparisons and hence one risk jeopardizing the national standards and consistency.

A well-established standard set of statistical definitions and variables may however improve the negotiation power of the national statistical office towards international donors pushing for their own special standards. It will be easier to push the donors to accept the national standards or provide larger funding to collect both set of variables. A household survey system with regular Welfare Core Surveys providing annual trend statistics which is used by the policymakers and planners in the country may allow for lower costs, higher demands, higher political support in the cabinet and possible a larger share of national budget funding.

2.9. Advocacy and planning

Thorough planning, strong advocacy and broad stakeholder involvement is essential for the successful implementation of a light survey program. As addressed in the previous chapter, the Welfare Core Survey is a light core survey within a more comprehensive household survey system. The main justification is that annual observations are important to monitor indicator development. However, it is also a valid justification that this approach will strengthen the national statistical capacity. Annual implementation of light surveys provides an excellent training opportunity for the NSO, because even in the case of substantial staff turnover, it is likely that a critical mass of experienced staff will still be available to implement the next year's survey.

Drafting a Concept Paper

The planning process starts with the elaboration of a "Concept Paper" (CP). The Welfare Core Survey CP is a document that introduces the survey to domestic and international stakeholders. The intention is both to inform stakeholders, and to "sell" the proposal to possible funders. Although usually drafted by statisticians, the CP should contain only a *non-technical* general description of all important aspects of the survey, and then be distributed to all current and potential stakeholders, in particular to possible donors. Next step is a round of plenary or bilateral dialogue meetings with stakeholders about the issues in the CP, and an assessment of whether the light survey (program) is technically and economically feasible. The main stakeholders are usually other producers of official statistics, domestic public and private users, foreign users and donors, media, academic institutions and NGOs. Given this wide scope of target groups, the content of the CP document must inevitably be a compromise, in terms of topical coverage and technical complexity.

Initiating the Stakeholder Process and Detailed Planning

It is strongly advisable to confer closely with some few key stakeholders during the early stages of the development of the Concept Paper. For reasons of efficiency, it is however important also to limit the number of stakeholders to be actively involved at this stage. But once a first, consistent version of the CP is ready, a wide distribution and the incorporation of all stakeholders are important. The survey organizers should put some effort into identifying the most likely funders, and approach them as early in the CP drafting process as possible. Direct advocacy towards the likely users should be the rule, being very specific about the indicators that the survey is supposed to provide. Our primary advice is that the chances of a successful implementation will be greatly augmented by bringing in the main stakeholders into the survey process at an early stage, both on a technical and a political level.

Funding arrangements are also greatly facilitated if a *fairly detailed budget is drafted as early as possible*. This requires prior decisions on the desired reporting domains, the corresponding sampling design, and plans for how to organize the field work, including data processing and data quality checks. Given these decisions, it is advisable to use budgets from prior successful surveys as a reference. Transaction costs in terms of advocacy and reporting will be greatly reduced if donors are encouraged to form a *donor group*. Most donors are professional, in the sense that they prefer to receive a *realistic budget*, rather than one that is obviously just a bargaining proposal. When discussing survey budgets, the survey organizers should keep in mind that many donors are reluctant to fund specific items. Which items that are controversial items may vary, but typically sensitive items are field allowances, advocacy workshops, cars and car maintenance, and gasoline. Costs for technical assistance may be included in the regular budget, or appear in a separate document.

3. Concept paper and survey planning

3.1. Two planning levels - a concept paper and a technical implementation and field work plan

There are two major steps in the planning of any survey, the conceptual planning for a wide audience of stakeholders and staff and the technical implementation plan.

A concept paper will be prepared in an extensive dialogue with all potential stakeholders, first and foremost the producers such as the implementing NSO and the users usually the main policy making institutions and representatives of the public at large such as national NGOs and the civil society, but also potential funders including both the government and donors. Given the need for coordination with other data collection activities it is also strongly recommended to coordinate with a wider national and international audience producing or using related surveys and censuses. Given the wide consultation process, the concept paper should justify the proposed survey in a layman's language while still presenting the necessary policy, survey technical, field approach, timing and budget elements all linking up to national development and statistical plans.

In parallel with the concept paper, a technical implementation and field work plan should be developed. This would allow for the technical information to guide the consultation process of the concept paper. Without this professional knowledge in a written format, the policy makers will not be able to take informed decisions. A common example is that policy makers may want information on the number of children at school age or agricultural crop output at a very low administrative level on an annual basis. Statistician will then need to tell them that this will require census information which is extremely expensive and only available with a large time lag. They will be far better off with population projections based a population census every 10 years and proper quality crop forecast information at province level combined with analysis from an agricultural census every 10 years.

3.2. The concept paper

The following paragraphs present the content of the concept paper in further details and a Welfare Core Survey Concept Paper is annexed.

Concept paper – objectives

Introduction
It is essential to include a short ½-1 page executive summary to catch the interest of potential stakeholders. It is also essential to include a list of acronyms, definition and a list of content.

Survey rationale
The concept paper should address why evidence based information is needed and why a survey rather than administrative information or a census is the proper data collection tool.

Overall and more specific objectives
The overall objective may and should usually be very general such as providing information for better resource allocation by government, a growth oriented policy, a poverty reduction strategy, or referring to a policy document such as providing information for the National growth and equity strategy.

The list of specific objectives would usually either refer to a policy document or should refer to policy issues identified through discussion with line ministries etc. In both cases the concept paper should list these specific objectives.

Specific survey and analysis tradition
It is always important to put the survey in a professional context and to link the variables to the national and international traditions. The professional context may be the household survey system of the NSO, a subject matter survey tradition, and the links to administrative information and the census.

At the international level the concept paper should present the main literature references either similar survey from other countries and/ or international prototypes.

Concept paper – methodology

Data collection methods

A survey may comprise several data collection methods. The main one would usually be a combination of a household survey and an individual survey for one or more of the household members. However in a number of cases, other data collection methods would be added, such as geographical coordinates, consumption and expenditure diaries, measurement of children by weight and height, crop measurement and even a community survey. These survey instruments may even be linked to census results, other surveys or administrative information such as vaccination cards.

The data may be collected by several means such as by interviewers filling in paper-forms, by interviewers using electronic devices, by mobile telephone text messages or through internet.

Training, pretest, and pilot-test

Training and testing should be undertaken in two steps. At the first step, the officers and main field supervisors will be trained and undertake a pretest to learn whether the questions are understood by the respondents as planned by the survey staff. Then the forms will be revised and ready for the pilot. All supervisors will be trained for field work and serve as enumerators for a pilot-test. The pilot-test should aim at testing the field approach, data entry and quality control rather than the questionnaire forms. Upon completion of the pilot-test some modification of the field work approach may be undertaken before the general training of the enumerators is conducted.

Sampling

The concept paper should present the population frame and whether to use a Master sample or a dedicated sample for the current survey. It is recommended already at this stage to present the planned level of estimation and dissemination, accuracy and required sample size.

Field work approach

The planned field work approach should be presented such as mobile teams, comprising a supervisor, four enumerators and a driver in each team, how many days in each EA, whether to combine listing and enumeration, necessary breaks and when and how to return the forms.

Data entry methods

The data entry approach follows from the data collection methods. When using traditional paper-forms, the data may however be entered by traditional key punching, by optical reading, by optical character reading or a combination.

The data may be entered by a data entry clerk following each team, at provincial level, or at the central level.

Level of tabulation

The demand for level of tabulation should guide sampling and accepted accuracy.

Analysis

A plan for analysis by the survey team and how to make data available for further analysis should be presented.

Time line

A detailed time line showing how tasks are dependent upon previous tasks is a must.

Budget
It is essential to include a detailed budget, both to document the need for resources and for possible revisions during the planning process.

Concept paper – dissemination
The concept paper should present the planned outputs. The minimum would be a tabulation report, web-dissemination and how to make the documentation and data available for further analysis. It is however recommended practice also to include planned press-releases, user workshops and dissemination of highlights.

3.3. A technical implementation and field work plan

It is essential to prepare a detailed technical implementation and field work plan at an early stage in order to be able to present the approach to users, donors and other stakeholders at an early stage. This plan will then be revised throughout the planning stage.

Implementation plan - Objectives
No study should be undertaken until there is a clear specification of the study objectives and the questions which the study is aiming to address. It might start out with a broad objective, like measuring MDG's. However, the objectives has to be specified during the planning process, so as, in our case, to give data to monitor MDG's suitable for a light survey approach, and as part of an integrated household survey program. The objectives should also specify the level of detail for the survey information, as well as which domains the survey is supposed to cover, whether national, regional, broken down by sex etc. One main objective for any survey not to be forgotten, should be capacity building. Implementing a survey will increase capacity for survey taking throughout the whole implementing agency.

Implementation plan - Policy documents.
Once the data needs have been defined, it has to be decided whether the proposed survey will be the only, or the most reliable way, of providing the desired information. In our case, the relevant document is primarily the MDG list of goals, targets and indicators. However, the survey should not be seen as isolated from other activities of the NSO, so a NSDS, if available, should give some input to the planning process. If the NSO has a survey program, it should be considered how the present survey fits into that program. Also, whether other surveys cover the same desired information at the same desired time intervals should be taken into account.

Information available from administrative records should also be reviewed and the definition of variables, as well as the quality, coverage, and the timeliness of the information should be assessed. International recommendations have to be taken into account, as well as national and international concepts and definitions. Only after this preliminary analysis of data needs and data supply should it be decided to go forward with the survey plans.

Implementation plan - Stakeholders and user groups
Demand for the information that will be generated from a survey arises from different people and institutions. These stakeholders play an important role at many stages of the survey cycle including demand for information, contributing to the funding, conceptualization of objectives, technical aspects, implementation, use and dissemination of survey results. They can make important contributions to the capacity of the implementing agency, to the public perception of the survey and to the extent to which the results are used. They also provide useful feedback for improvements in future runs of the survey. It is therefore valuable to identify such stakeholders at the time of conceiving the survey need, and to keep these stakeholders involved and/or informed of survey activities. Not only possible funding agencies and primary user of the results should be included in the stakeholder group, but also intermediate users and representatives of the public at large, such as researchers and universities, media, NGOs and the civil society. Involving these groups at planning stage would both contribute to ensure their support, to get important inputs for revision of the plans and to prepare them for the use of the survey results and data.

Implementation plan - Donor coordination

In a situation where there are several stakeholders it is important not only to coordinate their data needs, but also their funding. This does not apply only to the first round of WCS, but for all future surveys planned. Donor coordination should ideally be pooled together and coordinated with the government funding, either for the single survey, for a household survey system or even for a National Strategy for Development of Statistics providing a predictable and stable long term funding.

Implementation plan - Survey time line

A survey time line is an important planning tool, both in order to make sure that all steps in the survey process is taken care of, and that they are completed as need be. A more general time line should be prepared for the overall planning and later developed further for the more detailed technical planning. Ideally the time line should present the household survey system with two or more single surveys.

Implementation plan - Budget

The combination of a detailed survey time line and a detailed survey budget is essential for the survey task manager to be able to monitor both time use and expenditures. The task manager would then be able to decide how to cope with delays and high spendings.

Any survey budget has three or even four dimensions, the type of spending item, the survey activity and the time period. The fourth dimension, the funding, will usually be a separate dimension, but if any of the funding agencies provides conditional funding, such as for a special area which could be a project area, a province or all rural areas, it may be necessary to include this dimension in the budget.

With three dimensions, the budget may best be prepared with a set of worksheets, one for each sub-task, with fixed budget lines/ spending items and fixed time periods. These sub-task budget worksheets would then be summarized in an overall survey summary budget.

With such a budget, the task manager would be able to decide how to undertake necessary reallocations if there is an overspending or a delay.

The budget sub-tasks should of course be consistent with the time line sub-tasks. The budget lines should accommodate the need to detailed planning, the accounting lines of the NSO and the requirements from the funders.

A bonus for a detailed budget is a better ability to convince donors and funding agencies of all the financial needs.

4. A detailed review of the MDGs and the survey options

As stated in the introduction chapter the design of a welfare core survey should be based upon the information needs. This prototype WCS is aimed at providing information on the MDGs in a manner comparable with other (and larger) surveys addressing the MDGs. Hence in this chapter each MDG with goals and targets are reviewed, followed by a review of a list of well-established survey-instruments providing comparable information. The design process aims at recycling and using proper questions from these surveys for provision of the information needed.

The readers who are not interested in the design-process may just read the tabular presentation of the questions, variables and values including administrative and location information which are needed for the survey.

For the readers who would like to learn about the design-process, the rest of the chapter presents each MDG indicator by the MDG Meta database definition or an abbreviated description. *Direct quotes are presented in italics*. We then present how four well established surveys have chosen to collect this information and a recommendation for an MDG prototype survey. The four surveys reviewed and considered are the Malawi Welfare Monitoring Survey (NSO 2012), the Living Standard Measurement Study survey (Grosh, M & P Glewwe, 2000), the Demographic and Health Survey (DHS, 2012) the Multiple Indicator Cluster Survey (Unicef, 2012) and the Core Welfare Indicator Questionnaire (World Bank, 2000).

4.1. A Summary Presentation of MDGs

The following copy of the official summary sheet of the MDGs presents the Millennium Development Goals, targets and indicators which are reviewed in this chapter (UN Statistics Division, 2008).

Summary presentation of the MDGs, goals, targets and indicators	
GOAL 1: ERADICATE EXTREME POVERTY AND HUNGER	Indicators in black may be collected by a standard WCS. Indicators in green require an extra module. Indicators in red are not suited for collection by a WCS
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.1 Proportion of population living below $1.25 (2005 PPP) a day 1.1a Proportion of population below national poverty line 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption 1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below $1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption
GOAL 2: ACHIEVE UNIVERSAL PRIMARY EDUCATION	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men
GOAL 3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary and tertiary education 3.2 Share of women in wage employment in the non-agricultural sector 3.3 Proportion of seats held by women in national parliament

GOAL 4: REDUCE CHILD MORTALITY	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1 year-old children immunised against measles
GOAL 5: IMPROVE MATERNAL HEALTH	
Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio Target 5.B: Achieve, by 2015, universal access to reproductive health	5.1 Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel 5.3 Contraceptive prevalence rate 5.4 Adolescent birth rate 5.5 Antenatal care coverage (at least one visit and at least four visits) 5.6 Unmet need for family planning
GOAL 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES	
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it	6.1 HIV prevalence among population aged 15-24 yrs 6.2 Condom use at last high-risk sex 6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years 6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs
Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.6 Incidence and death rates associated with malaria 6.7 Proportion of children under 5 sleeping under insecticide-treated bednets 6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs 6.9 Incidence, prevalence and death rates associated with tuberculosis 6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course
GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY	
Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	7.1 Proportion of land area covered by forest 7.2 CO2 emissions, total, per capita and per $1 GDP (PPP) 7.3 Consumption of ozone-depleting substances 7.4 Proportion of fish stocks within safe biological limits 7.5 Proportion of total water resources used 7.6 Proportion of terrestrial and marine areas protected 7.7 Proportion of species threatened with extinction
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums
GOAL 8: DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT	
Target 8.A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Target 8.B: Address the special needs of the least developed countries Target 8.C: Address the special needs of landlocked developing countries and small island developing States Target 8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	8.10 Total number of countries that have reached their HIPC decision points 8.11 Debt relief committed under HIPC and MDRI Initiatives 8.12 Debt service as a percentage of exports of goods and services

Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	8.13 Proportion of population with access to affordable essential drugs on a sustainable basis
Target 8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	8.14 Fixed-telephone subscriptions per 100 inhabitants 8.15 Mobile cellular subscriptions per 100 inhabitants 8.16 Internet users per 100 inhabitants

4.2. Required administrative, household roster and background information

Before presenting the main subject matter content of the Welfare Core Survey, we present the general administrative information and the general household roster information.

The administrative information should fulfil two needs, first to identify the households and then to ensure the quality context for the survey information.

The information to identify the households need to link to the standard national statistical office way of recording this type of information with links to listing information and geographical information. Hence the following bits of information are needed:

- Serial number of forms are essential in order to check quality and link information
- Regional ID codes with information on such as district, county, sub-county, and enumeration area (primary sampling unit)
- Identification of the household including building/compound, dwelling and household number in EA. It is important to allow for information both in urban apartment blocks and rural compounds for one or more households.
- In many countries it is also essential to categorize the households in separate strata beyond urban/rural such as permanently settled, semi-nomads, nomads and/or internally displaced people (IDPs).
- Geographical location, which would usually be north or south and east or west coordinates, but will of course include options for either or in countries cross the zero-parallel and/ or the equator.
- Interview information should include date and times, but also the option of several visits, later appointments and acceptance or refusal
- Information on the main contacts i.e. the head of household and a possibly different main respondent. Number of forms are essential information. Typically the survey forms are designed for 8-10 household members and for large households, a second and even third form is needed and hence the number of the form should be well recorded in order to link the forms at processing stage.
- Signatures are essential to ensure accountability of both interviewer and supervisor

The basic demographic information should establish a solid roster information to identify the household according to various definitions and the necessary background information to allow comparing the sample with the census and other surveys, as well as for basic tabulation. It is essential with definitions that avoid double-counting of individuals. A common challenge is to ensure consistency from the population census de facto information to the de jure information. The best approach is to record both de facto members being present in the household at census time and the de jure information on who lived in the household 6 or more of the last 12 months. Then the household survey could focus on the standard de jure information, i.e. the member who were residing in the household 6 or more of the last 12 months. In addition a special approach is required to handle the household head. Again they should only be counted in one household, but need to be recorded even in other households to define households both for different types of female-headed households with and without support and for monogamous versus polygamous households.

These requirements may be handled by collection the following type of information:

- The persons who are living in the household including information on whether they resided 6 or more of the last 12 months with special information for new-borns and persons who moved in and settled in the household less than 6 month ago. If less than 6 months, he or she may also show up at another location and it is essential to handle double-counting in a proper manner.

- Information on the head of household is included in this section. This information may be collected either in the administrative section or in this section. There are no universal standards, hence this should be handled according to country level standard, such as defining the household as male-head if a male head is present 6 months or more, as female-headed with support it a male head is present 3-6 month or regularly sends support in cash or kind.
- Information on the relationship to the head of household requires a cautious approach. Rather than asking for relationship to the head and recording relationship to either the head or his/her spouse, one should ask for the latter.
- Information on the final educational level and employment status for all above a certain age, usually 12 years
- Information on orphan-hood should be collected for all members below 18 years of age and aim to separate between two, one or no parents alive. One need to reflect at country level how to record the situation when one parent has passed away and no information is available about the other parent.

For the Welfare Core Survey we have recommended the standard approach by asking for relationship to the head of household, but recording the relationship to a *combination* of the head and spouse.

This relationship would usually be the same, but in cases with re-marriages, a youth may be the child primarily of *either* the father or the mother. Then this would be important for the livelihood arrangement. If this is a policy issue, it is recommended to consider asking the following 2 questions for each household member:

- What is [NAME]'s relationship to the head of the household?
- What is [NAME]'s relationship to the spouse?

However for a core survey such as the Welfare Core Survey this is not recommended as a standard approach.

Administrative information needed to identify households and individuals and to group them into the relevant background categories		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Administrative information	A1 Regional ID codes To be copied from listing form	Numeric country specific codes i.e. district, county, sub-county, or EA
Identification of the household	A2 Building/compound, Dwelling and household number in EA To be copied from listing form	Numeric codes for building/compound, dwelling and household number
Building type	A3 Building type To be copied from listing form	Compound, single family house, apartment block
Geographical location	A5 North(+)/South(-) and East(+)/West(-) coordinates To be copied from listing form	Yes, no. If yes, numeric coordinates with +/- signs
Interview information	A6 Date of first interview visit To be filled in without asking respondent A7 Accept of interview	Day and month Yes, later – write appointment, refusal
About the head	A8 What is the name of the head of household? A9 How many of the last 12 months did [NAME], the head of household, reside in the household? A10 Did the head send or bring back any cash or provisions to the household during the last 12 months?	First and last name Less than 3 months, 3-5 months, 6 months or more Yes, both in cash and kind, Yes, but only in cash, Yes but only in kind, No

Administrative information needed to identify households and individuals and to group them into the relevant background categories		
Interview information	A11 Who is the main respondent A12 Date of interview completed To be filled in without asking respondent A13 Final status of interview To be filled in without asking respondent A14 Number of forms used for the household To be filled in without asking respondent A15 Interviewer's signature, check mark and ID number A16 Supervisor's signature, check mark and ID number	Head, spouse of head, other. If not head, write name and age Day and month Completed, partially completed, refusal Number Signature, yes, ID no Signature, yes, ID no
Basic demographic information	B1-B2 Who are living in this household? Make a complete list of all individuals who normally live and eat together in this household.	Include all individuals who have lived at least 6 of last 12 months in household, plus people who have been born, moved in or settled in household and still lives here. Write names.
For all [For head, fill in without asking]	B3 What is [NAME]'s relationship to the head (/spouse of head) of the household?	Head (only one head pr household), Spouse (of head), Daughter/Son (of head/spouse), Grandchild (of head/spouse), Parent (of head/spouse), Other relative (of head/spouse), Non relative (of head/spouse)
For all household members	B4 is [NAME] male or female B5 How old was name [NAME] at his/her last birthday?	Male, female Completed years
For all members 12 years old or more only.	B6 What is [NAME]'s marital status?	Never married, married, widowed, separated, divorced
For all household members less than 18 years old	B7 Is the father of [NAME] still alive? B8 IF YES: Does he live in the household? What is his household number? B9 Is the mother [NAME] still alive? B10 IF YES: Does she live in the household? What is her household number?	Yes, no No, household number Yes, no No, household number

4.3. A review of the MDG indicators which may be measured in a WCS

Below follows a presentation of all MDG indicators with definition and methods of compilation for all indicators which may be based upon information from survey sources. Indicators which may *not* be based upon information from survey sources are *not* listed. Other information such as the contact points in an international agency are not listed, please refer to the metadata base for the MDG indicators at http://mdgs.un.org/unsd/mi/wiki/MainPage.ashx

Each indicator is presented with the definition from the MDG database in italics and/ or an abbreviated description.

4.4. Indicator 1.1 Proportion of population living below $1.25 (2005 PPP) a day

This proportion of population living below $1.25 (2005 PPP) a day is defined as the proportion of the population living in households below the international poverty line where the average daily consumption (or income) per person is less than $1.25 a day measured at 2005 international prices adjusted for purchasing power parity (PPP) . This indicator replaced the $1 a day poverty since Fall 2008.

The percentage of the population living below the poverty line is calculated using either consumption or income data, gathered from nationally representative household surveys. Consumption is preferred to income for measuring poverty, because income is more difficult to measure accurately and can vary over time even if the standard of living does not. However, in practice the two methods yield similar results.

The information may also be estimated by a statistical model and a set of around 10 estimation variables from a light survey, provided a full scale household budget survey has been carried out recently The estimation variables have to be country specific. This type of information may be collected in an additional module to the Welfare Core Survey. Please refer to the test of poverty data from Uganda (Mathiassen 2008, 2013). But also this combination of a statistical model and the additional information is too demanding for the core part of the Welfare Core Survey.

Please refer to the extra module on poverty modeling.

Indicator 1.1a Proportion of population below national poverty line

The proportion of population below national poverty line is defined as the proportion of the total population living below the national poverty line.

Please refer to the extra module on poverty modeling.

Indicator 1.2 Poverty gap ratio

The poverty gap ratio is the mean shortfall of the total population from the poverty line (counting the non-poor as having zero shortfall), expressed as a percentage of the poverty line.

Please refer to the extra module on poverty modeling.

Indicator 1.3 Share of poorest quintile in national consumption

The share of poorest quintile in national consumption is defined as the share of a country's national consumption or income that accrues to the poorest quintile (fifth) of the population.This indicator is expressed as a percentage.

Please refer to the extra module on poverty modeling.

Indicator 1.5 Employment-to-population ratio

The employment-to-population ratio is defined as the proportion of a country's working-age population that is employed.

Working-age population is determined on the basis of national circumstances, but in most countries the working-age population is defined as persons aged 15 years and older. The International Labour Organization (ILO) standard for the lower limit of the working-age population is 15.

Employed refers to persons above the nationally defined working-age who performed any work at all, in the reference period, for pay or profit (or pay in kind), or were temporarily absent from a job for such reasons as illness, maternity or parental leave, holiday, training or industrial dispute. Unpaid family workers who work for at least one hour should be included in the count of employment, although many countries use a higher hour limit in their definition. The measure of employment is intended to capture persons working in both the formal and informal sectors.

Data are obtained from population censuses, labour force or other household surveys, establishment surveys, administrative records and official estimates based on results from several of these sources. Both components (employment and population) should come from the same source.

The ILO standard for the lower age limit of employment is 15 years. For many countries, this age corresponds directly to societal standards for education and work eligibility. Some countries impose an upper

limit for eligibility, such as 65 or 70 years. However, if possible age groups beyond this upper limit should be included in the employable population.

Indicator 1.7 Proportion of own-account and contributing family workers in total employment

The proportion of own-account workers and contributing family workers in total employment is defined as the proportion of workers in self-employment who do not have employees, and unpaid family workers in total employment.

Own-account workers are those workers who, working on their own account or with one or more partners, hold self-employment jobs and who have not engaged on a continuous basis any employees to work for them. Contributing family workers, also known as unpaid family workers, are those workers who are self-employed in a market-oriented establishment operated by a related person living in the same household, who cannot be regarded as partners.

Self employment includes those jobs where the remuneration is directly dependent upon the profits (or the potential for profits) derived from the goods and services produced (where own consumption is considered to be part of profits).

Data are obtained from population censuses, labour force or other household surveys, establishment surveys, administrative records and official estimates based on results from several of these sources.

Indicator 1.8 Prevalence of underweight children under-five years of age

The prevalence of underweight children under five years of age is defined as the percentage of children aged 0–59 months, whose weights are less than two standard deviations below the median weight for age groups in the international reference population.

At the national level, data are generally collected from national household surveys, including Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and national nutrition surveys. It should be noted that when comparing estimates within a country over time or across countries, these estimates should be based on the same reference population.

This indicator requires serious consideration. On one hand, underweight is a both valid and reliable indicator of the overall situation. On the other hand, the full measurement of weight and especially height requires especially well trained enumerators usually health staff. Hence one may consider either to include these indicators only some years, such as every third year, or if enough electronic scales are available, to limit the data collection to weight and age which may be collected by standard enumerators.

Goal 1: Eradicate extreme poverty and hunger		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 1.5 Employment-to-population ratio	D3 Did [NAME] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 7 days?	Yes, No
	D4 [NAME] did not work the last 7 days, but was he/she temporary absent from work and has a job to go back to?	Yes, No
	D5 [NAME] did not work the last 7 days, but did he/she work before that period and is available for work?	Yes, No
	D6 [NAME] did not work the last 7 days, but is he/she seeking work for the first time and is available for work?	Yes, No
Indicator 1.7 Proportion of own-account and contributing family workers in total employment	D7 Did [NAME] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 12 months?	Yes, No
	D8 What type of work place did [NAME] have the last 12 months?	Own household member based (no permanent employees) private farm/fishing, Own household member based (no permanent employees) private business/ industry, Owner of private farm/business/ industry with permanent employees, Work for private owners/ company/farm/ business/industry, State owned company, Public service/ administration, NGO/Ideal organization/Mission
	D9 How was [NAME] paid in his/her main job during the last 12 months?	Wage/salary with contract, Wage/salary without contract, Payment in kind, Casual (hourly/daily), Profit from sale including unpaid family workers
	D10 What was the main activity of [NAME'S] main business or place of work during the last 12 months? Based upon 21 ISIC rev.4 codes, collapsed to 16 codes and Agriculture, forestry and fishing split into three sub-groups. Please reconsider the categories at national level.	Agriculture – crops/forestry, Agriculture – animal husbandry, Fishing, Mining, Manufacturing, Electricity and water supply, Building and construction, Trade, Repair, Transportation, Accommodation and food service, Information and communication, Financial, professional, administrative and support service, Public administration and defence, Education, Human health and social work, Arts, entertainment, recreation, Personal service, Domestic service, Embassies and international organizations
Indicator 1.8 Prevalence of underweight children aged 0-59 months.	G4 Does anyone in the household have a card/document where the child [NAME]'s birth date and/or vaccinations are written?	Yes, No
	G5 When was the child [NAME] born – month and calendar year?	Month (2 digits), Calendar year (4 digits)
	G6 Is the child [NAME] weighted during the interview?	Yes, No
	G7 Weight	Weight in kg with 2 decimals

Indicator 2.1 Net enrolment ratio in primary education

The net enrolment rate (NER) in primary education is the ratio of the number of children of official primary school age who are enrolled in primary education to the total population of children of official primary school age, expressed as a percentage.

Data on school enrolment are usually recorded by the ministry of education or derived from surveys and censuses. If administrative data are not available, household survey data may be used, although household surveys usually measure self-reported attendance rather than enrolment as reported by schools. Also, household survey data may not be comparable between surveys. A serious problem with household survey data is also the inaccurate recording of pupils' ages, depending on the time of the year that the survey is conducted. Later in the school year, some younger children may appear to be of primary school age when in fact they are not. It can also happen that older children appear to be of secondary school age when in fact they were of primary age at the start of the school year.

When using administrative data, population estimates are used in the denominator. The use of different population estimates in the denominator is often at the origin of differences between national and international data for this indicator, as international population estimates generally differ from those available at the national level.

Unfortunately the MDG text does not recognize the problem of population estimates both and national and international level being just estimates. Nor does the MDG text recognize the bias in data reported by schools which tend to adjust the children's age to fit the official age limitation such as by recording 5 and 6 year old children as 7 years. Hence it is essential to collect, process and publish both administrative and survey data.

Indicator 2.2 Proportion of pupils starting grade 1 who reach last grade of primary

The proportion of pupils starting grade 1 who reach last grade of primary measures the percentage of a cohort of pupils enrolled in grade 1 of the primary level of education in a given school year who are expected to reach the last grade of primary school, regardless of repetition.

The indicator is typically estimated from data on enrolment by grade for two consecutive years and repeaters by grade for the second year, in a procedure called the reconstructed cohort method. This method assumes that drop-outs do not return to school; that the promotion, repetition and drop-out rates for the last two years remain constant over the entire period in which the cohort is enrolled in school; and that the same rates apply to all pupils enrolled in a given grade, regardless of whether they previously repeated a grade.

The calculation is made by dividing the total number of pupils belonging to a school cohort who reach each successive grade up to the last grade of primary education by the number of pupils in the school cohort (in this case the students originally enrolled in grade 1 of primary education) and multiplying the result by 100.

The indicator is based on grade-specific enrolment data for two successive years and on grade repeater data for the second year. These data are collected by countries on an annual basis through regular school surveys. Household survey data, which can be obtained from Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS) in a standard way, can also be used as they include information on current and last year school grades, as well as on level of attendance.

Indicator 2.3 Literacy rate of 15-24 year-olds, women and men

The literacy rate of 15–24 year-olds is defined as the proportion of the population aged 15–24 years who can both read and write with understanding a short simple statement on everyday life.

Literacy, in addition to the ability to read and write with understanding a short simple statement, generally also encompass numeracy, that is, the ability to make simple arithmetic calculations.

The youth literacy rate is another term for the literacy rate of 15–24 year-olds.

The youth literacy rate is the number of people aged 15–24 years who are literate divided by the total population in the same age group and multiplied by 100.

National sample surveys are a second source of literacy data and involve the use of a literacy variable in a household or individual sample survey. These surveys are often designed to meet immediate data needs and do not always include systematic strategies for future repeats. So even though they may provide timely data, they may not always be a consistently reliable source over time.

International sample surveys, such as the Multiple Indicator Cluster Surveys (MICS), are a third source and involve the use of a literacy variable in a household or individual sample survey.

Educational attainment should not be used as a proxy for literacy, as not all children who have received primary education acquired sustainable literacy skills.

In order to compare the survey sample with the overall population, background information on education should also be included.

Goal 2: Achieve universal primary education. For all persons 5 years old and above		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 2.1 Net enrolment ratio in primary education	C4 Has [NAME] ever attended school? C5 Did [NAME] enroll this school year? C6 What grade did [NAME] enroll? C7 How many years was [NAME] at the start of this school year, in [month] [year]? C8 Is [NAME] currently attending school?	Yes, No Yes, No Country specific codes: P1, P2, P3, P4, P5, P6, P7, P8, S1, S2, S3, Post Sec, Univ Number of years Yes, No
Indicator 2.2 Proportion of pupils starting grade 1 who reach last grade of primary	C4 Has [NAME] ever attended school? C5 Did [NAME] enroll this school year? C6 What grade did [NAME] enroll? C7 How many years was [NAME] at the start of this school year, in [month & year]? C8 Is [NAME] currently attending school? C9 Did [NAME] attend school at any time during the last school year (20xx-20xx)? C10 What grade did [NAME] attend last school year?	C4 C5 C6 C7 C8 Yes, No Country specific codes: P1, P2, P3, P4, P5, P6, P7, P8, S1, S2, S3, Post Sec, Univ
Background information	C 11 What is the highest grade of education [NAME] completed?	Country specific codes: P1, P2, P3, P4, P5, P6, P7, P8, S1, S2, S3, Post Sec, Univ
Indicator 2.3 Literacy Rate of 15-24 year-olds, women and men	C3 Can [NAME] read and write a simple sentence in any language?	Yes, No

Indicator 3.1 Ratio of girls to boys in primary, secondary and tertiary education

The ratio of girls to boys in primary, secondary or tertiary education, or Gender Parity Index, is the ratio between the Gross Enrolment Ratio (GER) of girls and that of boys, for each level of education.

The Gross Enrolment Ratio (GER) is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year.

Data on school enrolment are usually recorded by the ministry of education or derived from surveys and censuses. If administrative data are not available, household survey data may be used, although household surveys usually measure self-reported attendance rather than enrolment as reported by schools. Also, household survey data may not be comparable between surveys. A serious problem with household survey data is also the inaccurate recording of pupils' ages, depending on the time of the year that the survey is conducted.

Later in the school year, some younger children may appear to be of primary school age when in fact they are not. It can also happen that older children appear to be of secondary school age when in fact they were of primary age at the start of the school year.

Indicator 3.2 Share of women in wage employment in the non-agricultural sector

The share of women in wage employment in the non-agricultural sector is expressed as a percentage of female workers in total wage employment in the non-agricultural sector.

Wage employment refers only to wage earners and salaried employees, or persons in paid employment jobs. Employees are typically remunerated by wages and salaries, but may also be paid by commission from sales, piece-rates, bonuses or payments in kind such as food, housing, training, etc. Wage employment does not include self-employed (employers, own-account workers, members of producers' cooperatives and contributing family workers).

Employment refers to persons above the nationally defined working age (different in every country, but generally close to 15 years) who worked or held a job during a specified reference period. Typically, the specified age group excludes children and the elderly. Included are persons who worked for pay or profit (or pay in kind); persons who were temporarily absent from a job for such reasons as illness, maternity or parental leave, holiday, training or industrial dispute; and unpaid family workers who worked for at least one hour, although many countries use a higher hour limit in their definition. The measure of employment is intended to capture persons working in both the formal and informal sectors.

The non-agricultural sector includes industry and services.

Industry includes mining and quarrying (including oil production), manufacturing, construction, electricity, gas and water. Services include wholesale and retail trade and restaurants and hotels; transport, storage and communications; financing, insurance, real estate and business services; and community, social and personal services.

While labour force surveys constitute a primary source of information, data can also be obtained from ppulation censuses, establishment censuses and surveys, other household surveys, administrative records of different types, and official estimates based on results from several of these sources.

The various sources differ in coverage, scope, units of measurement and methods of data collection. Each source has advantages and limitations in terms of the cost, quality and type of information yielded. The results from various sources can be combined, provided that concepts, definitions, coverage, reference period, classification, etc. agree as far as possible.

Goal 3: Promote gender equality and empower women		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 3.1 Ratio of girls to boys in primary, secondary and tertiary education	C5 Did [NAME] enroll this school year? C6 What grade did [NAME] enroll? C8 Is [NAME] currently attending school?	C5 C6 C8
Indicator 3.2 Share of women in wage employment in the non-agricultural sector	D7 Did [NAME] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 12 months? D9 How was [NAME] paid in the main job during the last 12 months? D10 What was the main activity at the place of [NAME'S] main job during the last 12 months?	D7 D9 D10

Indicator 4.1 Under-five mortality rate

The under-five mortality rate (U5MR) is the probability for a child born in a specified year to die before reaching the age of five, if subject to current age-specific mortality rates. This indicator is expressed as number of deaths per 1,000 live births.

Two methods exist for calculating the U5MR: the direct method and the indirect method. The direct method requires each child's date of birth, survival status, and date or age at death. This information is typically found in vital registration systems and in household surveys that collect complete birth histories, such as the Demographic and Health Surveys. A complete birth history records the dates of birth, and, if applicable, the dates of death of all children born to each woman that is interviewed. The direct method of estimating child mortality involves taking the data from the complete birth histories and estimating a life table. The method calculates the probability of dying before age five for children born alive during five-year periods before the survey (0-4, 5-9, etc.).

The indirect method requires less detailed information that is available in censuses, general surveys, and household surveys that collect incomplete birth histories such as the Multiple Indicator Cluster Surveys (MICS). Despite requiring minimal data collection efforts, the indirect method involves the use of model life tables to adjust the data for the age pattern of mortality in the general population. Finding an appropriate model life table can be difficult, since the Coale and Demeny model life tables that are usually used are derived largely from the European experience.

The best source of data for computing direct estimates of U5MRs is a complete vital statistics registration system—one covering at least 90 per cent of vital events in the population. However, few developing countries have well-functioning civil registration systems. Alternatively, household surveys that collect complete birth histories (such as the DHS) can be used to get direct estimates of U5MRs.

It will be sufficient to collect birth history during the last 10 years.

If no source of direct estimates is available, population censuses, household surveys that collect incomplete birth histories (such as the MICS), and general surveys can be used to derive indirect estimates of U5MRs.

Indicator 4.3 Proportion of 1 year-old children immunized against measles

The proportion of 1 year-old children immunized against measles is the proportion of children under one year of age who have received at least one dose of measles-containing vaccine.

Children under one year of age who have received a measles vaccine are estimated as the percentage of children aged 12–23 months who received at least one dose of measles vaccine any time before the survey or before the age of 12 months.

The two data sources available at the national level are reports of vaccinations performed by service providers (administrative data), and household surveys containing information on children's vaccination histories (coverage surveys). The target population is taken from administrative data, where available, otherwise survey data are used.

When determining the vaccination coverage rate, credence is given to administrative and official country reports rather than surveys unless there is a reason to believe they are inaccurate. Immunization coverage surveys are frequently used in connection with administrative data.

Estimates of immunization coverage are generally based on two sources of empirical data: national level reports of vaccinations performed by service providers (administrative data) and household surveys containing information on children's vaccination history (coverage surveys). For estimates based on survey data, immunization coverage is generally computed as follows: Proportion of 1 year-olds immunized against measles = Number of Children vaccinated/ Number of children in target group*100.

Information on birth month and when vaccinated against measles for all children below 2 years of age is required. Information should be collected by a survey where the enumerator is reading from a health certificate. If no health certificate is available this should be recorded and a possible bias tested.

It is recommended at a national level to consider including other vaccinations, but this is not included in the prototype questionnaire.

Goal 4: Reduce child mortality. For children below 5 years of age		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 4.1 Under-five mortality rate	I11 In what month and year was [NAME] born? PROBE: What is his/her birthday? I12 Is [NAME] still alive? I13 How old was [NAME] at his/her last birthday? TODAY or WHEN PASSED AWAY	Year and month Yes, no Age in years
Indicator 4.3 Proportion of 1 year-old children immunized against measles	G8 IF AVAILABLE RECORD FROM CARD: Is the child [NAME] vaccinated for Measles? G9 IF AVAILABLE RECORD FROM CARD:Did the child [NAME] get the vaccination before or after his/her 1st birthday?	Yes, No Before or at 1 year of age, After 1 year of age

Indicator 5.2 Proportion of births attended by skilled health personnel

The proportion of births attended by skilled health personnel is the proportion of total live births that are attended by a skilled birth attendant trained in providing life saving obstetric care.

A skilled birth attendant is an accredited health professional—such as a midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period; and in the identification, management and referral of complications in women and newborns. Traditional birth attendants either trained or not, are excluded from the category of skilled health workers.

Data are collected through national-level household surveys, including Multiple Indicator Cluster Surveys (MICS) and Demographic Health Surveys (DHS). These surveys are generally conducted every 3–5 years by national statistical offices or ministries of health.

The reference period is not given and should be adjusted to the frequency of a core survey, hence usually 24 months.

But if a module to measure child mortality is included, the reference period need to be 10 years.

Indicator 5.5 Antenatal care coverage (at least one visit and at least four visits)

Antenatal care coverage (at least one visit) is the percentage of women aged 15–49 with a live birth in a given time period that received antenatal care provided by skilled health personnel at least once during their pregnancy.

Antenatal care coverage (at least four visits) is the percentage of women aged 15–49 with a live birth in a given time period that received antenatal care by any provider four or more times during their pregnancy.

Household surveys should be used as the main data sources for the antenatal care indicator. Possible surveys include Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Fertility and Family Surveys (FFS), Reproductive Health Surveys (RHS) and other surveys based on similar methodologies. Surveys are normally conducted at 3 to 5 year intervals.

The number of women aged 15-49 with a live birth in a given time period that received antenatal care provided by skilled health personnel (doctors, nurses or midwives) at least once during pregnancy, is expressed as a percentage of women aged 15-49 with a live birth in the same period.

The number of women aged 15-49 with a live birth in a given time period that received antenatal care by ANY provider (whether skilled or unskilled) four or more times during pregnancy, is expressed as a percentage of women aged 15-49 with a live birth in the same period.

This indicator requires information which may be collected in a household surveys with individual modules asking for child birth during the last 12 or 24 month period and antenatal care received or by asking at household level for any childbirth and the mother giving birth during the last 12 or 24 month period and antenatal care received. Probing to include birth of infants who have later passed away is essential.

But if a module to measure child mortality is included, the reference period need to be 10 years.

Goal 5: Improve maternal health. For women 12 – 49 years of age		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 5.2 Proportion of births attended by skilled health personnel	I1 Did any woman 12 – 49 years old in this household give live birth during the last 24 months? I2 Who in the household gave live birth last 24 months? I5 How many live birth did [NAME] give last 24 months? PROBE: Have you given birth to any child who is not living in this household today? Have you ever given birth to a child who was born alive but later died? FOR EACH CHILD (PROBE: Have you ever given birth to twins? Is so list each child. I9 Who assisted you [NAME] at the delivery of the most recent live birth? I10 Where did you [NAME] give birth?	Yes, No For each woman 12-49 years old that gave live birth last 24 months, copy the woman's name from B1 Number of live births Doctor/Clinical officer, Midwife/nurse, Trained birth attendant, Traditional local attendant, Other Health facility, At home, other place
Indicator 5.5 Antenatal care coverage (at least one visit and at least four visits)	I1 Did any woman 12 – 49 years old in this household give live birth during the last 24 months? I2 Who in the household gave live birth last 24 months? I5 How many live birth did [NAME] give last 24 months? I6 Did you [NAME] see anyone for antenatal care for the most recent live birth pregnancy? I7 Who did you [NAME] see for antenatal care for the most recent live birth pregnancy? I8 How many times did you [NAME] receive antenatal care during the most recent live birth pregnancy?	J1 J2 J5 Yes, No Doctor/Clinical officer, Midwife/nurse, Trained birth attendant, Traditional local attendant, Other Number of times

Indicator 6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS

This indicator is the percentage of the population aged 15–24 that has a comprehensive correct knowledge of Human immunodeficiency virus/Acquired immundeficiency syndrome (HIV/AIDS).
Comprehensive correct knowledge of HIV/AIDS is correctly identifying the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), knowing that a healthy-looking person can transmit HIV and rejecting the two most common local misconceptions about HIV transmission.

Local misconceptions about HIV transmission vary from country to country. Examples of common misconceptions include: a person can get HIV from a mosquito bite, by sharing food with someone who is infected, by hugging or shaking hands with an infected person or through supernatural means.

A person is considered as having a comprehensive correct knowledge of HIV/AIDS if he or she gave the correct answers to all of the following five questions:

- *Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?*
- *Can a person reduce the risk of getting HIV by using a condom every time he or she has sex?*
- *Can a healthy-looking person have HIV?*
- *Can a person get HIV from mosquito bites?*
- *Can a person get HIV by sharing food with someone who is infected?*

The first three questions are applicable to every country and should not be altered. Questions 4 and 5 ask about local misconceptions and may be adapted depending on what the most common misconceptions are in the specific country.

Information for this indicator may be collected by an individual survey or a household survey with modules for individual persons 15-24 years of age asking the five questions on HIV knowledge.

Indicator 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years

This indicator is defined as the ratio of school attendance of orphans aged 10–14 to school attendance of non-orphans aged 10–14 years.

Orphans are defined as children aged 10–14 whose biological parents have both died.

Non-orphans are defined as children aged 10–14 whose parents are both still alive and who currently live with at least one biological parent.

Data on school attendance of orphans and non-orphans are collected every 3–5 years through household surveys, such as Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS) and other nationally representative household surveys.

Indicator 6.6 Incidence and death rates associated with malaria

The incidence rate of malaria is the number of new cases of malaria per 100,000 people per year. The death rate associated with malaria is the number of deaths caused by malaria per 100,000 people per year.

Information on the number of malaria cases, reporting completeness and case confirmation rates are compiled annually by national ministries of health (National Malaria Control Programs) from data collected by national administrations of health services.

Indicator 6.7 Proportion of children under 5 sleeping under insecticide-treated bednets

This indicator is defined as the proportion of children aged 0–59 months who slept under an insecticide-treated mosquito net the night prior to the survey. An insecticide-treated mosquito net, or bednet, is a net that has been treated with insecticide within the previous 12 months or has been permanently treated. In

permanently treated nets the insecticide lasts for the useful life of the mosquito net, defined as at least 20 washes and at least three years of use under field conditions.

This indicator is calculated with data from national-level household surveys, including Multiple Indicator Cluster Surveys (MICS), Demographic Health Surveys (DHS), and Malaria Indicator Surveys (MIS). In addition, malaria modules have been added to other ongoing household surveys.

Goal 6: Combat HIV/AIDS, malaria and other diseases		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS Questions about HIV/AIDS knowledge should be asked to a randomly selected person in the household aged 15 to 24 years old	J3 Can the risk of HIV transmission be reduced by having sex with only uninfected partner who has no other partner? J4 Can a person reduce the risk of getting HIV by using a condom every time they have sex? J5 Can a healthy looking person have HIV? J6 Can a person get HIV from mosquito bites? J7 Can a person get HIV by sharing food with someone who is infected?	Yes, No Yes, No Yes, No Yes, No
Indicator 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years	B7 Is the father of [NAME] still alive? B8 Does he live in the household? B9 Is mother of [NAME] still alive? B10 Does she live in the household? C4 Has [NAME] ever attended school? C5 Did [NAME] enroll this school year? C6 What grade did [NAME] enroll? C7 How many years was [NAME] at the start of this school year, in [month] [year]? C8 Is [NAME] currently attending school?	B8 B9 B10 B11 C4 C5 C6 C7 C8
Indicator 6.7 Proportion of children under 5 sleeping under insecticide-treated bed nets	H5 Did the child [NAME] sleep under an insecticide treated (treated with chemicals to kill/repel mosquitoes or bugs) mosquito net last night	Yes, No
Indicator 6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs	H1 In the last two weeks, has child [NAME] been ill with fever any time? H2 Was the child [NAME] given any medicine for fever or malaria during this illness? H3 What type of medicine was the child [NAME] given? H4 How many days after the fever started did the child [NAME] take this anti-malaria drug for the first time?	Yes, No Yes, No Read out from list below: Yes/ No, Fansidar, Chloroquine, Mefloquine, Lariam, Panadol (pain killer), Other Number of days

Indicator 7.8 Proportion of population using an improved drinking water source

The proportion of population using an improved drinking water source is the share of the population that uses any types of improved drinking water supplies.

An improved drinking water source is a facility that, by nature of its construction, is protected from outside contamination in particular from contamination with fecal matter. Improved drinking water sources include: piped water into dwelling, plot or yard; public tap/standpipe; borehole/tube well; protected dug well; protected spring; rainwater collection and bottled water. Users of bottled water are considered to have access to improved sources only when they have a secondary source which is of an otherwise improved type. Im-

proved drinking water sources do not include unprotected wells, unprotected springs, water provided by carts with small tanks/drums, tanker truck-provided water and bottled water (if the secondary source is not improved) or surface water taken directly from rivers, ponds, streams, lakes, dams, or irrigation channels.

Nationally representative household surveys that typically collect information about water and sanitation include Multiple Indicator Cluster Surveys (MICS), Demographic Health Surveys (DHS), World Health Surveys (WHS), Living Standards and Measurement Surveys (LSMS), Core Welfare Indicator Questionnaires (CWIQ), and the Pan Arab Project for Family Health Surveys (PAPFAM). The survey questions and response categories pertaining to access to drinking water are fully harmonized between MICS and DHS. The same standard questions are being promoted for inclusion into other survey instruments and can be found at www.wssinfo.org.

Starting in 2008, the World Health Organisation/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme for Water Supply and Sanitation (JMP) separated drinking water sources into three categories:

- *Piped connections on premises (into dwelling, plot or yard)*
- *Other improved drinking water sources*
- *Unimproved water sources*

Increasingly, people use bottled water as their main source of drinking water. Since bottled water is largely used for ingestion only, the DHS and MICS have included an additional question to determine what secondary source is used for other household purposes such as cooking or hand washing. Failure to record such information may mask the fact that many users of bottled water have access to piped drinking water as well. The JMP encourages other sample survey instruments and censuses to add a similar additional question. A sample question is at: http://www.childinfo.org/files/MICS4_Household_Questionnaire_v3.0.doc .

Indicator 7.9 Proportion of population using an improved sanitation facility

The indicator is defined as the proportion of population using an improved sanitation facility.

An improved sanitation facility is defined as a facility that hygienically separates human excreta from human, animal and insect contact. Improved sanitation facilities include flush/pour-flush toilets or latrines connected to a sewer, septic tank or pit; ventilated improved pit latrines; pit latrines with a slab or platform of any material which covers the pit entirely, except for the drop hole; and composting toilets/latrines. Unimproved facilities include public or shared facilities of an otherwise improved type; flush/pour-flush toilets that discharge directly into an open sewer or ditch or elsewhere; pit latrines without a slab; bucket latrines; hanging toilets or latrines; and the practice of open defecation in the bush, field or bodies of water.

Definitions and detailed descriptions of these facilities can be found at the website of the World Health Organisation/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme (JMP) for Water Supply and Sanitation at www.wssinfo.org.

In order to classify sanitation service categories as "improved" or "not improved", as required for the MDG indicator, data need to be collected by facility type. DHS and MICS surveys use response categories to collect data consistent with the MDG classification of improved and unimproved facilities (see the "Definition" and "Concept" sections above for the disaggregated categories). Other sample survey instruments and censuses are encouraged to use the same or at least a harmonised classification. Insufficient disaggregation of service categories is the most common problem for adequately assessing progress using this indicator.

Starting in 2008, the World Health Organisation/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme for Water Supply and Sanitation (JMP) separates sanitation facilities into four categories:

- *Improved sanitation facilities;*
- *Shared sanitation facilities;*
- *Unimproved sanitation facilities; and*
- *Open defecation.*

Trends in the use of these four categories provide valuable information to programme managers and policy makers, but trend analysis is possible only when an adequate level of disaggregation of service categories is included in surveys.

Indicator 7.10 Proportion of urban population living in slums

The proportion of urban population living in slums is the proportion of the urban population that live in households lacking one or more of the following basic services: improved water, improved sanitation, durable housing, sufficient living area or security of tenure.

A slum household is defined as a group of individuals living under the same roof lacking one or more of the following basic services: access to improved drinking water source; access to improved sanitation facilities; durability of housing; sufficient living area; security of tenure. However, since information on security of tenure is not available for most countries, only the first four indicators are used to define a slum household.

The preferable data sources are population and housing censuses and household surveys that contain information on all five components of slum: improved water, improved sanitation, durable housing, sufficient living area and secure tenure. Nationally representative household surveys, which typically collect information on water, sanitation and housing conditions, include Urban Inequities Surveys (UIS), Multiple Indicator Cluster Surveys (MICS), Demographic Health Surveys (DHS), World Health Surveys (WHS), Living Standards and Measurement Surveys (LSMS), Core Welfare Indicator Questionnaires (CWIQ), and the Pan Arab Project for Family Health Surveys (PAPFAM). The survey questions and response categories pertaining to access to drinking water are fully harmonized between MICS and DHS. The same standard questions are being promoted for inclusion into other survey instruments and can be found at www.wssinfo.org or at ww2.unhabitat.org/programmes/guo .National-level household surveys are generally conducted every 3-5 years in most developing countries, while censuses are generally conducted every 10 years. National Statistics Offices usually carry out censuses and often are involved in carrying out nationally representative sample surveys.

The five dimensions of slum:

- *Access to improved water: Improved drinking water technologies are more likely to provide safe drinking water than those characterized as unimproved. A household is considered to have access to an improved water supply if it uses improved drinking water sources or delivery points (listed below).*
- *Improved drinking water sources include: piped water into dwelling, plot or yard; public tap/standpipe; tube well/borehole; protected dug well; protected spring; and rainwater collection.*
- *Unimproved drinking water sources include: unprotected dug well; unprotected spring; cart with small tank/drum; bottled water ; tanker-truck; and surface water (river, dam, lake, pond, stream, canal, irrigation channels).*
- *Access to improved sanitation: Improved sanitation facilities are more likely to prevent human contact with human excreta than unimproved facilities. A household is considered to have access to improved sanitation if it uses improved sanitation facilities (listed below).*
- *Improved sanitation facilities include: flush or pour-flush to piped sewer system, septic tank or pit latrine; ventilated improved pit latrine; pit latrine with slab; and composting toilet.*
- *Unimproved sanitation facilities include: flush or pour–flush to elsewhere ; pit latrine without slab or open pit; bucket; hanging toilet or hanging latrine; no facilities or bush or field.*
- *Durability of housing: A house is considered "durable" if it is built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions, such as rain, heat, cold and humidity.*
- *Sufficient living area: A house is considered to provide a sufficient living area for the household members if not more than three people share the same habitable (minimum of four square meters) room.*

- *Secure tenure: Secure tenure is the right of all individuals and groups to effective protection by the State against arbitrary unlawful evictions. People have secure tenure when there is evidence of documentation that can be used as proof of secure tenure status or when there is either de facto or perceived protection against forced evictions.*

A household surveys asking for the main water source, the main sanitation facility, durability of housing, sufficient living area and secure tenure is the preferred data source.

Goal 7: Ensure environmental sustainability		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 7.8 Proportion of population using an improved drinking water source	F7 What is your main source of drinking water?	Piped water into dwelling, plot or yard, Public tap/stand pipe, Tube well/borehole, Protected dug well, Protected spring, Rainwater collection, Unprotected dug well, Unprotected spring, Cart with small tank/drum, Tanker truck, Surface water (river, dam..), Bottled water
Indicator 7.9 Proportion of population using an improved sanitation facility	F8 What kind of main toilet facility does your household have?	Flush/pour flush into piped sewer system, Flush/pour flush into septic tank, Flush/pour flush into pit latrine, Ventilation improved (VIP) latrine, Pit latrine with slab, Composting toilet, Flush/pour to elsewhere, Pit latrine without slab/open pit, Bucket, Hanging toilet/hanging latrine, No facilities or bush/field
Indicator 7.10 Proportion of urban population living in slums	F2 Do you own or rent this dwelling, or have it allocated for free through work or others, or just occupy this dwelling? F3 Do you or someone in the household have a written document for this dwelling on ownership/rental/allocation? F4 Do you feel secure from eviction from this dwelling? F5 How many separate rooms do the members of your household occupy? (Do not count bathrooms, toilets, storerooms, garages or rooms less than 4 sq m) F6 What is your main source of fuel used for cooking? F7 What is your main source of drinking water? F8 What kind of main toilet facility does your household have? F9 The roof of the main dwelling is predominantly made of what material? F10 The floor of the main dwelling is predominantly made of what material? F11 The outer walls of the main dwelling are predominantly made of what material?	Own, rent, allocated for free, just occupy Yes, No Yes, No Number of rooms Electricity, Solar energy, Gas, Parafin, Charcoal, Firewood, Grass, Other F6 F7 Grass, Iron sheets, Clay tiles, Concrete, Plastic sheeting, Other Sand, Smoothed mud, Smooth cement, Wood, Tile, Other Grass, Mud, Compacted earth, Mud bricks, Burnt bricks, Concrete, Wood, Iron sheets, Other

Indicator 8.15 Mobile cellular subscriptions per 100 inhabitants

Mobile-cellular telephone subscriptions refer to the number of subscriptions to a public mobile-telephone service that provide access to the PSTN using cellular technology. The indicator includes the number of postpaid subscriptions and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

Data for mobile-cellular telephone subscriptions are available from administrative records collected regularly, and at least annually, from telecommunications operators by national regulatory authorities or the Ministry in charge of Telecommunications and Communication Technologies (ICT).

When countries collect data on the number of mobile-cellular telephone subscriptions, it is important to distinguish between active and non-active subscriptions. Non-active subscriptions (accounts) should be deleted from subscription lists after a certain period of 'inactivity' (usually three months). This is particularly important in countries with many prepaid subscriptions.

Indicator 8.16 Internet users per 100 inhabitants

This indicator is the percentage of individuals using the Internet.

The Internet is a world-wide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile-cellular telephone, other wireless devices, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Individuals using the Internet refers to those that used the Internet in the last 12 months from any location. Data are based on surveys generally carried out by national statistical offices or estimated based on the number of Internet subscriptions.

This indicator is calculated by dividing the total number of in-scope individuals using the Internet (from any location) in the last 12 months by the total number of in-scope individuals. A growing number of countries are measuring the percentage of individuals using the Internet through household surveys. Surveys usually indicate a percentage of the population for a certain age range (e.g. 15-74 years old). The percentage of individuals using the Internet in this age range is used to estimate the percentage of individuals using the Internet for the entire population.

This indicator is best based upon information collected by household surveys with an individual module asking for use of Internet during last month.

Goal 8: Develop a global partnership for development		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 8.15 Cellular subscribers per 100 population	F12 Does someone in the household own a cellular telephone (cell phone) in working condition?	Yes, No
	F13 How many of the household members have his/her own cell phone in working order?	Number of members
Indicator 8.16 Internet users per 100 population	F14 Has someone in the household used Internet on a personal computer at home, in an Internet café or elsewhere during the last month?	Yes, No
	F15 How many of the household members have used Internet on a personal computer at home, in an Internet café or elsewhere during the last month?	Number of members

4.5. Recommended as potential extra modules

The following paragraphs summarize potential extra modules for the Welfare Core Survey. These modules are only recommended for special consideration. They are intended for country level consideration and may be included if the issues are of high priority at country level and hence able to justify the extra workload. Even then most of these modules are only intended to be included such as every third time a core survey is conducted and only if the issues are not covered by other household survey instruments.

Extra module - Poverty modeling

This module requires a statistic model developed from analysis of a household budget survey. It may then be included in the years between household budget survey and would then allow for poverty estimates.

Goal 1: Eradicate extreme poverty and hunger		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
sIndicator 1.1 Proportion of population living below $1.25 (2005 PPP) a day Indicator 1.1a Proportion of population below national poverty line Indicator 1.2 Poverty gap ratio Indicator 1.3 Share of poorest quintile in national consumption	Poverty Predictors for estimation of total consumption and probability of being poor and (Country specific, Malawi example): P1 Does someone in the household own a cellular telephone (cell phone) in working condition? P2 How many changes of clothes do you (head) own? Record number of trousers for men and skirts/dresses for women P3 What do you (head of household) sleep under in the cold season? P4 Over the past three months, did you or any member of the household purchase or pay for any of the following? P5 Over the past one month, did you or any member of the household purchase or pay for toothpaste or toothbrush? P6 Over the past one month, did you or any member of the household purchase or pay for bar soap (body soap or clothes soap)? P7 How much did you pay in total for bar soap? P8 Over the past 7 days, did you or any member of the household purchase or pay for public transport – bus fare, minibus fare or taxi fare? P9 Over the past 7 days, did you or others in your household consume any of the following?	Yes,no Number Number Country specific from household budget survey Country specific from household budget survey Yes, no Yes, no Amount Yes, no Country specific based upon the last previous household budget survey

Extra module - Under-five mortality rate module

This module requires the child birth history to address all births not only during the last 24 months, but during the last 10 years. It may then be included such as every third year and it is necessary with special training of interviewers in cooperation with the health authorities.

Goal 4: Reduce child mortality for children below 5 years of age		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 4.1 Under-five mortality rate	I1 Did any woman 12 – 49 years old in this household give live birth during the last 10 years? I2 Who in the household gave live birth last 10 years? I5 How many live birth did [NAME] give last 10 years? I8 In what month and year was [NAME] born? PROBE: What is his/her birthday? I9 Is [NAME] still alive? I10 How old was [NAME] at his/her last birthday? TODAY or WHEN PASSED AWAY	I1 I2 I5 I8 I9 I10

Extra module - Extended vaccination

This module requires that not only measles-vaccination, but an extended list of vaccinations are addressed. This module is only recommended if the household survey system does not include regular MICS or DHS. If so, it is recommended to include this module such as every third time a core survey is conducted.

Goal 4: Reduce child mortality for children below 5 years of age		
MDG indicator/ type of information	Variables	Values/ Reference to variables already presented
Indicator 4.3 Proportion of 1 year-old children immunized against measles	G8 IF AVAILABLE RECORD FROM CARD: Is the child [NAME] vaccinated for BCG, polio, DPT, and measles? G9 IF AVAILABLE RECORD FROM CARD:When did the child [NAME] get each of these vaccinations?	Card available: Yes, No Yes, no Day, month, year

5. Questionnaires – key punching, scanning or CAPI

Whether the questionnaire is designed for traditional key punching, scanning or for CAPI with tablets, the questionnaire design in any survey should build upon well known and tested elements. Whenever an international prototype is adapted or new elements are introduced a thorough testing is essential. But in any case a questionnaire design requires cognitive testing in focus groups and/or pretests in the field.

Any questionnaire and especially one with a range of units requires a thorough testing of the skip patterns. This is more or less a requirement for CAPI tablet questionnaires unless the IT designer is very experienced. It should be considered to write a dedicated flow chart.

5.1. The Questionnaire

There will be one main questionnaire for each household. This questionnaire will comprise household level information, information for each individual in the household and additional information for various sub-groups, such as all persons in school-age or above, all person at work age, children below 5 years of age and a section for one random person 15-24 years of age. The questionnaire is presented in the Appendix document.

The questionnaire is available in two formats, serving three data entry approaches. A paper based Welfare Core Survey questionnaire designed for scanning is presented in the Appendix document, but may of course also be used for traditional key punching. It will also be available as a soft copy and may be downloaded from www.ssb.no/international.

We have designed a data entry program for scanning written for Eyes and Hands. This program comprises two files, CS2013_forms.EHF and CS2013_set.EHF, which should first be downloaded to the local computer to be used for scanning. Each user will need to open the program in FORMS 5.2 and do a small editing job to specify the format of the output and the directories for storing data-files and the images in tiff-forma. The files will be made available for downloading from www.ssb.no/international when the report is published.

We are also designing the WMS questionnaire using the Survey Solutions from the World Bank. The questionnaire will be designed as a public prototype and be available free of charge for any free of charge subscriber to the Survey Solutions from the World Bank in 2016.

6. Sampling

6.1. Introduction

In general, a social survey involves choosing a number of people or households from a population, and asking them a series of questions. The way in which these people are chosen impacts on what conclusions can be drawn from the data for the population as a whole. Planning how the sample is to be selected is an important step in the survey process. With a little extra effort spent at this stage, time and costs can be saved and the quality of estimates vastly improved.

A key requirement for the Welfare Core Survey is for *probability sampling* to be used. This means every household has a known non-zero probability of being selected for the survey. It is important to use probability sampling so that the statistics calculated from the data represent the target population and not only a subset of it.

The recommended sampling design for a Welfare Core Survey is a *2-stage cluster design*. The first stage involves dividing the country into small areas called Primary Sampling Units (*PSUs)* drawing a sample of these. The second stage is to select a number of households within the chosen PSUs to participate in the survey.

The *sample size* will affect the accuracy of the estimates produced. In general, larger samples can produce estimates which are more certain. However, the distribution of the sample among different districts, also has a profound effect on the accuracy of the estimates. The size of the sample and its allocation is always a balancing act between the accuracy of the estimates and the resources available.

A proper *stratification* of the PSUs would ensure a more balanced, but still random sample and hence reduce the variance.

Documentation of the sampling steps is an important task not to be overlooked. If the different stages are not documented properly, it may be impossible to calculate good estimates from the data collected. Furthermore, clearly documenting problems that were encountered will allow improvements to future surveys and appropriate comparisons to be made.

6.2. Target Population

The target population for a Welfare Core Survey is all *private households* in a specific country. This current definition excludes people living in institutions such as orphanages, hospitals, asylum centres, refugee camps and military bases as well as those without homes. These groups of people may be a significant part of the population in some countries, however they are likely to require a different sampling and survey approach. The primary unit for a Welfare Core Survey is the household. A household is described in the United Nations Principles and Recommendations for Population and Housing Censuses (1998) as either:

- a one-person household, defined as an arrangement in which one person makes provision for his or her food or other essentials for living without combining with any other person to form part of a multi-person household, or

- a multi-person household, defined as a group of two or more persons living together who make common provision for food or other essentials for living.

Sampling requires a *sampling frame*. This is a list of people or households in the target population that can be selected to participate in the survey. If a household or individual register is available in the country it may be possible to use this as the sampling frame. In order for a register to be adequate, it must be *regularly updated*, and *cover the entire target population*. Many developing countries do not have a suitable register and rely on the last population census. Then a population census *mapping system* with *household lists* is recommended as the sampling frame for a Welfare Core Survey. This is described further in the sampling design section.

Coverage problems may arise when the sampling frame such as an old population census does not cover the current population on equal footing. This can introduce a bias or cause inefficiencies in the survey data collection. Under-coverage may occur in areas that are developing quickly and maps/household lists do not contain all the households in the area. Over-coverage may occur in areas of high emigration where household lists contain those that no longer live there. All efforts should be made to address these issues prior to sampling. In areas of high change, re-mapping can help reduce some of these issues. There may also be areas which are not safe for interviewers to visit. If these are known, they should be excluded prior to sampling and documented with the reasons for exclusion.

Remember:

- The target population is all private households in the country
- Household lists should include all households in the specified area
- If possible, re-map areas of high change prior to sampling or if not feasible do post-estimation to reflect change in population since last census.
- If there are unsafe areas which will not be visited, exclude them from the sampling frame and document clearly with reasons

6.3. Probability Sampling Design

There are many possible sampling designs with varying complexities that use probability sampling. Taking a simple random sample from the whole country may produce good estimates, but the cost and time for interviewers to travel large distances between the selected households is unreasonable. This is why a two-stage cluster design is recommended for Welfare Core Surveys. This design allows for a grouping of the participating households into clustered areas, saving on travel costs and time. The design outlined in this manual may not be optimal for all countries, for example small countries may choose to sample in one stage and the largest countries may choose three or more stages. The outlined design is a guide only and more sophisticated design decisions should be made in consultation with experienced sampling statisticians. The use of a master sample[1] may be an option and can significantly reduce time and resource requirements of the survey. However, master samples of households are raidly outdated and only very recently created ones should be considered.

1.1.1. Domains

The sample should be designed to allow for publication for each domain, such as urban/rural residence and provinces. The publication of statistical tables is usually based upon a set of background variables, such as urban/ rural residence, province, characteristics of the head of household, and characteristics of each individual. Some of these are spread across all the country, while some are separate domains. It is essential to design the sample with large enough sub-samples for each domain to be used for publication. For the Welfare Core Survey this would always be urban/ rural residence and some regional units such as main region, province or district.

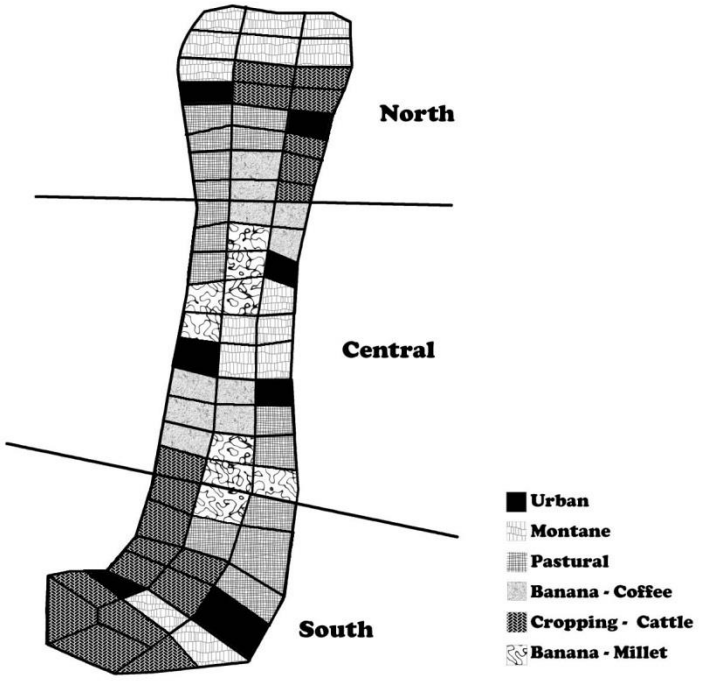
Primary Sampling Units (PSUs)

The first stage of the recommended design is to divide the country and all domains into many small areas called PSUs. PSUs should be allocated to cover the whole population and should not overlap one another. A recommendation is to base these areas on the census enumeration areas (EAs). Ideally, PSUs should be of an approximately equal size in terms of the number of households they contain. Each PSU requires a size measure. This may be the number of households in each PSU (if available) or population figures from the most recent census. It is not a requirement for every PSU to have a detailed updated household list at this stage.

[1] Master sample: A sample drawn from a population for use on a number of future occasions, so as to avoid ad hoc sampling on each occasion. Sometimes the master sample is large and subsequent inquiries are based on a sub-sample from it. (OECD, 2014)

Stratification

After establishing the PSUs, they should be stratified by grouping together those that are similar in some way. This should be at least in terms of geographic location. Ideally, the PSUs should also be stratified using additional information, for example rural/urban classification, agri-ecological zoning, proximity to a main road, river or railway. Good stratification groups similar PSUs together and ensure a balanced random sample, reducing the variance by avoiding a very skew sample of PSUs. Every PSU needs to be assigned to a stratum, however the strata do not necessarily need to be geographical linked (1). If very large PSUs exist, it may be best to assign them to their own stratum. Note that every stratum is included in the survey. If good stratification has been established in previous surveys, reuse this for consistency, comparability and time saving reasons.



1. Example of a country divided in 3 domains = regions and using rural and urban classifications with 5 agricultural zone types in the rural areas. There is a total of 16 strata as not all 6 zones are found in every region. PSUs do not have to be connected to be allocated to the same stratum.

The stratification should be applied in a systematic manner by listing all PSUs within a domain according to their stratum. This may be such as first all urban PSUs in district A, all rural PSUs in district A, all urban PSUs in district B and so on up to the last being all rural PSUs in the final district.

6.4. Sample Size and Allocation

Sampling implies that not all units in the population will be surveyed (If they are, then this is called a census). Only a small proportion will be asked the questions of interest in the survey and estimates will be based on those people that answer. This means that if a second sample is selected and interviewed, the estimates calculated will be slightly different between the 2 samples. Such differences are known as the *sampling error*. Both the sampling design and the size of the sample will affect the error due to sampling, but good planning can minimize it to an acceptable level. In general, larger samples produce better quality estimates that are less susceptible to random variation. However, larger samples also carry higher costs, so a balance must be found between cost and quality.

There are three parts to the sample size that need to be considered:

- The total sample size
- The domain sample sizes
- The cluster sizes

Total Sample Size

- There are many possible approaches to calculating sample sizes. Which one to choose will depend on what is required from the data and the sampling design. *Domains* are groups of the SSUs (households) which are of interest, for example province or household size. It is important to consider for which domains estimates will be required prior to calculating sample sizes, as this will affect how many households to sample. A minimum sample size in each domain will better ensure a required level of accuracy. Two variations of total sample size calculations are presented here as a bottom-up approach where the domain sample sizes are considered first and alternately a direct approach where the total sample size is calculated first.

To calculate ideal sample sizes, background information is required including: the required confidence levels and *z*-levels for the estimates, the required margin of error, the variance of a key variable, design effect, and response rate. The *z*-level relates to the size of the required confidence interval for a given estimate. 95 per cent confidence intervals are generally used which corresponds to a 1.96 *z*-level. The sample size input formula also requires the margin of error (*moe*). This is the size of the required confidence interval in real terms. For example, it may be desired to have a 95 per cent confidence interval for a proportion that is ± 0.10. This would make the *moe* = 0.10.

Other confidence intervals may be applied as well, as follows

Confidence interval	Z-level
• 90 percent	1.645
• 95 percent	1.96
• 99 percent	2.576

Another important consideration is the *variance* for the distribution of key variables in the population. Many of the key indicators in a Welfare Core Survey are *binary variables* meaning that only two answers are possible. For example, that a child does, or does not attend school. A proportion will be estimated from this type of data for prevalence of the variable in the population. The variance of a proportion is $p(1-p)$ where p is the proportion of the population. If we use a midpoint proportion of 0.5 to estimate sample sizes we will produce very conservative sample sizes which may be a waste of resources. On the other hand if we use a very low proportion (eg 0.1) we are not likely to get the precision required. A "rule of thumb" is to use p=0.3 as a compromise. If there is a specific key indicator of interest for the survey, an estimate of this variable can be used, based on previous surveys.

A guide for values to use during sample planning in the absence of previous survey data may be as follows:

• Margin of error required (measured as relative error)	10-20 per cent
• Confidence level required	95 per cent
• Design Effect	1.5
• Expected non-response	5 per cent
• Number of PSUs to select	300 - 400
• Cluster size	12 – 24 households
• Estimate of key variable (ratio variable)	0.3

Approach 1: Bottom-up

A bottom–up approach to calculate an initial total sample size is to consider the domain sample sizes first, and sum them together to get a total sample size. This is a good approach to take if estimates will be required for sub-national groups or individual domains and the groups to estimate are of a reasonably similar size. If not all strata require estimates, then some may be grouped together to the level of interest for the sample size calculations. For example, if agricultural zoning is used to stratify rural areas, but estimates are not required for each of these zoning types, they may be lumped together as 1 rural domain for the sample size calculations.

The following formula from Cochran (1977) provides an estimate for the sample size under simple random sampling, in stratum h where z_h is the z-level for the required confidence interval at the stratum level, moe_h is

the margin of error for a key variable in stratum h and p_h is the estimate of the proportion of a key variable for stratum h. For this approach, it is recommended to calculate the sample size for the stratum which requires the greatest required precision or has the smallest size first.

$$n_h = \left(\frac{z_h}{moe_h} \right)^2 p_h(1-p_h) \qquad (0.1)$$

Ideally, samples for a Welfare Core Survey will be *self-weighted,* meaning every household in the country has an equal probability of being selected. Samples that are self-weighting are generally easier to analyse because each household has the same *design weight* (see 5.6.1). Self-weighting samples have the sample size distributed over the strata in a way which is proportional to their size. It is possible for a self-weighted sample to give a suitable accuracy at a national and sub-national (stratum) level if strata are reasonably similar in size.

Self-weighting can be achieved by calculating one stratum first using formula 1.1, and scaling the other strata sample sizes proportional to their size. The *sampling fraction (f)* is used to do this and is the sample size of the stratum (n_h) divided by the number of households in the stratum (N_h). Note that when a self-weighting sample is used, the sampling fraction (*f*) is fixed over all strata, and the sample is allocated proportionally. The remaining strata sample sizes for each stratum (*h*) can be calculated using equation 1.2.

$$n_h = N_h \cdot f \qquad (0.2)$$

The total sample size is then the sum of the sample sizes in all the strata (1.3).

$$n_{total} = \sum_h n_h \qquad (0.3)$$

Approach 2 - Direct

If sub-national estimates are required and domains vary significantly in size, problems may occur with approach 1. It may result in too many households being interviewed in the larger strata resulting in a waste of resources, money and time. By decreasing the total sample size, too few are likely to be sampled in the smaller strata for good estimates to be calculated. Instead, a direct approach is to calculate the required precision level at the national level first using the general formula 1.4, which assumes simple random sampling. The total sample size is then adjusted for the sampling design and distributed among the strata, as discussed further in the following sections.

$$n_{total} = \left(\frac{z}{moe} \right)^2 p(1-p) \qquad (0.4)$$

Design Effect

The previous formulae (1.1 and 1.4) are based on a simple random sampling design where the proportion is approximately normally distributed. The recommended sampling design, however, is a two-stage cluster design, which will most likely decrease the precision of the estimates. This change in precision due to the sampling design is called the *design effect* (*deff*). It can be described as a ratio between the variance of the estimate using the proposed sampling design ($Var_{Cluster}$) and the variance of the same estimate if a simple random sample was performed (Var_{SRS}). In general, good stratification decreases the design effect while clustering of the households increases the effect. The cluster size will affect the design effect and is discussed further in paragraph 6.4.5. An approximation of the designeffect for binominal variables is presented in Aliaga & Ren (2006) referring to Cochran (1977). Based upon the experience in 8 developing countries they find an overall average of 0.047 for ρ. When no national data are available from previous surveys, this could serve as a guideline.

$$deff \cong \sqrt{1 + (m-1)\rho} \quad (0.5)$$

The total sample size must be adjusted to take into account the sampling design by multiplying it by the design effect as in equation 1.5.

$$n^{*}_{total} = n_{total} \cdot deff \quad (0.6)$$

Non-response

The total sample size estimate calculated up to this point, assumes that all households selected for the survey will be willing and able to participate in the survey. In reality, this is not always the case and there is likely to be some non-response. The estimate for the response rate (r) or proportion of selected households that participate, should be based on previous survey estimates. In the absence of previous records, a suggested participation of 0.99 is recommended. This is then used to calculate the final total sample size (n^{**}_{total}) (1.6).

$$n^{**}_{total} = \frac{n^{*}_{total}}{r} \quad (0.7)$$

Sample allocation

The total sample size needs to be allocated among the strata. While a bottom up approach requires the sample sizes in each domain to be calculated already, these need to be re-calculated given the total sample size has been adjusted for the design effect and expected non-response rate. Two approaches are given here to allocate the sample among the strata: proportional to size allocation and adjusted-weights allocation.

Proportional to size allocation

For a sample to be completely self-weighting, the total sample size is allocated proportional to size among the domains. This is done by calculating the weight of each domain (w_h) as the total number of households in the stratum (N_h) divided by the total number of households (N) (equation 1.7).

$$w_h = \frac{N_h}{N} \quad (0.8)$$

The sample size for each domain is then the product of the weight and adjusted total sample size:

$$n_h = w_h \cdot n^{**}_{total} \quad (0.9)$$

Adjusted-Weights allocation

If strata are significantly different in size and estimates will be required at a sub-national level, a different allocation is preferred. A compromise, described by Kish (1988) that will downscale the large strata and upscale the small ones, is to calculate an adjusted size for each domain (k_h) as:

$$k_h = \sqrt{w_h^2 + H^{-2}} \quad (0.10)$$

where w_h is the proportion of the population in domain h and H is the number of domains.

The sample size in domain h is then calculated as the product of the total sample size and proportion of k in the domain

$$n_h = n^{**}_{total} \frac{k_h}{\sum_h k_h} \quad (0.11)$$

Other allocation methods may be used, for example proportional to size with the smallest domains topped up to a minimum size or *Neymans* allocation which requires a variance estimate for each stratum. These, along with the adjusted weights approach, result in a sample that is *not* self-weighting as some domains are over- or under sampled. These approaches are likely to result in better sub-national (and possibly better national level) estimates. However, increased attention is needed to calculate design weights for each stratum.

Cluster Size

The *cluster size* ($n_{cluster}$) refers to the number of households to sample in each selected PSU and is an important part of the sampling design. In general, smaller cluster sizes result in higher precision in the estimates. This is because sampling more clusters of a smaller size reduces the design effect *(deff)*; it is more similar to a simple random sample than sampling only a few larger clusters. However, the cost of sampling many smaller clusters is higher. The optimal cluster size can be calculated using an optimisation formula (1.11) (Cochran 1977). The optimisation calculations should be done for each domain if the information is available, otherwise at a national level. It uses cost and variance ratios to minimise costs and reduce the variance of the estimates. The cost ratio describes the relationship between the cost of sampling a PSU and the cost of sampling a household. These costs should be estimated based on previous surveys.

$$n_{cluster} = \sqrt{\frac{Var_{within}}{Var_{among}} \cdot \frac{C_{psu}}{C_{household}}} \qquad (0.12)$$

C_{PSU} is the average cost of sampling a PSU which includes all the fixed costs for example, travelling to the location. $C_{household}$ is the cost associated with interviewing one household.

Var_{within} is the variance within the PSUs (ie among the households of the same PSU) while Var_{among} is the variance among PSUs. Since the variance within a PSU often is larger in urban PSUs than rural PSUs, the recommended clustersize may also be higher. Further descriptions of this can be found in the EHES manual (2013).

The number of clusters to sample in each stratum (m_h) can then be calculated as:

$$m_h = \frac{n_h}{n_{cluster}} \qquad (1.13)$$

Practicability may also play a role in determining the size of the cluster. If a team of interviewers can interview 5 or 6 households in a day it may make practicable sense to set the cluster size to a multiple of 5 or 6. Likewise, if there are 4 enumerators in each team setting the cluster size to a multiple of 4 may smooth the operation. The stratum sample size will then need to be adjusted slightly. This rounding may affect the design weights as discussed further in the following sections. Studies have shown however, even small deviations from an optimal cluster size can reduce the precision of the survey (Aliaga & Ren, 2006) and so caution should be made when rounding optimal cluster sizes.

In cases where no variables are available to calculate optimal cluster sizes, a general rule of thumb may be used. Generally a cluster size between 12 and 24 may be used which fits in terms of practicability. It should be stressed however, after the first implementation of a Welfare Core Survey, optimal cluster sizes should be calculated from previous years' data for more effective sampling and a better use of resources.

Remember:

- Consider which sub-groupsrequire estimating and ensure a minimum precision level and sample size in these
- If strata/domains are too dissimilar, oversample the smaller ones to optimise resources
- Use data from previous surveys to calculate optimal cluster sizes

6.5. Implementing Sampling Procedures

An actual sample size and design will usually be based upon a balance between the required accuracy and the total resources available for the survey. The sample statistician should aim at designing the most effective design within the resources available, but should also be prepared to tell the funding agency and the users what level of accuracy could be achieved with a given sample size and design. Hence it is essential to ensure a transparent decision process.

Preparing for sampling – total and domain accuracy.

The sample domains are the units for which statistical estimates are to be presented. These are usually administrative geographical units, but could well be other dimensions as well, such as sex or age-groups. The typical case is around 5-30 domains representing provinces or districts. A self-weighing sample will give very small samples in the small domains. Hence it is rather recommended to apply the Kish approach favoring the smallest domains and a Neyman allocation ensuring a certain minimum sample in even the smallest domains.

Assumptions for a typical sample procedure

Any calculation of required sample size and accuracy will start by deciding on a set of assumptions, typically as follows:

- The study accuracy is based upon estimation of binominal variables with a probability of around 0.3 and a normal distribution with an accuracy set to 0.05.
- Assuming a response rate of 95 percent
- Adjusting the PPS sample size for each domain by the Kish approach ensuring a larger than PPS sample size for small domains and a Neyman allocation to ensure a very minimum for the smallest domains.
- A cluster size of 24 in urban and 20 in rural areas
- A two stage sample procedure with Probability Proportional to Size, PPS, at the first stage and a fixed cluster take at the second stage and hence a proxy design effect of deft=$\sqrt{1 + (20 - 1)x\ 0.047}$ = 1.376 in rural areas. Since a lower ρ in urban areas is likely, it is recommended to use this *deft* in urban areas.
- A tolerable error d = 0.01at national level and around 0.05 for the smallest geographical units such as districts requiring the following sample sizes:
  - $n_{0.01}$ = n / 0.95 = 1.376 x 0.3 (1-0.3) [1.96 / 0.01]^2 / 0.95 = 11 685
  - $n_{0.05}$ = n / 0.95 = 1.376 x 0.3 (1-0.3) [1.96 / 0.05]^2 / 0.95 = 467

Domain sample size

Total and Domain Accuracy

National accuracy set to 0.01. Kish approach to balance total and domain accuracy. Neyman approach for minimum domain accuracy 0.05 and sample size of 460/456.

District	Population projections	n=√(W_h^2+H^{-2})	n - clustersize: Rural PSUs 20, urban 24	n - min clustersize 460
D1	211170	307	320	460
D2	327084	337	340	460
D3	1421454	840	840	840
D4	978780	614	620	620
D5	869202	560	580	580
U6	209094	306	320	456
D7	794991	525	540	540
…	…	…	…	…
D28	518287	404	420	460
D29	274797	322	340	460
D30	383887	355	360	460
D31	143824	294	300	460
Nation	15794799	12903	13220	14256

Dh - District h, Uh - Urban district h, Wh - Share of country population in district h, H - Number of domains

Sampling Stage 1

The two stage sample of households or persons would be designed to ensure that all households in each domain has the same probability of being selected in order to minimize the sampling error. The typical ap-

proach would be to select the PSUs with probability proportional to size and then select a fixed take of households/ persons within the PSU with equal probability. This means that large sized PSUs (those with more people/households) are more likely to be selected than smaller ones.

The first stage sampling with probability proportional to size will typically include the following steps within each domain, such as a district:

- Make a list of all PSUs in the domain listed according to stratum in a systematic order such as starting with the most central PSUs and moving towards the most remote PSUs, giving each a unique identification number. Use previously assigned numbers if available.
- Next to each PSU, list its measure of size (population or number of households)
- Add up to the cumulative size measure and list these in the next column
- Calculate the selection interval and a random starting number within the first interval, as follows:
    - The selection interval, I_h, is the total number of households in the domain N_h divided by the number of PSUs to be sampled in the domain, m_h.
    - Select a random number, rand, between 1 and I_h using a calculator or the table in this chapter .
- Select the PSUs in a systematic manner by selecting the PSUs with the following unit numbers: rand, rand + 1 x I_h, rand + 2 x I_h + ….+ rand + (m_h-1) x I_h.
- PSUs whose selection interval contains the number sequence are selected for sampling.
- Repeat for each stratum, recalculating I_h, each time and using a new random number.

A typical example may be as follows:

- Number of households in the domain = N_h = 978780
- Number of PSUs to select in the domain = m_h = 31 of 3263 PSUs.
- Systematic interval between selected PSU = I_h = N_h / m_h = 978780 / 31 = 31573
- Random number between 1 and 31573 = rand = 1351
- Number sequence = rand, rand + 1 x 31573, rand + 2 x 31573,…..,rand + 7 x 31573,…..,rand + 30 x 31573 = 1351, 32924, 64497, …..,222362,…..,948541.
- Selected PSUs = PSUs wth number sequence inside selection interval = EA005,EA0102,….,EA0646,…..EA3159.

First stage PPS sampling of PSUs

PSU	Number of Households	Cumulative Size	Number sequence	Selected PSUs
EA0001	254	254		
EA0002	215	469		
EA0003	353	822		
EA0004	323	1145		
EA0005	296	1441	1351	✔
EA0006	174	1615		
…	…	…	…	…
EA0645	179	222335		
EA0646	296	222514	222362	✔
EA0647	313	222827		
…	…	…	…	…
EA3259	287	977561		
EA3260	342	977848		
EA3261	378	978190		
EA3262	212	978568		
EA3263	404	978780		

1.1.2. Sampling Stage 2

The second-stage of sampling involves selecting a number of households or SSUs (Secondary Sampling Units) from the selected PSUs. This stage requires a *detailed list* of all the households in the PSUs that were

selected in the first-stage of sampling. Household listing will usually take place the day before the interviews in the selected PSUs by a thorough reconnaissance. Note that by using this type of two-stage design, only those PSU areas selected in the first stage of sampling require detailed household listing.

As for the selection of PSUs in the first stage, it is important to order the units in a systematic manner such as moving from central to remote households or from wealthy to more poor segments of the PSU or village. When applying a systematic sampling procedure, the households would then be automatically stratified and hence reduce the variance without causing any bias in the sampling.

Systematic sampling at this stage by moving from central to remote households is not only reducing the variance, but even making both the listing and the interviewing more practical. The common alternative is to select one random household followed by a number of surrounding neighbouring households (as sometimes used for the Expanded Program on Immunization) is not appropriate for a Welfare Core Survey because this rather increase than reduce the variance due to a possible second cluster effect (Bennet et al. 1994).

A typical second stage systematic sampling of households would then follow these steps:

- Make a listing of all households in the selected PSU and number all entrances with the listing number using chalk.
- Calculate size of the systematic interval between selected households (I_{hi}). This is defined as the total number of households in the PSU N_{hi} divided by the cluster size n_{hi} for domain h and PSU i.
- Select a random number (rand) between 1 and I_{hi} ,again using a calculator or the table of random numbers in this chapter.
- The first household chosen for the survey is that located in the position of the random number
- Select the households in a systematic manner by selecting the households with the following unit numbers: rand, rand + 1 x I_{hi}, rand + 2 x I_{hi} + ….+ rand + (n_{hi}-1) x I_{hi}.
- Repeat for each PSU, recalculating I_{hi}, each time and using a new random number.

A typical example may be as follows:

- Number of households in the PSU = N_{hi} = 321
- Cluster size of the PSU = n_{hi} = 20
- Systematic sampling interval between selected households = I_{hi}= 321 / 20 = 16.05
- Random number between 1 and 20 = Rand = 5
- Number sequence = rand, rand + 1 x 16.05, rand + 2 x 16.05,…..rand + 7 x 16.05,…..rand + 19 x 16.05 = 5, 21.05, 37.10,…..,117.35,…..,309.95.
- Selected households = 5, 21, 37,…..117,…..310.

Second stage cluster sampling of households within the PSU/ EA		
Number	Household number	Selection
1	HH001	
2	HH002	
3	HH003	
4	HH004	
5	HH005	✔
6	HH006	
…	…	…
116	HH116	
117	HH117	✔
118	HH118	
...	...	...
319	HH319	
320	HH320	
321	HH321	

6.6. Implementing Sampling Procedures

During surveying in the field, many issues are likely to arise. Previous survey experience should be used to consider problems beforehand, and measures taken to minimise time and resources and maximise output. Maps and household listings should ideally be updated in the selected PSUs prior to interviewing, especially in areas where the population is changing considerably.

Non-response is when a selected household does not participate in the survey. This may be for reason of choice but also access issues, non-contact, safety of the interviewer or language barriers. Interviewers should be provided with training prior to surveying in techniques to reduce non-response. If specific areas of the country are likely to have participants with language issues, efforts should be made for translations of questionnaires and multi-lingual interviewers to reduce this problem. If households are unable to be interviewed, *substitution with another household is not acceptable* in Welfare Core Surveys. Every household is chosen with probability sampling and substitution goes against this. Instead, non-participating households must be recorded as such with reasons for non-response. The use of reserve households is different to substitution as they are still selected with probability sampling. They should of course only be included in the clusters with a non-response household.

The timing of the survey is very important. Some countries may have areas that are inaccessible during certain seasons due to weather/road conditions or special events. In this case, measures need be taken to avoid these times. Unfortunately, some key indicators are likely to be correlated to certain times of the year and only sampling during a small time frame can not always be extrapolated to the bigger picture. A practicable balance must be made with justification of the choices made and recorded with an awareness of these limitations. In the larger countries, or when only a few interviewer groups are used, the survey may be carried out over a longer period of time. It is important in this case that the interviewer teams do not always travel in the same direction (for example surveying from the north to the south of the country). This is because changes due to the timing of the survey will not be able to be differentiated from those due to the spatial location. For this reason it is advised to create some kind of randomization in the order in which PSUs and strata are surveyed.

6.7. Sample Weights and Analyses

The goal for Welfare Core Surveys is to provide estimates for key indicators for the country and regions. Because not every household is surveyed, sample theory is used to help calculate these estimates. The use of weights is required, which can be thought of as how many other households each surveyed household represents. The two types of weights that must be considered are the *design* and *non-response* weights, resulting in an overall final weight for each unit. In addition, *calibration* may be used but will not be discussed further here and consultation with sampling statisticians is recommended.

Design Weights

The design weights relate to the sampling design and can be calculated prior to the survey. The survey is *self-weighting* when the total sample size is distributed over the domains and strata proportional to size, PSUs are sampled proportional to size and a fixed number of households are selected in each PSU. This results in every household in the survey having the same design weight. *Over-sampling* is when one or more group has a higher chance of selection, for example if a domain is particularly small, but quality estimates are required, it may be allocated a larger sample size than would be the case if strict proportion allocation was used. This means households in this domain will have a higher probability of selection compared to households in other domains.

The design weight is defined as the inverse of the sampling probability. For a two-stage sample, the sampling probability has two components: the probability of PSU i being selected (π_{1i}) and the probability of household j being selected given PSU i was selected (π_{2ij}). The overall sampling probability of household j being selected is π_{3j}.

These are given for the domain in equations 1.13, 1.14 and 1.15.

$$\pi_{1i} = m\frac{N_i}{N} \quad (0.13)$$

$$\pi_{2ij} = \frac{n_i}{N_i} \quad (0.14)$$

$$\pi_{3j} = \pi_{1i} \cdot \pi_{2ij} = m\frac{N_i}{N} \cdot \frac{n_i}{N_i} = m\frac{n_i}{N} \quad (0.15)$$

Where m is the number of PSUs to select in the domain, N_i is the number of households in PSU i, N is the number of and households in the domain, and n_i is the sample size for PSU i.

The product of these two, is the overall sampling probability for the household unit. Be aware that in this product, the number of households in a PSU within the domain, does not remain. Within a domain such as a district or province, all households have the same probability to be selected.
The inverse of this is the design weight for the household (equation 1.15)

$$\textit{design weight}_{ij} = \frac{1}{\pi_{1i} \cdot \pi_{2ij}} = \frac{1}{m \cdot \frac{n_i}{N}} = \frac{N}{m \cdot n_i} \quad (0.16)$$

Again, be aware that the design weights do not differ from one PSU to the next, but are the same across all PSUs within a domain.

Non-response Weights

Non-response can introduce a bias when the responding group differs in their responses to those that do not respond. It is measured in terms of the response rate, which is the proportion of selected households that participated in the survey. While the response rate may be high in most of the Welfare Core Surveys, non-response must be considered during both the preparation of the survey (in terms of interviewer training, time of year for the survey etc.) and after. Estimates can be affected by even a small percentage of non-respondents. One technique is to apply non-response weights to try to reduce the bias created from the difference in the response and non-response groups. These are then applied to the design weights to produce a final weight for each household in the survey.

The non-response weight describes how many households in the sample, each responding household represents. The non-response weight is defined as the inverse of the probability of a selected unit responding to the survey. A post-stratification variable (factor or continuous) that is known for both the respondents and non-respondents can be used to calculate the non-response weights. Good variables to use for post-stratification are correlated to both the *response rate* and the response to key indicator variables. Post-stratification variables do *not* need to be the same as the stratification variables that were used for sampling, but they can be. For example, the region/district of the household may be used. Non-response rates can be calculated based on the *sample*, or *population* figures (if this level information is known).

6.8. Sampling Documentation

Documentation of the sampling process can be easily overlooked. However, it is important for a number of reasons:

- To enable weighting methods to be used appropriately to calculate good quality estimates.
- To document problems that arose allowing improvements in future surveys
- To enable appropriate comparisons of the data and estimates with future or previous studies
- To allow other users of the data insight into the data collection methods
- To show that sound methodology has been used in the sampling process which aids to the credibility of the survey

Recording every step of the sampling process is important. During the *planning stage*, information around the target population and sampling frame must be clearly recorded (see 6.9.2 for an example worksheet). This includes:

- Descriptions of the target population for the survey
- Descriptions of the sampling frame for stages 1 and 2, including dates when they were created.
- Description the coverage of the sampling frame

The *sampling design* should be clearly documented including information on each domain, stratification variable, PSU and households in selected PSUs. 6.9.3 and 6.9.4 give example worksheets for the figures required. Key information to record includes:

- Description of how the PSUs were stratified
- Population sizes and sample size for each domain
- Description of how the sample size was allocated among domains
- Cluster sizes for each PSU/domain with a description of the calculation process
- Justification for assumptions and values used in sample size calculations eg deff, proportion estimates, variance, confidence level.
- Calculations of the inclusion probabilities and design weights

During the field-work stage, information should be recorded on aspects such as the number of reserves used, non-response, over-coverage, inaccessible areas. This information is used to calculate the weights for the analyses and problems encountered to include in the final report.

- Any problems encountered with fieldwork with reasons
- Over-coverage (for example, households selected with nobody living at the specified address)
- Inaccessible areas with reasons
- The number of reserve households used (if appropriate)
- Non-response rates with reasons for non-participation if available.

6.9. Random Sampling Numbers

Calculating random numbers

Sampling often requires the calculation of random numbers. For example, in the steps provided for systematic sampling, a random number between 1 and I_1 is required. Random numbers can be obtained in a number of ways, a few of which are described below.

Use a random numbers table

Random number tables can be useful tools for selecting a random number, especially if it needs to be done out in the field without the aid of a computer. They are generally books with lists of numbers similar to that shown in the box below. A starting place should be chosen by flicking through the book and stopping on a random page and dropping a finger onto a spot on the page. Different starting points should be used each time. To choose a number, read from the starting point in any chosen direction (left, right, up or down) with however many digits are required. For example, if we want to choose a number between 1 and 49, two digits are required. In the table below, a starting line has been chosen and is shown by the star. Reading left from this point gives the numbers: 69, 57, 26, 65, 91, … The first number that fits within the range we want (between 1 and 49) is 26, so this should be used and the others ignored.

Random numbers												
38	55	59	55	54	32	88	65	68	80	08	35	55
17	54	67	37	04	92	05	24	65	15	55	12	12
32	64	35	28	61	95	81	90	24	31	00	91	19
69	57	26*	87	77	39	51	03	59	05	14	06	04
24	12	26	65	91	27	69	90	64	94	14	84	54
61	19	63	02	31	92	96	26	17	73	41	83	95
30	53	22	17	04	10	27	41	22	02	39	68	52
03	78	89	75	99	75	86	72	07	17	74	41	65
48	22	36	33	79	85	78	34	76	19	53	15	26
60	36	59	46	53	35	07	53	39	49	42	61	42
83	79	94	24	02	56	62	33	44	42	34	99	44

Use a calculator

Many calculators now have a random number generator inbuilt. This will differ between calculators but often has the label ”RAN#” . On most calculators, this creates a number between 0 and 1 that contains many decimal places. To select a random number between 1 and 49, the generated number from the calculator should be multiplied by 49 and rounded up to give the chosen number.

Use excel

Microsoft excel provides many mathematical and statistical tools including random numbers function. In the English version, the function RAND() produces a number between 0 and 1 containing many decimal places, similar to the calculator function. This number is then multiplied to the top limit of the required interval (49 in the example case) and the product rounded up (given the interval starts from 1).

6.10. Summary

Who should use this chapter

This chapter is designed for those working at National Statistical Offices in developing countries including leaders, survey planners, those implementing national surveys, interviewers, and statisticians doing analyses as well as other researchers using the data obtained from a Welfare Core Survey.

Key points

The key points are as follows:

- Good planning of the sampling procedure can reduce resources and problems later on
- The survey should sample from all private households in the country
- Probability sampling must be used
- A two-stage cluster design is recommended to control the costs of interviewers in the field
- Calculate sample sizes to minimize the variance of estimates while considering which domains require estimates
- Allocate the sample towards areas with high variation and away from areas of high cost
- Consider higher cluster-size in strata with higher within variance, such as urban PSUs.
- Document the sampling process and any problems that occur before, during and after sampling

7. Survey Implementation

7.1. Introduction

Already when preparing the concept paper, it is necessary to plan for the detailed survey implementation to be able to present a rough idea of units, sample size, time line, field work and budget in the concept paper. When the concept paper has been revised and approved, it is strongly recommended to plan the survey implementation in details in the following steps:

Step 1 Given the specific objectives, identify the questions, the survey instruments such as the questionnaire, the unit of respondents such as household, individuals and possibly communities, as well as the planned sample size for each unit.

Step 2 Given the administrative divisions and strata in the country, develop one or more sampling options reflecting field costs, budget, and accuracy requirements at national and sub-national level.

Step 3 Design the field work approach including listing and enumeration.

Step 4 Reconsider step 2 and 3 and decide on the recommended sampling and field work approaches.

Step 5 Given the sampling and field work approaches, prepare the detailed time line and budget

1.2. The survey implementation plan

This paragraph presents the necessary steps in the Welfare Core Survey implementation plan starting from a generic light survey implementation plan. Any country level implementation should start with considering the country level needs for survey information and then address how this could be accommodated and combined with the prototype before designing the country level approach.

Each NSO has their own way of categorizing and detailing the number of steps for the implementation. Any survey organization need to include the steps listed below when implementing a new survey. If implementing a global or regional prototype, a few steps may be by-passed, but should always be considered.

The Welfare Core Survey implementation plan		
Activity	Staff involved	Time frame
1. Develop Concept paper	'Owners" of the issues and one or more survey statisticians.	4 weeks if done from scratch, otherwise 2 weeks
2. Discuss Concept paper with stakeholders	The partners who developed the concept paper jointly discuss the paper with the main stakeholders	2 weeks
3. Revise Concept paper	The same partners should jointly revise the concept paper.	1 week when based upon a prototype as the Welfare Core Survey
4. Advocacy	Making the survey and its use known to both the general public as well as main stakeholders, to secure support for the survey throughout the survey process	Continuous
5. Funding arrangements	The partners who prepared the concept paper should assist the Head of the NSO to ensure funding from government, international donors and other stakeholders.	1 week

The Welfare Core Survey implementation plan		
6. Identifying permanent staff	The allocation of permanent staff for a survey varies from NSO to NSO. The Head of the NSO may allocate one staff member as project leader and leave to him/her to identify the other survey project group member or rather identify the whole group.	1 week
7. Development of draft survey documents (including priority issues, list of questions, dummy tables, draft questionnaire)	Some NSO have stove-pipe type or organization and the survey team will do most of this work. . Other NSO have a task oriented type of organization and then the subject matter survey statisticians will cooperate with the questionnaire design team, the field work team, the data processing team and the sampling team to prepare these draft survey documents. It is in any case essential to build upon previous national experience	This may take the team from 4 weeks for a new type or survey to 1 week when adapting a prototype with minor changes
8. Prepare for pretest	When designing a new survey it is essential to test how the respondents understand and may answer the survey questions	½ week
9. Training for pretest	Assuming a project team of 4 survey statisticians they will train around 4 permanent field supervisors for the pretest	1 week
10. Pretest/ cognitive test.	The team of 4 survey statisticians and 4 supervisors will each conduct 2-3 interviews. When they have completed each question they will make follow up questions in order to learn how the respondents understood and answered the questions.	½ week
11. Pretest summary	Having completed the pretest the team will meet and discuss whether and which changes are needed in order to collect the information for survey issues	½ week
12. 1st stage sampling of PSUs/EAs	In parallel or shortly after the pretest, the first stage sample of Primary Sampling Units usually Enumeration Areas should be selected, please refer to the chapter on sampling.	2 weeks
13. Preparing field work and transport plan	When the sample of PSUs is finalized, an efficient logistic plan for timing and transport should be developed	2 weeks
14. Hiring temporary staff	While some countries have a large core of experienced field workers for hiring, others may need to hire field workers from the specific sample regions and being fluent in the local language. Hence while some NSOs need quite some time to hire temporary staff, others may do this in a week. In any case it is essential to start the process for hiring field staff well ahead of training and field work	2 weeks
15. Revising survey documents, designing manuals and control forms	From the pretest summary workshop, the survey team will revise and prepare all survey forms	2 weeks
16. Preparing field work and transport time schedule	The final field work schedule, transport plan and messenger arrangement should be prepared ahead of the pilot. Hence the pilot may serve as a test for some of these elements.	2 weeks

The Welfare Core Survey implementation plan		
17. Preparing data entry, verification and processing application	When the survey forms are ready, the data entry plan and programs may be prepared	2 weeks
18. Training for pilot	Two teams should be trained for the pilot. Both the pilot supervisors and the pilot enumerators will serve as supervisors for the main field work	2 weeks
19. Pilot test	The pilot will test both listing-forms, question-naire and other forms and the logistics with transport, listing, PSU-sampling, and interviews in 2 x 2 EAs.	2 weks
20. Pilot data processing	It is essential that the data processing is done fast enough for the results to be available at the pilot summary workshop. Hence it is recommended that the forms from the first half of the pilot are collected and returned to headquarter. This may allow the data processing team to prepare a field quality report for the pilot summary workshop.	1 week
21. Pilot summary work-shop	The pilot summary workshop will both summa-rize the field experience and review the final data from the first round which would be processed during the second week of enumeration	1 week
22. Revising field work and transport plan	While the pretest is a test of the forms, the pilot-test is also a test of field work time schedule, transport plan and messenger arrangements. These plans will be revised at this stage	1 week
23. Advertising, contacting administrative leaders, users and media	It is essential that all administrative leaders for areas which are selected in the sampling for inter-views are made aware of the survey well ahead of the survey team visiting their area	1 week
24. Revision of all survey forms, manuals and quality control	Ideally the pilot-test should first and foremost be a test of the field work operation, but inevitably it will also identify the need for some improvements of the questionnaire and other survey forms. Then even the manuals and quality control will have to be revised accordingly.	1 week
25. Revision of data entry, verification and processing application	Based upon the experience from the pilot work-shop, the data entry, verification and processing application should be revised	2 weeks
26. Training.	The training aims at building the understanding and experience of the supervisors and enumera-tors. The main training will be led and conducted by the survey team, while the field staff from the pilot-test will serve as assistants and later as su-pervisors	2 weeks
27. Field work deployment	Immediately after the training, the teams (com-prised of one supervisor, four enumerators and a driver) will be deployed to their first locations.	1 week

The Welfare Core Survey implementation plan		
28. Initial listing, 2nd stage sampling, field work	The field work will be done in two steps in each EA. The supervisor will bring an introductory letter to the local officials. The team will then arrange for the local chief or representative to assist them during the listing. The supervisor will then select the cluster by systematic random sampling and assign households to be interviewed by each enumerator. A messenger will take the forms to headquarter upon completion of the first EA and thereafter for each two EAs	Each round of field, i.e. each EA, will require 4 days.
29. Initial data entry, verification, and processing	It is essential that the data entry team scan, verify and process the forms from the first EAs as fast as possible and prepare a report for each field team.	1 week
30. Initial quality control	While the field teams remain in field, the project staff will check the data quality and prepare a report for each team based upon the first EA.	1 week
31. Continued listing, 2nd stage sampling, field work	The field work will then continue in sequences. It is recommended to complete field work in 2 EAs and then have a break of 2 days	10 weeks
32. Continued data entry, verification, and processing	Data entry, verification and processing will take place in parallel with field work with a time lag of 10 days	10 days/ 2 weeks after the field work is winded up
33. Field work summary workshop	The field work summary workshop will take place soon after the field work has been completed. It is recommended to give the enumerators 1 week break upon completion.	1 week
34. Data cleaning, revision and processing	The first step of data cleaning and revision is to complete data entry, verification and processing for all forms and the necessary revisions based upon the field work summary workshop.	4 weeks
35. Post enumeration sampling	Ideally the field work has been completed in all EAs and among all households and individuals as planned and the average number of individuals in each household as assumed. If so the household sample weights prepared for the sampling are still valid. If not, the sampling statistician needs to conduct the post-enumeration sampling estimation based upon the actual average number of individuals and households in the final sample.	2 weeks
36. Analysis file.	Upon completion of the 2nd round of data cleaning and revision, the programming of data constructs will be done and a first analysis file be produced for each on the analytic units 2 weeks	2 weeks
37. Reference tables	Based upon the list of dummy tables, a set of draft reference tables for households and individuals will be produced.	2 weeks
38. Triangulation of survey data with other data sources	The draft reference tables will allow the survey team to triangulate i.e. to compare the data from this survey with previous surveys	2 weeks
39. Draft statistical report.	When the triangulation has been completed, the final reference tables may be produced. These will serve as the basis for the chapter presenting the highlights in tables and graphs with interpretation, refer to Chapter 11 Tabulation Report.	4 weeks

The Welfare Core Survey implementation plan		
40. Final statistical report	The final statistical report should comprise a chapter of highlights, a set of reference tables, the questionnaire and a methodological chapter presenting sampling and field approach.	2 weeks
41. Internal documentation and implementation report	It is essential to store all documentation in a systematic manner. This is the time to ensure that all documentation is stored and that this collection is complete.	1 week
42. Storage of documentation, forms and micro data in Tool-Kit	The internal documentation and implementation report, the final statistical report and the micro-data should all be stored using the IHSN ADP ToolKit.	1 week
43. Dissemination Plan starting with a Press-release	Dissemination of the results is an integrated part of the survey. It should as a minimum start with a press-release and followed by a dissemination workshop. The NSO should contact the media in advance and offer special assistance for a proper dissemination such as live copies of graphs and the corresponding interpretation.	2 weeks.
44. Workshop and dissemination of report	Conduct a dissemination workshop for the main users and the media.	1 week.
45. Dissemination of report at NSO Web-site	The report at the NSO Web-site should be released just upon completion of the workshop or the following day, when the demand is at its peak.	1 week.
46. Up-loading of aggregated data to an NSO databank	The aggregated data from the NSO data-bank should be released as soon as possible upon completion of the workshop when the demand is at its peak. It is recommended that the NSO establish a general meta-database and databank for the internal NSO use. This databank may then serve all other dissemination databases and the NSO Web-publication	2 weeks

Welfare Core Survey implementation plan

Time schedule

Activity	W	Time
1. Develop Concept paper	2	1-2
2. Discuss Concept paper with stakeholders	2	3-4
3. Revise Concept paper	1	5
4. Advocacy	1	5
5. Funding arrangements	1	5
6. Identifying permanent staff	1	6
7. Development of draft survey documents	1	7
8. Prepare for pretest	0.5	7
9. Training for pretest	1	8
10. Pretest/ cognitive test	1	9
11. Pretest summary	0.5	10
12. 1st stage sampling of PSUs/EAs	2	10-11
13. Preparing field work and transport plan	2	11-12
14. Hiring temporary staff	2	13-14
15. Revising survey documents, designing manuals and control forms	2	13-14
16. Preparing field work and transport time schedule	2	13-14
17. Preparing data entry, verification and processing application	2	13-14
18. Training for pilot	2	15-16
19. Pilot test	2	17-18
20. Pilot data processing	1	18
21. Pilot summary workshop	1	19
22. Revising field work and transport plan	1	20
23. Advertising, contacting administrative leaders, users and media	1	20
24. Revision of all survey forms, manuals and quality control	2	20-21
25. Revision of data entry, verification and processing application	2	20-21
26. Training	2	22-23
27. Field work deployment	1	24
28. Initial field work, 2nd stage sampling, field work	2	25-26
29. Initial data entry, verification, and processing	1	26
30. Initial quality control	1	27
31. Continued field work, 2nd stage sampling, field work	10	27-36
32. Continued data entry, verification, and processing	10	28-37
33. Field work summary workshop	1	37
34. Data cleaning, revision and processing	4	38-41
35. Post enumeration sampling	2	39-40
36. Analysis file	2	42-43
37. Reference tables	2	44-45
38. Triangulation of survey data with other data sources	2	46-47
39. Draft statistical report	4	47-50
40. Final statistical report	2	51-52
41. Internal documentation and implementation report	1	53
42. Storage of documentation, forms and micro data in Tool-Kit	1	54
43. Dissemination Plan starting with a Press-release	2	53-54
44. Workshop and dissemination of report	1	55
45. Dissemination of report at NSI Web-site	1	55
46. Up-loading of aggregated data to an NSI databank	2	55-56

Training

Training and capacity building for staff at statistical offices is an integral part of implementing surveys. The importance of adequate training before field work cannot be overstated, especially when there are no permanent field staffs, and many of the staff will be new to survey work.

Training will be the only means for ensuring that all staff correctly and uniformly follows survey procedures. Adequate time should be allocated to communicating the basic concepts and definitions that are to be applied in executing the WCS survey. These include such concepts as the definition of household, head of the household, etc. Training should also include interactive discussion between the field staff and trainers; full use should be made of such teaching devices as role playing and mock interviews. All enumerators need to be thoroughly trained in the precise techniques to be used in weighing children with the scales, provided as well as the use of GPS's.

Training will be focused on various staff groups; the most important being training of the Master trainers/National supervisors who will be required to have a thorough understanding of the survey's objectives and the survey questionnaire which they will convey to the supervisors, enumerators and the data entry staff. The table below shows the different levels of training, who will do the training, for various staff groups, main point in training, training input, as well as training in software to be used in the survey.

Training hierarchy for the survey				
Type of training	Trainers	Trainees	Main points in training	Training input
Pretest	Survey manager/ consultants	Master trainers	This report, purpose, identifying potential problems	Draft questionnaire
Supervisors' training	Master trainers/ supervisors	Supervisors	Purpose of survey, understanding the questionnaire, editing of questionnaires, sampling, work as a team leader	Supervisors' manual, sampling procedures, questionnaire edits
Enumerators' training	Master trainers (for supervision)	Enumerators	Purpose of survey, understanding the questionnaire, filling in the questionnaire	Enumerators' manual and special equipment to be used, like GPS and UNICEF Mother/Baby scales
Data management	Data manager	Data entry staff	Familiarize with the data entry software, as well as the software for further cleaning	For scanning, the Eyes and Hands programs and outputs

The training will be conducted in steps: 1. Presentation of the listing and survey forms. 2. Pairwise interviews with a colleague enumerator. 3. Retraining. 4. Interview with a real respondent. 5. Summary of experience, discussion of problems and misunderstandings.

Training enumerators, supervisors and data entry personnel

Even though a survey often employs a large number of field staff, every effort should be made to conduct the training at a central location so that all trainees receive the same training and have a common understanding of the survey objectives and data quality requirements. Where this is not possible, the National Supervisors/Master trainers will conduct training in various locations, securing a common understanding of the survey objectives, the flow of the questionnaire and the interpretation of questions for all trainees.

Allocating sufficient time for the training is crucial. The amount of time needed will depend on the nature of the survey. For a light survey like the WCS, about two weeks should be allocated to the training. Care should be taken to not only allocate time for training of enumerators, but also set aside time for the training of su-

pervisors. Based on experiences, it seems that the training of supervisors often will be neglected if time runs short.

The training should be a mixture of theoretical and practical training. The theoretical training will explain the main concepts to be used, such as the definition of household, head of the household, etc., as well as how to interpret the questions to be asked. The practical training should include interactive discussion between the field staff and trainers, role playing, mock interviews, that is interviews that are made up for the training, 'real life' interviews, as well as training in how to use survey equipment, such as GPS's and scales used for anthropometric measurements.

It is important that field supervisors attend the training. Active involvement of supervisors in the training is necessary for an understanding of the role of the interviewer and the problems teams may encounter during fieldwork. Supervisors should participate with interviewer trainees in role playing interviews and supervise the interviewing in the field prior to the start of fieldwork. The practice in interviewing gives supervisors and interviewers experience in working together as a team.
After interviewer training, additional training may be provided on the specific duties of supervisors, like sampling and editing. This is to ensure that all teams will be following a uniform set of procedures and to teach supervisors how to check the fieldwork and edit completed questionnaires.

The enumeration procedure as well as how to interpret questions and filling in the questionnaires should be the most important part in training as well as in the enumerator's manual. Also, how to translate important concepts into the vernacular would be part of the training.

Training material

Training will be based on the following documents:

- Welfare Core Survey Questionnaire
- Welfare Core Survey Supervisor's Manual
- Welfare Core Survey Enumerator's Manual

The manuals will explain the purpose of the survey, the survey organization, sampling and sampling procedures in the field (if relevant) as well as explaining the most important concepts in the survey and how the questions in the questionnaire are to be interpreted.

The manuals will ensure that enumerators, supervisors and data entry staff will have the same understanding of the objectives of the survey as well as how to interpret the questions. This is especially important if the training is carried out in several locations. If training is not consistent between training locations, this can lead to consistent errors in the data collection. Good use of the manuals, as well as consistent training at every level, will reduce errors in the data collection.

The enumerator's manual is the most comprehensive manual. Enumerators, as well as supervisors and data entry/data edit staff will participate in the training of enumerators, followed by specific training related to their specific work tasks. Hence, in addition to the core training lessons, it will also be necessary to conduct specialized training lessons for data processing staff and supervisors to learn the details of their respective tasks.

The recommended approach for training is as follows:

- Presentations on each module
- Theoretical and practical sessions on using GPS devices and EA maps
- Questionnaire exercises about fictional households (both individually and in groups)
- Questionnaire exercises in pairs ('enumerator' and 'respondent')
- Marking of exercises by trainers with written and verbal comments
- Daily review sessions readdressing difficult topics from the previous day
- Question and answer time after each training session, with questions actively encourage

Training agenda			
Day	**Time**	**Topic**	**Presenter**
1	**9:00 – 9:30**	Welcome; Introductions	
	9:30 – 10:30	Hand out of materials (manuals, questionnaires, notebooks, pens, name tags). PPT: Survey overview	
	11:15 – 11:30	BREAK	----------
	11:30 – 1:00	GPS/Maps Session 1	
	1:00 – 2:15	LUNCH	----------
	2:15 – 3:00	PPT: Filling in the questionnaire. Exercise (checking filled-in forms)	
	3:00 – 3:45	Brief overview of sampling	
	3:45 – 4:00	BREAK	----------
	4:00 – 5:00	GPS/Maps Session 2	
2	**9:00 – 9:30**	Revision of Day 1	
	9:30 – 10:20	PPT: Fieldwork responsibilities	
	10:20 – 11:15	PPT: Listing	
	11:15 – 11:30	BREAK	----------
	11:30 – 1:00	GPS/Maps Session 3	
	1:00 – 2:15	LUNCH	----------
	2:15 – 3:45	PPT: Module A. Exercises on module A (checking filled-in forms)	
	3:45 – 4:00	BREAK	----------
	4:00 – 5:00	GPS/Maps Session 4	
3	**9:00 – 9:30**	Revision of Day 2	
	9:30 – 10:15	PPT: Module B, C	
	10:15 – 11:15	Team exercises on A, B, C	
	11:15 – 11:30	BREAK	----------
	11:30 – 12:00	Feedback from exercises	
	12:00 – 1:00	PPT: Module D and E	
	1:00 – 2:15	LUNCH	----------
	2:15 – 3:15	Exercises on A, B, C, D, E	
	3:45 – 4:00	BREAK	----------
	4:00 – 5:00	Exercises and feedback	
4	**9:00 – 9:30**	Revision of Day 3	
	9:30 – 10:30	PPT: Modules F and G	
	10:30 – 11:15	PPT: Module H	
	11:15 – 11:30	BREAK	----------
	11:30 – 12:15	Exercise on F, G, H: in pairs and then swap over	
	12:15 – 1:00	Feedback from exercises	
	1:00 – 2:15	LUNCH	----------
	2:15 – 3:15	PPT: Modules I, J, K,	
	3:15 – 3:45	Team exercises on I, J, K,	
	3:45 – 4:00	BREAK	----------
	4:00 – 5:00	Exercises on I, J, K,. Feedback	
5	**9:00 – 9:30**	Revision of Day 4	
	9:30 – 10:30	Revision of difficult sections	
	10:30 – 11:15	Team exercises on A, B, C, D, E	
	11:15 – 11:30	BREAK	----------
	11:30 – 1:00	Practice in pairs: whole questionnaire	
	1:00 – 2:15	LUNCH	----------
	2:15 – 5:00	Mock interviews with a real household	
6	**9:00 – 9:30**	Revision of Day 5	
	9:30 – 11:15	Feedback from mock interviews. Common errors made	
	11:15 – 11:30	BREAK	----------
	11:30 – 1:00	Special session for supervisors: what to watch out for	
	1:00 – 2:15	LUNCH	----------
	2:15	Departure for the field	

7.2. Manuals

Enumerators' manual

The proposed enumerator's manual is based on the choices made for the data collection exercise as described in this handbook:

- A Core Questionnaire for measuring relevant MDG indicators when using a light survey approach
- No, or few, permanent field staff,
- Mobile teams, with listing, as well as sampling and enumeration of the households, as integral parts of a single field exercise.

Countries with a well-established survey organization and plenty of experience in survey taking would of course use their own well established practices in this regard.

An enumerator's manual will normally contain the following information on, see the Annex document:

- Objectives of the survey
- The duties of enumerators
- Definition of main concepts. Definitions of main concepts will have to be country specific, unless there are internationally accepted standards.
- How to fill in the questionnaire and verification

Supervisors' manual

A supervisor's manual will normally contain the following information, detailed in Annex:

- The duties of the Supervisor of the supervisor as team leader
- Sampling procedures
- Verification of questionnaires
- Procedures for sending the filled in questionnaires to the Headquarter.

7.3. Field work

Field logistics

For the Welfare Core Survey it is recommended to use either an existing corps of decentralized field staff or mobile teams. Given the type of questionnaire and the mixture of households and individual questions a one visit field approach should be sufficient.

The field arrangements for a Welfare Core Survey should follow the standard approach for field work by the responsible national statistical institute. Here in this document one example of field arrangement is presented, but it is essential to stress that this example should be implemented building upon the national experience.

One field work recommendation

As recommended in the sampling chapter, it is recommended to use a highly stratified two stage sample approach with systematic PPS sampling of enumerations areas and a fixed take of 20 households within each rural PSU/EA and 24 households in each urban PSU/EA.

It is recommended that the field work will be carried out by mobile teams, doing listing and enumeration in single exercise. After introducing themselves to the local authorities, the team will familiarize themselves with the area to be enumerated, checking EA maps and confirming the EA boundaries, and then go on to listing the households, refer to the *Welfare Core Survey – EA Control Form* and the *Welfare Core Survey – Household Listing Form* in the appendix document.

For a one visit survey with this fixed take, it is recommended to organize the field work in mobile teams. Each mobile team will consist of 4 enumerators, 1 supervisor and 1 driver. The number of teams will follow from the sample size. In rural areas 20 households will be selected, in urban areas 24 households will be selected.

Estimated time for listing will be about 1 day's work, while travel time between EAs is estimated to about half a day, including time to introduce the team to the local authorities, as well as hiring a guide to facilitate the listing procedure. The interviewing itself will be concluded within 2 days. Enumeration in one EA can thus be estimated to last for about 2-3 days.

For each EA the team will use 4 days, one for travel, one for listing and two days for enumeration and quality control. The team will ask for assistance from the village headman in rural areas and a person as recommended by the district administration in urban areas. With his/her assistance the joint team will list all households in day 1. The supervisor will then do the sampling within the EA and allocate 5/6 respondents to each enumerator. It is highly advisable, at least in urban areas to draw the sample as soon as possible after listing and appointment for enumeration the next day be made. This increases the chances for the respondent being present, and reduces the risk of call-back. The team will use 1 1/2 day to complete the interviews. During the second morning the supervisor will review the questionnaires from enumeration day 1 and ask the enumerators to return to respondents for clarifications if need be. The supervisor will then review the questionnaires from enumeration day 2 in the middle of day 2 and enumerators will be able to return to respondents for corrections the same day.

After 2 EAs the team will take 2 days off for rest and possible travel to a new area. At this stage all questionnaires and other forms will be transported to headquarter for quality control and data entry. Each team will complete 16 EAs in a total of 16 x 4 days for field work + 8 x 2 days for travel and rest = 80 days. Each team should budget for 90 days, 5 days for a middle break and 5 days to allow for any low quality work to be redone or to replace another team in an EA.

Hence a total of 15 teams will each cover 10 rural EAs with a gross total of 15 x 10 x 20 = 3000 respondents and 6 urban EAs with a gross total of 15 x 6 x 24 = 2160 respondents. That should allow for a net sample of 5000 respondents.

During the actual enumeration, the enumerators will visit and enumerate all the households assigned to them. After completing a day's work, the supervisor will check that questionnaires are correctly filled in, and that all relevant information is provided.

In cases of errors and incomplete questionnaires, the supervisor will also decide whether a call back is feasible. National supervisors will make frequent field visits to check on the quality of the field work. After field work in one geographical area is completed, the filled-in questionnaires are sent to the Headquarter for data processing. More details of verification in the field is given in the Supervisor's manual in the annex document.

Each survey staff officer would supervise 5 teams and they will all report to one field manager, i.e. survey project leader. He/she will also be assisted by two messengers, each with a motorbike, who will pick up and return the questionnaires and other forms and one driver for the car.

Staff requirements

The net staff requirements would be as follows:

- Survey project leader and field manager 1
- Survey officers 3
- Supervisor and field team leaders 15
- Enumerators 60
- Drivers 19
- Messengers 6
- Scanning and data verification officer 1
- Scanning operator 1

7.4. Field work – listing

With mobile survey teams as planned for the Welfare Core Survey, it is recommended to do listing and enumeration during one visit. The whole survey team will do the listing headed by the team leader and a local assistant usually the village headman, refer to the *Welfare Core Survey Prototype - Household Listing Form,* attached in the Appendix document. The supervisor will lead the team and the enumerators will conduct specific tasks. One enumerator will mark all housing structures/ buildings with chalk from B1 and upwards, all dwellings from D1 and upwards and all Households from HH1 and upwards. Another enumerator will put the B-numbers on the EA-map and if need be draw a square for each additional building. A third enumerator will take the geographical coordinates for each housing structure and the fourth enumerator will write the information in the listing form.

7.5. Field work – 2nd stage sampling

The supervisor will do the second stage sampling based upon the list of all households, such as from HH1 to HH145 using the *Welfare Core Survey Prototype - Household Sampling Form*, attached in the appendix document. He/she will apply a systematic random sampling in the steps as described in the sampling chapter:

- Calculate the size of systematic interval between selected households Ii. This is defined as the total number of households in the PSU N_i divided by the cluster size n_i. $I_i = N_i / n_i$ for PSU i.
- Select a random number (rand) between 1 and I_i.
- The first household chosen for the survey is that located in the position of the random number.
- Count down the list I_i households to the next chosen household
- Repeat this step until the list is complete and the correct number of households should be selected for the PSU
- Select one reserve households as a random number between 1 and N_i.
- Allocate around ¼ of the household to each enumerator. For geographically large PSUs/EAs it should be considered whether to allocate one extra household to the enumerator working in the central area of the PSU/EA and one less to the enumerator working in the most remote part of the PSU/EA.

7.6. Field work – staff

Field work – enumerators

The enumerators will assist the supervisor for the listing work under direct supervision filling in the *Welfare Core Survey – EA Control Form* and the *Welfare Core Survey - Household Listing Form,* both attached in the appendix document.

The enumerators will then be assigned around 5 or 6 households. For these households, the enumerator will work on his/her own doing the interviews and filling in the questionnaires.

When doing the interviews, the enumerator will also fill in the main logistic information at the front page of the questionnaire itself.

Field work – supervisors

The supervisor is a crucial person for ensuring field work quality. He/she will both serve as a team leader, an advisor to the enumerators and control the work of the enumerators.

He/she will lead the listing and supervise how the *Welfare Core Survey – EA Control Form* and the *Welfare Core Survey - Household Listing Form* are completed.

Based upon the listing, the supervisor will carry out the systematic random sampling of the households and prepare one list of household assignments for each enumerator, the *Welfare Core Survey - Household Sample Form.*

Field work – drivers

Each team will be set up with one car and a driver. Since working for quite long periods in the field, drivers should also have the experience from simple mechanic maintenance. He/she will of course usually move with the team, but since the team may do listing ahead of interviewing the drive should also be prepared to and able to find the way to and from various locations, if need be even to new areas based upon maps.

Field work – messengers

Each messenger will be set up with a motorbike and need to be well experienced in both driving and simple mechanics. If the survey is done with paperforms, these need to be taken to headquarter after each two EAs and new forms and maps need to be transported out again to the field. Hence it is essential that the messengers are able to find their way, if need be even by maps and GPS.

Field work – project officers

The project officers will be a supervisor for a group of field teams and supervisors. It is essential that all project officers gain experience from the field work during the pretest and pilot-test in order to supervise the main field work. They will get a report from the initial field period with frequency tables for each team and use this report to discuss each outlayer with the team. Most of the outlayers are easily explained by statistical randomness or a special situation in the EA, but still it is essential to meet the team and discuss each discrepancy.

Each project officer will also check the return of the questionnaire-heaps from each EA, not to check the questionnaires as such but the front page control form from the supervisor and sign them upon checking, refer to the *Welfare Core Survey Prototype – EA Control Form* in the appendix document.

Field work – project manager

The project manager will of course have a list of tasks and responsibilities, but one of his/her top priorities would be the quality control. A very important instrument would be the frequency tables from the initial field work. From these, discrepancies between teams and between project officers should be identified. The project manager would then discuss with each project officer how he/she is planning the follow up and later get a confirmation and briefing from each project officer

7.7. Field work – project remuneration

In order to ensure high quality, the approach for remuneration is essential and has to strike a balance:

- A system of payment per day worked which is not linked to the number of interviews completed and approved by the supervisor may ensure that the enumerators take their time and conduct quality interviews. But this may also be an incentive for the field teams to use too much time and hence the project manager may either have to cut the sample short in order to complete field work on time or to go on and end up with budget funds far too low to ensure high quality data processing and publishing.
- Payment per interview may ensure delivery on time and according to the budget, but may also be an incentive for short cuts during the interview and hence jeopardize quality during the interview. Such a system requires a very strict procedure for approval of each questionnaire.
- A system of payment per day worked with a bonus system for completed and approved questionnaires on time may serve to strike a proper balance.

Our recommendation is a system where 80 per cent of the budget is used for payment and subsistence allowance per day worked and spent in the field and 20 per cent set aside for a bonus system. It is recommended that half the bonus amount is targeted for all teams who manage to complete the work on time and at a quality level accepted by the supervisor, the project officer and the project manager, while the other half of the bonus is available for excellent work and when a team has to undertake extra work replacing low performing teams.

7.8. Field Work - Enumeration

During field work, the enumerator will visit and enumerate the households allotted to him/her. In case of non-present households or refusals, the enumerator should contact the supervisor to check whether call backs will be possible, or to help persuade the household head to participate. There will be one main respondent for the majority of survey questions, preferably the household head answering on behalf of all household members (indirect interview) as well as for the household as a whole. Exceptions are the questions on HIV/AIDS and maternal and child health.

The most important part of the enumeration is to correctly fill in and mark the questionnaire. This is detailed in the Enumerators' manual, refer to the appendix document.

The WCS has the following modules:

- A Front page
- B Household roster and basic demographic information
- C Education
- D Employment
- E For screening and control
- F Housing and communication
- G Children under-five, births and vaccinations
- H Children under-five, malaria protection and medication
- I HIV/AIDS knowledge
- J Antenatal care

While most of the sections apply to all households, a few of the sections are only applicable for persons in the specified group, such as for children or women in child bearing age. Hence households without any children or without any women in child bearing age will skip the section all together. These skips are presented in the questionnaire, and it is an essential part of training to teach how to handle these skips.

The purpose of each of the sections is given below. Instructions to the various questions in each of the sections are included in the Enumerator's manual, refer to the Appendices document.

Section A. Cover page

The cover page as presented in this Handbook is a generic Front page, meaning that the implementing NSO can pick whatever information is necessary for carrying out their survey.

On this page, all the information for the geographical identification of the household is recorded.
It will normally include some regional ID code, household number, north and east coordinates, as well as urban/rural classifications, all to be copied from the listing form.

The main respondent for the survey, normally the household head or the spouse is identified.
One questionnaire for the WCS can accommodate up to ten household members, including children less than five years of age. If more than one questionnaire is required, the number of questionnaires required is also recorded under section A and one or even two extra questionnaires applied and the serial numbers of these are written down in the first questionnaire.

The cover page will also contain information pertaining to the interview, whether it was successful or not. In case of refusal (after follow-up) or the household cannot be found) a replacement household is selected from the list of replacement household selected during sampling. However, all questionnaires received by the Supervisor should be accounted for in the supervisor summary control form, and returned to HQ for data entry, see Annex Supervisor control form

The not completed questionnaires will be returned to HQ, with information on A1 to A7 filled in as well as A11, A14 and A15. Those forms will be deleted from the final data set during quality controls.

Section B. Core Demographics

This section will give information on the composition of the household: the name and age of each household member, and some details about them, such as marital status and orphan hood. This section is extremely important and should be filled out with extra care because this section will provide background information to be used when tabulating the data.

Section C. Education

The purpose of this section is to capture information both on literacy, school enrolment and education completed.
Several MDG indicators pertain to education. Questions about education are proposed to be asked to persons above the age of six. National educational systems may require a different lower age limit.

Section D. Employment

The purpose of this section is to capture the both current labor force status as well as usual labor force status. The current labor force status refers to the last 7 days before the survey, while the usual labor force status refers to the last 12 months preceding the survey. Both current and usual labor force status will be used for computing the employment-related MDG indicators included.

The WCS proposes that questions pertaining to the labor force be posed to persons above the age of 10 years. National rules and regulation may prescribe a different age limit.

Section E. Housing and Communication

This section will give information needed for the MDG indicators on water, sanitation, slum dwelling and access to modern communications

Sections F and G

Those sections give information about all children under the age of five in the households. The main respondent should preferably be the mother of the child(ren). Section F provides information about weight and vaccinations. Section H provides information pertaining to malaria prevention and malaria treatment.

Section H. HIV /AIDS knowledge

This section provides information about correct knowledge of HIV/AIDS among persons 15-24 years old. One random person in this age group should be selected for those questions. A procedure that may be used for selecting the person is given below.

To select a random person in the household, look at the first name of the household members who are from 15 to 24 years old. Arrange the first names in alphabetical order, and select the one whose first name starts with the letter earliest in the alphabet. If the first names are Mading, Martha and Victoria, Mading is the person to be asked the questions in section H

Section I Antenatal care

This section will provide information about antenatal care, both the quality and the quantity of the care, as well as birth attendance for the most recent live birth.. The questions are directed towards all women in the household between the ages of 15 and 49 years, and who have given birth during the last 24 months before the survey.

7.9. Verification of the field work

Verification of the field work is an important part of the quality control for the survey.
The verification will be carried out both by the enumerators themselves, the field supervisors and the national supervisors.

Enumerators

Before handing over the completed questionnaires to the field supervisor, the enumerator should review the questionnaire to check whether all information asked for is filled in, and marked in the correct way (see above). Special attention should be given to Sections B, D, G, and I to ensure that the correct persons are enumerated, and that the correct boxes are ticked off. Also, if more than one questionnaire is used for the household, the enumerator should make sure that the correct procedure is followed and documented in section E. After completion of work in one EA, the enumerator should check that the *Welfare Core Survey - Household Sample Form,* is completed and sign it before handing it over to the supervisor for countersignature.

Field supervisors

The single most important task of the Field supervisor is to review the completed questionnaires in order to verify and control the quality the information collected. There are three levels of verification as described in the Supervisor manual in the Appendices document. Level 1 is compulsory for ALL questionnaires – this is the routine checking performed for every questionnaire. Level 2 is more detailed verification. Level 2 checking should be done regularly, and in the first few days of the survey (while enumerators are not yet fully familiar with the questionnaire) Level 2 checking should be completed for ALL questionnaires. Level 3 verification is complete checking of the entire questionnaire. Level 3 verification should be employed when mistakes are found in a questionnaire or there is a reason to believe that a particular enumerator is making mistakes.

After verification of any level has been performed on a questionnaire, the supervisor should not forget to provide feedback to the enumerator. He/she should correct any mistakes and explain them to the enumerator. If no mistakes are found, the enumerator should be told that he or she is doing well.

National Supervisors

National supervisors will make regular field trips to check on the enumeration, and together with the supervisor, go through the verification process as described above.
After the verification process in the field, the national supervisors will check all the completed questionnaires, basically to verify the cover page (Module A) that all geo codes are filled in and correct, including the EA code.

Post enumeration

After the field verification procedures have been completed, the filled-in questionnaires will be sent to the HQ for data entry. The questionnaires for each EA should be sent in separate batches, e.g in separate envelopes, including the relevant control forms. On the outside of the envelope, he/she should write the cluster number, the name of the locality, and the number of Household Questionnaires for that cluster. If the questionnaires are too bulky to fit into one envelope, she should use two or more and write PACKET 1 OF 3, PACKET 2 of 3, etc. on the outside of each envelope. The packets should be kept securely until they can be transported to the central office. It is very important that questionnaires are bundled and labeled properly and protected from dampness and dust.

Field work documentation

- It is inevitable that many of the documents prepared in advance of field work, e.g. field manuals, survey instruments, etc., will need revision during training activities and during survey implementation. Any changes need to be captured immediately, and the final documents transmitted to the survey manager as well as the data manager for archiving purposes. This will not only secure that changes and problems are documented, but also that they are logged for future surveys.

8. Data Entry and Quality Control

8.1. Quality Control

Non-sampling errors are usually larger than sampling errors. Hence a proper system of quality control is essential when planning and testing the survey, when implementing the field work and when processing and publishing the data.

The technological steps from keypunching, through optical reading (OMR and OCR) to CAPI and CATI all offer an opportunity to reduce non-sampling errors, but these opportunities do not materialize into better data quality without a special effort. They rather move the need for quality control to an earlier stage of the data processing. It is no longer enough to ensure a proper design of the questionnaire and undertake a thorough data revision. In our experience, it is always a great advantage to prepare for quality control at the planning stage. With CATI or CAPI with PCs or tablets, it is a must.

8.2. Data entry alternatives

Data entry for statistical censuses and surveys is the process where the information, given by the respondent orally or in writing, is transferred to digital format. The output of this process is often called the "raw data file". This process can take place during the interview (electronic questionnaires), or at district/central level offices by manual keying or scanning (paper based questionnaires).

There are no clear international recommendations for choosing a specific organization, method and tool for data entry or data cleaning. Usually different international survey programs (LSMS, CWIQ, DHS etc) come as packages including a data entry solution.

Our cooperation with NSOs outside the European Union in the recent years shows that these institutions have their own traditions and preferences for data entry methods and tools. Data capture tools and methods should as far as possible be adjusted to local experience, traditions and resources available and also depend on type of questionnaire modules attached to the core survey. Thus there are provisions for data entry application templates both for OCR and for electronic questionnaires for the WCS. In addition to that, any survey can be keyed in manually.

Data entry tools and methods will change over time and awareness and flexibility to meet new demands and take advantage of new technology is of importance.

8.3. Overall quality of the process

International guidelines and conventions for quality control of the process should be followed during data entry and further data processing/cleaning. The international literature on quality control spans from overall principles to fairly detailed recommendations and thus the topic is to some degree open for practical approaches and local fine tuning.

A generic flow diagram illustrating the core building blocks of the central processing of questionnaires in this case using Optical Character Reading (OCR) as an example is presented below (Figure 2). The process illustrated includes questionnaire receiving/archiving, possible pre-scanning edits, scanning, key verification of non-interpretable data, manual keying of non-scannable questionnaires, post scanning computer assisted data cleaning and storing of final data. The auxiliary tools normally available for check of quality are listed on the left side of the flow diagram. On the right side, is a suggestion for a generic quality control organization. This organization includes 3 levels of control; the first line operator teams, the second line supervisor & controller teams and finally an overall and "objective" (national or international) audit system with full access to all steps of the data processing.

8.4. Manual data entry from paper based questionnaire

Even though the WCS questionnaire is designed for OCR scanning, manual data entry may still be applied. Data entry applications for manual keying-in data from paper based questionnaires can be developed ad hoc as Excel macros or by using ready made software packages such as SPSS. In the African development cooperation context, the freeware originating from US Bureau of Census, CSPro, is a much used and specialized software for manual data entry.

The obvious advantage of manual keying from hard copy is the relatively low technology needs and that the method is robust when it comes to bad handwriting and often badly treated forms received from the field. The weakness of the method is the organizational side with the need for many well trained and committed data entry staff and the need for close supervision of keyers to avoid human errors introduced during data entry. Usually this quality control is done by entry of data twice and comparing the two results – for all data and all keyers or more common –for a sample.

A questionnaire designed for OCR scanning can easily be entered by using software like CSPro. The logic and design of the CSPro program template for the electronic questionnaire is close to what can be used for manual keying and thus no manual keying application is provide as a template ready made for the WCS.

8.5. Data entry with OCR scanning

Statistics Norway use an OCR software for scanning which opens up for using typical marker reading combined with typical character interpretation and thereby flexibility concerning the questionnaire design. The software FORMS 5.2 (Readsoft, Sweden) is used to produce an OCR template application for the WCS. This program is Window based with a relatively easy user interface.

For operations at the scale expected for a WCS, at least one medium/large capacity scanner (3000 sheets per hour), a full software license and 1-3 extra manual verification licenses all in a LAN with a SQL database is recommended. This equipment should be organized in a dry, clean and as far as practically possible in a dust-free room with enough tables/shelves to organize a good in- and out flow storage of questionnaires in process. Stable power supply is a precondition. If any risk of power failure or variation, scanner and desktops should be equipped with UPS protection.

Successful scanning is a situation where the data from filled in questionnaires are close to 100 percent correctly transferred to a digital data file of ASCII characters/numbers with minimal time use. Manual corrections of data during the scanning process should be kept at a minimum (this is an important difference to how logic errors are treated in electronic questionnaires). The scanning process based on the FORMS 5.2 software comprises 4 steps:

- Scanning (physically feeding forms through a scanner)
- Automatic interpretation (pictures of letters and numbers converted to ASCII characters)
- Manual verification (operator's on-screen verification of characters not interpreted in step 2)
- Transfer (transfer the final interpreted ASCII file to an output file for further processing)

It is the time used and the quality of manual on-screen verification of "not interpretable" or "uncertain" characters/numbers that is the bottleneck during OCR scanning. This is also where substantial errors can occur due to untrained and unmotivated key-verifiers or even because of stress/pressure for high individual performance. In addition to thorough training of key-verifiers, it is of highest importance to organize the work *around* the scanner efficiently like archives, questionnaire flow, output file systems, supervision and quality control.

OCR gives flexibility for user friendly questionnaire design. However, the more pre-coding, grouping of scale variables and nominal variables with tick-off boxes we can use when designing the questionnaires, the faster and more accurate we capture data. It is recommended to centralize the OCR based data entry due to cost of technology and quality control needs. Obvious advantages are the less need for staff and the transpar-

ent method. Output from scanning is usually an ASCII file with one record per household. A program template for scanning of the CS hard copy questionnaire will be provided for downloading from end 2015.

8.6. Computer assisted person interview - CAPI

This technical approach could be based on program carriers such as Tablet-PCs managed in the field during the interview by the enumerator. A template alternative for electronic WCS questionnaire will be developed using the CSPro 5.2 software. This application will currently run on Windows or Android based versions of CSPro.

The template application coming with the WCS contains logic checks and automatic skips to secure the flow of the interview and to avoid certain obvious logic or range errors already in the field. Raw data can be reported back to the central or regional database for further cleaning by a range of tools such as Internet, memory stick, CD, download to supervisors PC etc.

The obvious advantage of using electronic questionnaires in the field is that errors can be detected and corrected on the spot. In addition there are potentials for fast reporting of data. On the negative side, the devices needed for carrying/running the electronic questionnaires are still relatively expensive and also expected to be vulnerable for lack of power supply, rough environments and even theft in the field.

8.7. From data entry to revised analysis files

From the days of manual data entry by key punching, the data entry stage has often been considered the main source of non-sampling errors.

Hence there has for a long time been a focus on how to improve the quality control during this stage. Double data-entry with verification, range checks, skip checks and CAPI with PCs, PDAs, mobiles and tablets were all supposed to improve the quality control at this stage. All this has definitely served to improve the quality control, but two important lessons have been learned:

- The more sophisticated approach, the more demanding quality control during the design stage is needed.
- Too sophisticated quality control may be counterproductive. If too strict, the data-entry stops. If too sophisticated, the data entry flags are over-ruled by the data entry staff.

Hence two general recommendations may be given:

- The quality control at this stage requires very careful design and testing
- The quality control at this stage can never replace the quality control during field work.

These recommendations guide the approach presented in the next paragraphs. The data entry, verification, editing and revision include the following steps:

- Data entry and verification. In this first step data are entered and verified by paper, key-punching, scanning, verification and range checks.
- Data editing. In this second step data are verified, checked and revised according to the sampling plan, according to administrative information and within each section of the questionnaire.
- Data revision of questionnaire variables. In this third step data are verified and revised across sections and imputations considered.
- Data triangulation. In this fourth step data are compared with previously published statistics and if need be revised.
- Data revision including data constructs. When the first data revision and triangulation are completed, a number of additional variables and files are made. This allows for tabulation including of the data constructs. Again the macro figures would be verified, triangulated and possibly revised. Based upon this revision, the final analysis files will be made.

The means of verification and revisions are discussed in the following paragraphs. But for any method, it is essential to retain and store the micro-files at each stage, as follows:

- From Data entry and verification – the Raw data file
- From Data editing – the Edited raw file

- From Data revision of questionnaire variables – the Revised raw file
- From Data triangulation – the Triangulation raw file
- From construction of data constructs and files with unit of analysis – The draft Analysis file
- From Data revision and triangulation including data constructs – The (final) Analysis file

8.8. Data entry and verification

The verification process has a limited, but important set of aims. First, it is essential to verify that the true answers of the respondents are recorded. Second, it is essential that the enumerators only accept and record legal answers. As already discussed this is done by different means for the different data entry alternatives, but the aims are the same.

Based upon our experience, the most common challenge at this stage is to find a reasonable quality balance and enforce it. In order to avoid that verification checks are overruled by the data-entry staff, it is essential that a project officer is supervising the data entry on a continuous basis. This will allow the data entry clerks to ask for advice when data are flagged as out of range.

Upon completion of data entry and verification, it is essential to store the original raw data file and continue with a copy.

8.9. Data editing

Data edit in the WCS context is the process where a copy of the raw data file is cleaned and structured at micro level until it is consistent and free of logic errors.

The cleaning program should have components such as:

- Agreed and well documented automatic/semi automatic edit programs including completeness, consistency, doublets and range checks
- Some manual edits according to clear instructions, tight supervision and always flagged for transparency
- Cross check with possible TIFF files (for scanning only) or hard copies archived

Thorough data edits will be time consuming and may at the extreme be conflicting with requirements for timeliness. Thus priorities should be considered. The most politically and/or confidentially sensitive variables will probably be ID codes/geo-referencing and number of persons by regional distribution, ethnicity, religion, person name and by ID number. To the extent that such data are collected, the process quality control should be very tight.

For all tabulation and dissemination it will be crucial that there are consistency and full/near-full cover across core demographic variables such as person by age, sex, relationship to head and by marital status. With large questionnaires spanning over several pages such as the WCS, it is crucial both during training of interviewers and through tight consistency checks to secure that individual records on for example age, sex, education, work and health are coded and merged to each household member correctly in the final database.

Absolute preconditions for ensuring a sound system for data edits are the presence of enough qualified and motivated staff, the use of sound methodology, continuous back-up taking and not at least a firewall for protection against electronic virus accidents.

A range of different software can be used for data cleaning; such as SAS, STATA, SPSS, CSPro etc. At this stage the revised raw data file should be stored.

8.10. Data revision

Based upon the edited raw data file, the data revision has three main objectives:

- Consistency checks across sections. When data from the various questionnaire sections are merged, it is necessary to check that information for each unit such as a person is consistent across the section. As addressed in the previous paragraph, the main reason for this type of mistake is often a change of household number when moving from one set of person to another, such as moving from education for all from 5 years to employment for all from 10 years.
- To identify partial missing variables and consider imputing values. The imputation of missing variables should be done cell-wise based upon a few background variables. This would usually be such as province/district and education of head of household. If only a few households have missing values such as due to misunderstanding of skip-patterns this process is not likely to cause any bias.
- To identify distribution of continuous variables and possible digit- and unit-mistakes such as when recording kg rather than ton or hectare rather than acre. In such cases it may be necessary to impute a variable out of range with the cell-specific average plus a random distribution element.

Since the WCS focus on categorical variables, the main revision work is on consistency across sections.

As for editing, a range of different software can be used for data cleaning; such as SAS, STATA, SPSS, CSPro etc. Upon completion of the data revision, a revised raw data file would be stored.

8.11. Data triangulation

When the internal quality control has been completed, weighted frequency tables should be prepared and compared with other data sources, including both the last census and the last similar survey. It is essential to be very critical when doing these comparisons to be sure that the same variable definitions are applied. It is especially important to be aware of the fact that many censuses only include de facto based household and family information, while most surveys will use a de jure household and family definition. The Welfare Core Survey will include information which could be compared with a number of other surveys undertaken by the same statistical office and should be compared with all recent surveys which by definition should give similar information. It is however important to be able to compare at least three surveys. If two "old" surveys or statistics give similar results and the new survey shows a discrepancy, the survey team should work to identify the reason and if well justified adjust the figures. This is done on a regular basis for expenditure and consumption modules which may be checked with production and trade statistics or with nutritional needs, but should be done for other statistics as well. When the Welfare Core Survey results are ready they should at least be triangulated with demographic and health surveys. If the national census includes de jure household information, the Welfare Core Survey should be checked against census results as well, but if the census in limited to de facto definition of the household, one would expect different household sizes and various other differences as well.

8.12. Data constructs

When the data triangulation has been completed, the variables to be constructed for the tabulation will be done, please refer to the next chapter.

8.13. Data revision and second triangulation including data constructs

The first set of data constructs and tables for the statistical report will allow for an extended triangulation with other survey results. This may identify a need for additional data-revision.

This second triangulation and data-revision will allow for development of the Final Analysis file.
This is the file which should be used to produce the final set of tables and graphs for the Tabulation report, and also for future reports and further analysis by external research institutions.

8.14. Quality control of tabulation and publication

Based upon the final analysis files, the statistical office will rerun the statistical tables as presented in the following chapters. This is also the time for an internal consistency control of tables and graphs.

9. Budget and economic supervision

There are two main rationales for the budget a) to present and obtain the necessary funding and b) to manage the project. This requires a detailed and flexible budget. It is recommended to prepare the budget in two steps. First, a presentation of the unit costs, then a budget giving the number of each item and hence the overall costs. Combined with a detailed time line as presented in a previous chapter, this approach allows for an economic supervision where the project manager may follow whether each step is completed according to time and if not take the necessary steps to adjust the time schedule and spending in order to complete the work within the budget resources.

9.1. Unit costs and budget

For a project financed activity like a survey, it is important to split between costs which are covered by the ordinary recurrent budget of the NSO and project expenses. Project expenses may be covered by another post in the recurrent budget, by a government project budget or by an external budget. In all cases it is a great advantage to include both types of budget lines in order to illustrate both the total costs and the commitment of recurrent costs from the NSO.

Unit costs – just an example

The unit costs presented are generic costs based upon experience from a number of countries, but will of course need to be adjusted to the country specific rates.

Staff salary

It is assumed that the survey is promoted and administered by an NSO in ordinary operation. Hence the time use from management and administrative staff will be covered by the ordinary government budget. It is estimated that the value of management and administrative staff equals the salary of the project leader.

The salaries for permanent staff are estimated per staff month as follows in US $:

Management and adm.staff time	*100% of project leader salary*
Survey project leader and field manager	1,500
Survey officers	1,000
Supervisor and field team leaders	500
Drivers	300
Messengers	300
Scanning and data verification officer	1,000
Scanning operator	500

The salaries for temporary staff are estimated per staff week as follows in US $:

Supervisor and field team leaders	125
Enumerators	100
Other support staff	75

Field allowances are estimated per staff week in the field as follows in US $:

Officers	300
Supervisors	250
Enumerators and support staff	200

Expendable and non-expendable goods

It is assumed that the survey is conducted by an NSO in ordinary operation. Hence each survey is supposed to be able to utilize existing equipment and only include replacement. It is recommended to include the value of the use of existing office premises and running costs. In this budget this is estimated to 25 percent of survey staff salary. It is also assumed that for each survey, the NSO purchase 1/8 new vehicles and 1/5 new other equipment. Hence only the new vehicles and equipment are included in the budget.

Non-expandable goods are estimated as follows in US$

Office premises and NSO running costs 25% of salary	
Vehicles 4WD	30000
Motorcycles	2500
Laptops w batt.,bags etc.	2000
Desktops w UPS etc	2000
GPS	100
Laser Printers	2000
Photocopying machines	2000
Office Software	500
Scanning software, network version	20000
Statistical software	2000

Expandable goods are estimated as follows in US$

Office stationary, copy paper	500
Toner cartridges	500
Field staff equipment (Caps, T-shirts, ID cards w photo, calculators, digital scale w batt, field boots, gumboots, rain-coats, bags, clipboards, torch w batt, air time)	200
Field team equipment (Water resistant storage, GPS w batt, Maps, USBs, first aid kit, spare batt)	250
Fuel vehicles 1500 l / m	1500
Fuel motorbikes 500 l / m	500
Insurance vehicles 1 year	2000
Insurance motorbikes 1 year	500
Maintenance vehicles 1 year	2000
Maintenance motorbikes 1 year	500
Advocacy campaign	1000
Recruitment	500
Printing of forms and manuals	10000
Printing of report	5000

All costs are to be revised according to the national cost level.

9.2. Budget

Hence the budget will be based upon the unit costs, the number of units required and the time period planned for. With a detailed time schedule and a detailed budget the project leader may monitor the time spent and the costs accumulated and decide revisions as need be.

It is essential to communicate to the field staff that they may expect to receive a bonus if the field work is completed on time with sufficient quality and only then. This is included with 2 weeks salary for field staff and 2 weeks field allowance for all staff. Payment should in some way reflect performance. It is recommended to make a substantial share of total payment dependent upon delivery for field staff and survey staff.

Welfare Core Survey Budget		Preparatory phase			Pilot phase			Field phase			Processing phase			Project
Type of expenditures In US	Unit costs	No	Time	Costs	No	Time	Costs	No	Time	Costs	No	Time	Costs	Total
Survey staff - months														
Management and adm.staff time	1			3 000			2 250			6 750			7 500	19 500
Survey project leader and field manage	1 500	1	2	3 000	1	2	2 250	1	4,5	6 750	1	5	7 500	19 500
Survey officers	1 000	3	1	3 000	3	2	4 500	3	4,5	13 500	3	5	15 000	36 000
Supervisor and field team leaders	500	4	1	1 000	4	2	3 000	8	4,5	18 000				22 000
Drivers	300				2	1	600	19	4,5	25 650				26 250
Messengers	300				1	1	300	6	4,5	8 100				8 400
Scanning and data verification officer	1 000				1	2	1 500	1	4,5	4 500	1	5	5 000	11 000
Scanning operator	500				1	2	750	1	4,5	2 250	3	5	7 500	10 500
Totals				**10 000**			**15 150**			**85 500**			**42 500**	**153 150**
Field staff - weeks														
Supervisor and field team leaders	125							8	22	22 000				22 000
Enumerators	100							64	22	140 800				140 800
Total										**162 800**				**162 800**
Field allowances - weeks														
Officers	300	4	2	2 400	4	4	4 800	4	17	20 400				27 600
Supervisors	250	4	2	2 000	4	4	4 000	16	17	68 000				74 000
Enumerators and support staff	200							89	17	302 600				302 600
Totals				**4 400**			**8 800**			**391 000**				**404 200**
Non-expandable goods - units														
Office premises and NSI running costs	0			2 500			3 788			21 375				38 288
Vehicles 4WD	30 000	1	1	30 000										30 000
Motorcycles	2 500	7	1	17 500										17 500
Laptops w batt.,bags etc.	2 000	4	1	8 000										8 000
Desktops w UPS etc	2 000	4	1	8 000										8 000
GPS	100	75	1	7 500										7 500
Laser Printers	2 000	1	1	2 000										2 000
Photocopying machines	2 000	1	1	2 000										2 000
Office Software	500	1	1	500										500
Scanning software, network version	20 000	1	1	20 000										20 000
Statistical software	2 000	4	1	8 000										8 000
Totals				**106 000**			**3 788**			**21 375**				**141 788**
Expandable goods - units														
Office stationary, copy paper	500	1	1	500	1	1	500	2	1	1 000	2	1	1 000	3 000
Toner cartridges	500	1	1	500	2	1	1 000	5	1	2 500	5	1	2 500	6 500
Field staff equipment	200				8	1	1 600	64	1	12 800				14 400
Field team equipment	250				2	1	500	8	1	2 000				2 500
Fuel vehicles 1500 l / m	1 500	1	1	1 500	2	1	3 000	8	5	54 000	2	2	6 000	64 500
Fuel motorbikes 500 l / m	500				1	1	500	7	5	15 750				16 250
Insurance vehicles 1 year	2 000	8	1	16 000										16 000
Insurance motorbikes 1 year	500	7	1	3 500										3 500
Maintenance vehicles 1 year	2 000	8	1	16 000										16 000
Maintenance motorbikes 1 year	500	7	1	3 500										3 500
Advocacy campaign	1 000				1	1	1 000							1 000
Recruitment	500				1	1	500							500
Printing of forms and manuals	10 000							1	1	10 000				10 000
Printing of report	5 000										1	1	5 000	5 000
Totals				**41 500**			**8 600**			**98 050**			**14 500**	**162 650**
Grand totals				**161 900**			**36 338**			**595 925**			**57 000**	**861 788**
Recurrent government contr.in US$				12 500			18 938			106 875			42 500	191 438
Recurrent government contr. in percent				8			52			18			75	22
Project funding				149 400			17 400			489 050			14 500	670 350

9.3. Economic supervision

There are two main approaches for economic supervision, the direct budget allocation supervision and the time line monitoring. The direct budget allocation is a standard approach by any NSO. A project leader will only be allowed to procure equipment or pay allowances and temporary staff salaries according to the approved budget. Hence this part of economic supervision will follow the standard approach in each NSO.

But in addition it is essential for the implementation of a survey to retain the necessary budget for the latter parts i.e. for the data processing, data analysis and report writing. The only way to ensure this is to monitor the field work according to the planned time use.

The first essential point is to make contracts with the temporary staff that they will only receive payment from the official start date of field work. Hence if the field work start is delayed with such as 2 weeks, payment will only start 2 weeks later than planned.

The second essential point is that if they do not deliver proper quality, and have to return to an EA for more interviews, they should not be fully paid, but rather receive such as half payment for that period. On the other hand, they should expect a bonus if delivering proper quality within the planned time frame.

The third essential point is to wind up field work on time, if need be by reducing the sample size. Hence it is essential that the sampling is done in e.g. 6 independent samples. If the field work is delayed and the sample has to be cut, at least the reduced sample size will not be biased. One may of course also ensure this by selecting one major sample of 5/6 of the sample and a second minor sample of 1/6.

If it is possible to speed up the work and still maintaining a high quality this will give a leeway towards the processing and reporting allowing the project leader to reallocate these resources in order to improve quality or enhance the dissemination.

How to implement the economic supervision

In order to ensure economic supervision, it is essential to follow the progress of field working according to a detailed framework. Some extra leeway should be given for the first two EAs, but then each team should report their progress on a weekly basis. As already discussed it is an advantage with a remuneration system combining payment for time spent in the field and actual achievements. The recommended way would be to set aside a certain bonus in the size of 10 percent of allowance and salaries. It fieldwork is completed on time at the quality control shows a proper standard, the bonus should be paid in full. A short delay should give a reduced bonus. Teams with a larger delay will not receive any bonus and it may even be necessary to cut their payment short. The teams who performed well on time should then be offered a prolonged contract to complete the fieldwork.

If the fieldwork is delayed on a larger scale, the project leader would need to stop the field work when 5 of the 6 sub-samples have been completed. With independent sub-samples, this may reduce the accuracy of the survey-results, but there will be no bias in the final figures.

If nothing is done for economic supervision of the field work and a survey project end up overspending due to delays in the field work, the budget for data processing, analysis and report writing will suffer and the overall quality of the work will inevitably suffer.

10. Tabulation report

10.1. Introduction

Writing about the numbers, giving a verbal (descriptive) summary of the results, will add meaning (and value) to the statistics. It will help the users sorting out what are the most interesting and important results, putting the results into a context and making the statistics more understandable, informative, meaningful and thereby also more useful to the reader. In an increasingly complex society, there is a growing need and demand for analyses of the numbers, explaining their significance: "What do the numbers really mean?" Hence in the tabulation report for the Welfare Core Survey main report, not only tables and graphs should be presented, but also highlights of the findings and a summary of main results. A summary is a verbal description: After having made the numbers comparable, we compare and describe the differences between men and women, different age groups, districts, etc. Or we analyze how one or several indicators are developing over time.

10.2. Tabulation report – process versus report outline

The tabulation report should have an outline aiming at reaching the target audiences; first and foremost the professional users such as policy decision makers, planners and other non-statistical subject matter specialist but also media and public at large. Hence the main outline is proposed to be as follows:

- Preface
- Executive summary, 1-2 pages
- Highlights being a presentation of 2-4 issues for each module using graphs and tables with interpretation
- Reference tables
- Methodological chapter.
- Questionnaire
- List of previous publications from the NSO covering similar statistical information

The work on the tabulation report should move forward as follows:

- Prepare reference tables
- Prepare special tables and graphs for 4-6 issues for each module
- Identify 2-4 issues for publication and interpretation for the chapter on highlights
- Prepare the final tabulation report

10.3. Standard background variables – follow national standards

The reference tables will present basic and constructed variables in standard formats. This will allow the readers an easy access to the data of special interest distributed across standard background categories. The tables should be presented in a standardized format. The common approach is to list all background variables in the head-column and the main variable in the head-row.

The background variables should be decided according to country-specific tradition and priorities. The variables presented in the tables below should be considered. But only 5 or 6 background variables should be included in each country.

The background variables should aim to present information for specific socio-economic groups and geographical areas which are of interest for the policy makers or are easily identified if the public discussions.

Geographical areas

In addition to the overall country, two types of geographical areas are to be considered, the split between urban and rural areas and the first administrative level. In all countries there should be a split between urban and rural areas as recommended for the MDGs. In addition the data should be presented at the first lower administrative level, such as provinces. It is not recommended to combine these two sets of categories, since many of these cells will be small. However if the capital form a province jointly with a large hinterland, it

may be justified to split just this province. But it is then required to present data for both this province, urban areas in this province and rural areas in this province.

Household size

At household level, it is recommended to present data according to the size of households. The main interest would however often be for only three categories, very small, medium and large households, but the categories should follow national standards.

Sex, age and education

Both at household level and individual level, the data should be presented according to sex, to broad age categories and according to the highest education completed. Household level data should be presented according to the sex, age and education of the head of household, again according to national standards.

10.4. Composite background variables

At country level three composite background variables should also be considered. However, it should be stressed that the total number of background variables should not exceed 6. We recommend to consider Economic status and Type of household.

Economic status

This variable is defined through the head of the household. It will always distinguish between whether the head is economically active or not and if so whether he/she owns and run a business/farm, is self-employed or rather is employed. It will usually also distinguish between the economic sectors, public, formal private and informal private. It may be combined with the economic activity of the workplace by ISIC-codes or groups.

Again the main aim is to form categories which are of interest for the national policy makers rather than international statistical standards. For dominantly agricultural societies where the majority of the population is self-employed in the primary sector, it may make sense to split this croup for self-employed crop cultivation, self-employed animal husbandry etc., while for other societies it may make more sense to collapse all households in the primary sector and rather consider the large commercial farms as a business. From a statistical point of view it is however important to retain a strict hierarchy and hence we recommend starting with being economically active or not, followed by economic activity status and only then type of economic activity at the workplace, as follows:

- Employer, these will include all employers whether in manufacturing, service or the primary sector. It is a requirement that an employer has employed one or more person on a permanent year around basis. “Employers” who hire seasonal workers only are considered self-employed. The employers would however usually be quite few and hence collapsed with self-employed.
- Self-employed in the primary sector, including unpaid family workers. Countries may consider splitting this group further, such as for crop cultivators, pastoralists and nomadic pastoralists. This is not done in this prototype.
- Self-employed in other sectors, including unpaid family workers.
- Public sector employee
- Formal private sector employee, i.e. an employee with a written contract from his employer.
- Informal private sector employee, i.e. an employee without any written contract.
- Not economically active households. This would include students living on a scholarship and persons living on economic support from government, NGOs, private persons, and own savings.

It is recommended to include economic status/ activity as a standard background variable.

Cross-tabulation variables recommended for reference tables at household level			
Variable	**Grouped variable name**	**Variables**	**Recommended use**
Total country / survey population	-		Always recommended
Sex of head of household	Male Female	HHB4=1 HHB4=2	Always recommended
Age of head of household	<20, 20-29, 30-39, 40-49, 50-59, 60-69, 70+; Consider to collapse to 50+	HHB5=<20,20-29,30-39,40-49, 50-59,60-69,70+/ 50+	Recommended
Highest education completed by head of household	Never attended school Attended school Finished low primary school (1-4) Finished primary school Finished secondary school or above	HHC4=2 HHC11=0-3 HHC11=4-7 HHC11=8-10 HHC11=11-13	Recommended, values to be country specific
Economic status by head of household	Self-employed or employer in the primary sector including unpaid family workers(HH owns household based farm without or with permanent employees) Self-employed or employer in other sectors including unpaid family workers (HH owns household based business or industry without or with permanent employees) Public sector employee (HH works in state owned company or public service/ administration) Formal private sector employee (HH works in private business and receives salary based upon a contract), Informal private sector employee (HH works in private business/farm/households but has no written contract), Not economically active households (HH not economically active during the last 7 days).	HHD8=1,2 & HHD10=1-3 HHD8=1,2 & HHD10=4-19 HHD8=4-5 HHD8=3,6 & D9=1 HHD8=3,6 & D9 NOT 1 All HHD3-D6=2	Recommended, values to be country specific
Size of household	1,2,3-4,5-6,7-9,10+	#B1=1,2,3-4,5-6,7-9,10+	To be considered
Place of residence	Urban Rural	A1 Urban county A1 Rural county	Always recommended
Sub-national level: region, province, district	Names	A1 Sub-national names	Recommended if sample size and design allow

Cross-tabulation variables recommended for reference tables at household member level (including also females for antenatal care)			
Variable d	**Grouped variable name**	**Variables**	**Recommended use**
Total country / survey population	-		Always recommended
Sex	Male Female	B4=1 B4=2	Recommended
Age	<20, 20-29, 30-39, 40-49, 50-59, 60-69, 70+, Consider to collapse to 50+	HHB5=<20,20-29,30-39,40-49, 50-59,60-69,70+/ 50+	Recommended
Highest education completed	Never attended school Attended school Finished low primary school (1-4) Finished primary school Finished secondary school or above	C4=2 C11=0-3 C11=4-7 C11=8-10 C11=11-13	Recommended, values to be country specific
Economic status	Self-employed or employer in the primary sector (HH owns household based farm without or with permanent employees) Self-employed in other sectors (HH owns household based business or industry without or with permanent employees) Public sector employee (HH works in state owned company or public service/ administration) Formal private sector employee (HH works in private business and receives salary based upon a contract), Informal private sector employee (HH works in private business/farm/households but has no written contract), Not economically active households (HH not economically active during the last 7 days).	D8=1,2 & D10=1-3 OR HHD8=1 & HHD10=1-3 D8=1,2 & D10=4-19 OR HHD8=1 & HHD10=4-19 D8=4-5 D8=3,6 & D9=1 D8=3,6 & D9 NOT 1 All D3-D6=2	Recommended, values to be country specific
Place of residence	Urban Rural	A1 Urban county A1 Rural county	Always recommended
Sub-national level: region, province, district	Names	A1 Sub-national names	Recommended if sample size and design allow

Cross-tabulation variables recommended for reference tables for children under 5 years of age			
Variable d	**Grouped variable name**	**Variables**	**Recommended use**
Total country / survey population	-		Always recommended
Sex	Boys Girls	B4=1 B4=2	Always recommended
Age in months	<6, 6-11, 12-23, 24-35, 36-47, 48-59	Calculate from G5=<6, 6-11, 12-23, 24-35, 36-47, 48-59	Always recommended
Place of residence	Urban Rural	A1 Urban county A1 Rural county	Always recommended
Sub-national level: region, province, district	Names	A1 Sub-national names	Recommended if sample size and design allow

10.5. Reference tables

It is highly recommended to check and confirm the quality and completeness of the data set prior to commencing the data analysis. Running frequency distribution and summarizing survey results as tables complete the quality control and forms a first stage of analysis for surveys.
All reference tables should follow a standard approach and present one basic or constructed variable distributed across the standard set of background variables. It is recommended to present only percentages in the

crosstable and the marginal since presenting figures blown up to the population will give an impression of an accuracy of a census rather than a survey. It is however recommended to include the small n showing the net sample size for each table. This will allow the experts who are especially interested in accuracy and confidence intervals to calculate these themselves without jeopardizing the interpretation for the average users.

The next paragraphs present one complete dummy table for each type of unit and the tabulation headings for the other tables. While the reference tables to be published are intended for the users within each sector of the society, i.e. health tables for the health sector etc, the production of reference tables are also aimed at giving the analysts a first impression of the data, the data quality and the data interpretation guiding both the completion of the quality control, the production of reference tables and the planning of the main chapter presenting highlights with crosstables and graphs. Hence when processing reference tables, both total number and relative numbers should be compiled.

Section A Background Information

Table A1. Sex of head of household by age of head, highest education completed by head, economic status by head, urban/rural residence, and province. Households in percent. (n=4998)

	Sex of head of household		
	Male	Female	Total
Country			100
Age of head of household			
<20			100
20-29			100
30-39			100
40-49			100
50-64			100
65+			100
Highest education completed by head of household			
Never attended school			100
Attended school			
Low primary			100
Primary school			100
Secondary school			100
Economic status by head of household			
Self-employed/ employer farming/fishery			100
Self-employed/ employer other production/service			100
Employed in public sector			100
Employed in formal sector (private owner/ company)			100
Employed in informal sector (private owner/ company)			100
Not economically active			100
Place of residence			
Urban			100
Rural			100
Province			
Province A			100
Province B			100
Province C			100
Province D			100
Province E			100
Province F			100

Table A2. Age of head of household by sex of head of household, highest education completed by head, economic status by head, urban/ rural residence, and province. Households in percent. (n=4998)

	Age of head						
	<20	20-29	30-39	40-49	50-64	65+	Total
Country							100
Head column as in A1 but replace Age of head of household with Sex of head of household							

Table A3. Urban/ rural residence by sex of head of household, age of head, highest education completed by head, economic status by head, and province. Households in percent. (n=4998)

	Place of residence		
	Urban	Rural	Total
Country			100
Head column as in A1 but replace Place of residence with Sex of head of household			

Table A4. Household size by sex of head of household and place of residence. Households in percent. (n=4998)

	1	2-3	4-6	7-9	10-14	15+	Total
Country	1	7	33	39	18	2	100
Sex of head of household							
Male	1	6	33	39	19	2	100
Female	1	7	33	39	18	2	100
Place of residence							
Urban	1	6	33	41	17	2	100
Rural	1	7	33	37	20	2	100

Section B Demographic Information

Table B1. Relationship to head of household by sex, age, highest education completed, economic status, urban/ rural residence, and province. Persons in percent. (n=25678)

	Relationship to head of household							
	Head	Spouse	Child	Grand-child	Parent	Other relative	Non-relative	Total
Country								100
Sex								
Male								100
Female								100
Age								
0-6								100
7-11								100
12-17								100
18-19								100
20-29								100
30-39								100
40-49								100
50-64								100
65+								100
Highest education completed								
Never attended school								100
Attended school								100
Low primary								100
Primary school								100
Secondary school								100
Economic status								
Self-employed/ employer farming/fishery								100
Self-employed/ employer other production/service								100
Employed in public sector								100
Employed in formal sector (private owner/ company)								100
Employed in informal sector (private owner/ company)								100
Other private sector work								100
Not economically active								100
Place of residence								
Urban								100
Rural								100
Province								
Province A								100
Province B								100
Province C								100
Province D								100
Province E								100
Province F								100

Table B2. Sex by age, highest education completed, economic status, urban/rural residence, and province. Persons in percent. (n=25678)

	Sex		
	Male	Female	Total
Country			100
Head column as in B1 excluding Sex			

Table B3. Age distribution by place of residence and sex. Persons in percent. (n=25678)

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Age									
0-4									
5-9									
10-14									
15-19									
20-24									
25-29									
30-34									
35-39									
40-44									
45-49									
50-54									
55-59									
60-64									
65-69									
70+									
Total	100	100	100	100	100	100	100	100	100

For persons 12 years or more

Table B4. Marital status by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 12 years or more in percent. (n=18567)

	Marital status					
	Never married	Married	Widowed	Separated	Divorced	Total
Country						100
Head column as in B1						

For persons less than 18 years

Table B5. Orphanage by sex, age, highest education completed, urban/rural residence, and province. Persons less than 18 years in percent. (n=12256)

	Orphanage				
	Mother & father alive	Only mother alive	Only father alive	Neither mother nor father alive	Total
Country					100
Head column as in B1, excluding Economic status					

Table B6. Parents living in household by sex, age, highest education completed, urban/rural residence, and province. Persons less than 18 years in percent. (n=12256)

	Orphanage				
	Mother & father in household	Only mother in household	Only father in household	Neither mother nor father in household	Total
Country					100
Head column as in B1, excluding Economic status					

Table B7. Dependency ratio by age, highest education completed and economic status of head, urban/rural residence, and province. Households in percent. (n=4998)

	Dependency ratio				Average dependency ratio
	<=1	1 < <=2	2<	Total	
Country				100	
Age of head of household					
<20				100	
20-29				100	
30-39				100	
40-49				100	
50-64				100	
65+				100	
Highest education completed by head of household					
Never attended school				100	
Attended school				100	
Low primary				100	
Primary				100	
Secondary level				100	
University level					
Economic status by head of household					
Self-employed/ employer farming/fishery				100	
Self-employed/ employer other production/service				100	
Employed in public sector				100	
Employed in formal sector (private owner/ company)				100	
Employed in informal sector (private owner/ company)				100	
Other private sector work				100	
Not economically active				100	
Place of residence					
Urban				100	
Rural				100	
Province					
Province A				100	
Province B				100	
Province C				100	
Province D				100	
Province E				100	
Province F				100	

Section C Education

For persons 5 years and above

Table C1. Literacy by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 5 years and above in percent. (n=20679)

	Literacy		
	Can read and write	Cannot read and write	Total
Country			100
Sex			
Male			100
Female			100
Age			
0-6			100
7-11			100
12-17			100
18-19			100
20-29			100
30-39			100
40-49			100
50-64			100
65+			100
Highest education completed			
Never attended school			100
Attended school			100
Low primary			100
Primary			100
Secondary level			100
University level			100
Economic status			
Self-employed/ employer farming/fishery			100
Self-employed/ employer other produc-			100
Employed in public sector			100
Employed in formal sector (private owner/ company)			100
Employed in informal sector (private owner/ company)			100
Other private sector work			100
Not economically active			100
Place of residence			
Urban			100
Rural			100
Province			
Province A			100
Province B			100
Province C			100
Province D			100
Province E			100
Province F			100

Table C2. Ever attended school by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 5 years and above in percent. (n=20679)

	Ever attended school		
	Has attended school	Has never attended school	Total
Country			100
Head column as in C1			

Table C3. School enrollment this year by sex, age, highest education completed, urban/rural residence, and province. Persons 5 years and above in percent. (n=20679)

	School enrollment this year		
	Enrolled this year	Not enrolled this year	Total
Country			100
Head column as in C1 excluding economic status			

Table C4. School grade enrollment this year by sex, age, urban/rural residence, and province. Persons 5 years and above currently attending school in percent. (n=5206)

	School grade enrollment this year								
	P1	P2	…	S1	S2	S3	Post secondary school	University level	Total
Country									100
Head column as in C1, excluding economic status and highest education completed									

Table C5. Current school by sex, age, urban/rural residence, and province. Persons 5 years and above in percent. (n=18789)

	Current school attendance		
	Currently attending school	Currently not attending school	Total
Country			100
Head column as in C1, excluding economic status and highest education completed			

Table C6. School grade attended previous school year by sex, age, urban/rural residence, and province. Persons 5 years and above currently attending school in percent. (n=5136)

	School grade attended previous school year								
	P1	P2	…	S1	S2	S3	Post secondary school	University level	Total
Country									100
Head column as in C1, excluding economic status and highest education completed									

Table C7. Highest grade of education completed by sex, age, urban/rural residence, and province. Persons 5 years and above in percent. (n=20679)

	Highest school grade ever completed								
	P1	P2	…	S1	S2	S3	Post secondary school	University level	Total
Country									100
Head column as in C1, excluding economic status and highest education completed									

Section D Employment for persons 10 years and above

Table D1. Work during last 7 days by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 10 years and above in percent. (n=17679)

	Work during last 7 days					
	Worked last 7 days	Temporary absent last 7 days	Worked before, not last 7 days	Available for work	Not available for work	Total
Country						100
Sex						
Male						100
Female						100
Age						
10-11						100
12-17						100
18-19						100
20-29						100
30-39						100
40-49						100
50-64						100
65+						100
Highest education completed						
Never attended school						100
Attended school						100
Low primary						100
Primary						100
Secondary level						100
University level						100
Economic status						
Self-employed/ employer farming/fishery						100
Self-employed/ employer other production/service						100
Employed in public sector						100
Employed in formal sector (private owner/ company)						100
Employed in informal sector (private owner/ company)						100
Other private sector work						100
Not economically active						100
Place of residence						
Urban						100
Rural						100
Province						
Province A						100
Province B						100
Province C						100
Province D						100
Province E						100
Province F						100

Table D2. Main employment status during last 12 months by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 10 years and above in percent. (n=17679)

	Employment status in main job during last 12 months						
	Family based self-employment	Employ-er	Work in private sector	Work in parasta-tal com-pany	Public service/ administration	NGO/ Ideal org/ Mission	Total
Country							100
Head column as in D1 residence							

Table D3. Payment arrangement in main job during last 12 months by sex, age, highest education completed, economic status, urban/rural residence, and province. Persons 10 years and above in percent. (n=15879)

	Payment arrangement in main job during last 12 months					
	Wage/ salary with contract	Wage/ salary without contract	Payment in kind	Casual	Unpaid family worker	Total
Country						100
Head column as in D1 residence						

Table D4. Work place type of activity during last 12 months by sex, urban/rural residence, and province. Persons 10 years and above in percent. (n=15879)

	Sex		Urban/rural		Province						Total
	Men	Women	Urban	Rural	A	B	C	D	E	F	
Type of activity											
.Agriculture - crops/forestry											
Agriculture – animal husbandry											
Fishing											
Mining & quarrying											
Manufacturing											
Electricity and water supply											
Building and construction											
Trade											
Repair											
Transportation											
Accommodation and food service											
Information and communication											
Financial, professional, administra-											
Public administration and defence											
Education											
Human health and social work											
Arts, entertainment and recreation											
Personal service											
Domestic service											
Embassies and international organ-											
Total					100	10	10	10	10	1	100

Consider to collapse lines with few cases.

Section F Housing and communication

Table F1. Ownership of dwelling by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Ownership of dwelling				
	Own	Rent	For free	Occupy	Total
Country					100
Sex of head of household					
Male					100
Female					100
Age of head of household					
<20					100
20-29					100
30-39					100
40-49					100
50-64					100
65+					100
Highest education completed by head of household					
Never attended school					100
Attended school					100
Low primary					100
Primary					100
Secondary level					100
University level					100
Economic status by head of household					
Self-employed/ employer farming/fishery					100
Self-employed/ employer other production/service					100
Employed in public sector					100
Employed in formal sector (private owner/ company)					100
Employed in informal sector (private owner/ company)					100
Other private sector work					100
Not economically active					100
Place of residence					
Urban					100
Rural					100
Province					
Province A					100
Province B					100
Province C					100
Province D					100
Province E					100
Province F					100

Table F2. Security of residence by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Security of residence						
	Own w/ document	Own wo/ document	Rent w/document	Rent wo/document	Secure occupation	Non-secure occupation	Total
Country							100
Head column as in F1							

Table F3. Number of rooms by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Number of rooms					
	1	2	3-4	5 +	Total	# persons/ room
Country					100	
Head column as in F1 + No of persons						

Table F4. Main source of fuel for cooking by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Main source of fuel for cooking									
	Elec.	Solar	Gas	Paraffin	Charcoal	Firewood	Grass	Dung	Other	Total
Country										100
Head column as in F1										

Table F5. Main source of drinking water by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Main source of drinking water							
	Piped water	Protected water source	Unprotected water source	Cart/ tanker	Surface water river/ dam	Rain-water	Bottled water	Total
Country								100
Head column as in F1								

Table F6. Main toilet facility by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Main toilet facility										
	Flush to sewer	Flush to septic tank	Flush to pit latrine/ others	Ventilation improved latrine	Pit latrine w/ slab	Com-post-ing toilet	Open pit latrine	Buc ket	Hanging toilet/ latrine	Bush / field/ none	Total
Country											100
Head column as in F1											

Table F7. Roof material for main building by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Main roof material						
	Grass	Iron sheets	Clay tiles	Concrete	Plastic sheeting	Other	Total
Country							100
Head column as in F1							

Table F8. Floor material for main building by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Main floor material						
	Sand	Smoothed mud	Smooth cement	Wood	Tiles	Other	Total
Country							100
Head column as in F1							

Table F9. Wall material for main building by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Wall material									
	Grass	Mud	Compacted earth	Mud bricks	Burnt bricks	Concrete	Wood	Iron sheets	Other	Total
Country										100
Head column as in F1										

Table F10. Share of household members with cell phones in working order by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Ratio of no of cellphones by no of household members. (n=4998)

	No of cell phones per household member in per cent						
	0.00	0.01-0.24	0.25-0.49	0.50-0.74	0.75-0.99	1.00+	Total
Country							100
Head column as in F1							

Table F11. Households where at least one member has used Internet last month by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Use of internet – per cent who have used Internet last month						
	0	1-24	25-49	50-74	75-99	100	Total
Country							100
Head column as in F1							

Section G and H Children under 5 years, health

Table G1. Children under 5 years and share with vaccination cards by sex, age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=4998)

	Percent w/ children <5	Average # of children <5	Percent w/ vaccination card for at least one child	Average share w/ vaccination card
N	4998	3867	3867	3867
Country				
Sex of head				
Male				
Female				
Age of head of household				
<20				
20-29				
30-39				
40-49				
50-64				
65+				
Highest education completed by head of household				
Never attended school				
Attended school				
Low primary				
Primary				
Secondary level				
University level				
Economic status by head of household				
Self-employed/ employer farming/fishery				
Self-employed/ employer other produc-				
Employed in public sector				
Employed in formal sector (private owner/ company)				
Employed in informal sector (private owner/ company)				
Other private sector work				
Not economically active				
Place of residence				
Urban				
Rural				
Province				
Province A				
Province B				
Province C				
Province D				
Province E				
Province F				

Table G2. Vaccination card in household and age for children less than 5 years by sex, urban/rural residence, and province. Children in percent. (n=4220).

	Vaccination card			Age in months					Age w/ vaccination card				
	Yes	No	All	0-11	12-23	24-35	36-47	48-59	0-11	12-23	24-35	36-47	48-59
Country													
Sex													
Boys													
Girls													
Place of residence													
Urban													
Rural													
Province													
Province A													
Province B													
Province C													
Province D													
Province E													
Province F													

Table G3. Weighing of children and average weight for children less than 5 years by sex, age, urban/rural residence, and province. Children in percent. (n=4220).

	Children weighed			Average weight
	Yes	No	Total	
Country			100	
Head column as in G2 + age of child				

Table G4. Children vaccinated against measles in total and before one year of age for children less than 5 years by sex, age, urban/rural residence, and province. Children in percent. (n=4220).

	Children vaccinated			
	Vaccinated in total	Vaccinated before one year of	Not vaccinated	Total
Country				100
Head column as in G2 + age of child				

Table G5. Children ill with fever during last two weeks for children less than 5 years by sex, age, urban/rural residence, and province. Children in percent. (n=4220).

	Fever		
	Yes	No	Total
Country			100
Head column as in G2 + age of child			

Table G6. Children below 5 years with fever who received medicine by sex, age, urban/rural residence, and province. Children in percent. (n=1050).

	Type of medicine if any type of medicine							
	No	Fansidar	Chloro-	Mefloquine	Lariam	Panadol (painkiller)	Other	Total
Country								100
Head column as in G2 + age of child								

Table G7. Children sleeping under insecticide treated mosquito net for children less than 5 years by sex, age, urban/rural residence, and province. Children in percent. (n=4220).

	Sleeping under bed net		
	Yes	No	Total
Country			100
Head column as in G2 + age of child			

Section I Maternal health

Table I1. Household where a live birth was given by a women 12-49 years during last 24 months by age, highest education completed and economic status of head, by urban/rural residence and province. Households in percent. (n=2489)

	One or more live birth given	No live birth given	Total
Country			100
Age of head of household			
<20			100
20-29			100
30-39			100
40-49			100
50-64			100
65+			100
Highest education completed by head of household			
Never attended school			100
Attended school			100
Low primary			100
Primary			100
Secondary level			100
University level			100
Economic status by head of household			
Self-employed/ employer farming/fishery			100
Self-employed/ employer other production/service			100
Employed in public sector			100
Employed in formal sector (private owner/ company)			100
Employed in informal sector (private owner/ company)			100
Other private sector work			100
Not economically active			100
Place of residence			
Urban			100
Rural			100
Province			
Province A			100
Province B			100
Province C			100
Province D			100
Province E			100
Province F			100

Table I2. Number of live birth given during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Number of live birth given last 24 months			
	1 birth given	2 birth given	3 birth given	Total
Country				100
Age				
12-17				100
18-19				100
20-29				100
30-39				100
40-49				100
Highest education completed				
Never attended school				100
Attended school				100
Low primary				100
Primary				100
Secondary level				100
University level				
Economic status				100
Self-employed/ employer farming/fishery				100
Self-employed/ employer other production/service				100
Employed in public sector				100
Employed in formal sector (private owner/ company)				100
Employed in informal sector (private owner/ company)				100
Other private sector work				100
Not economically active				100
Place of residence				
Urban				100
Rural				100
Province				
Province A				100
Province B				100
Province C				100
Province D				100
Province E				100
Province F				100

Table IX. Women present for interview on live birth given during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

This table is only for quality control and not intended for publishing.

Table I3. Assistance at the last live birth given during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Assistance at the last birth						
	Doctor/ clinical officer	Midwife/ nurse	Trained birth attendance	Traditional local attendant	Other	No assistance	Total
Country							100
Head column as I2							

Table I4. Antenatal care at the last live birth pregnancy during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Antenatal care for last live birth pregnancy						
	Doctor/ clinical officer	Midwife/ nurse	Trained birth attendance	Traditional local attendant	Other	No assistance	Total
Country							100
Head column as I2							

Table I5. Number of times with antenatal care at the last live birth pregnancy during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Number of antenatal care for last live birth pregnancy							
	0	1	2	3	4	5+	Total	If any antenatal care, average number
Country							100	
Head column as I2								

Table I6. Birth location for the last live birth during the last 24 months by age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Birth location for last live birth			
	Health facility	At home	Other place	Total
Country				100
Head column as I2				

Table I7. Birth month for the last live birth during the last 24 months by sex of child, urban/rural residence, and province. Children born in percent. (n=3177)

	Birth month																								
	2013				2014												2015								Total
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	
Country																									100
Sex, place of residence, province																									

Table I8. Last born child during the last 24 months still alive? By age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Last born child still alive?		
	Yes	No	Total
Country			100
Head column as I2			

Table I9. Last born child during the last 12-24 months still alive at one years of age? By age, highest education completed, economic status, urban/rural residence, and province. Women 12-49 years in percent. (n=2917)

	Last born child still alive at one years of age?		
	Yes	No	Total
Country			100
Head column as I2			

Section J HIV/AIDS knowledge in the population

In each household with at least one person 15-24 years of age, one person is randomly selected to respond to the questions on HIV/AIDS knowledge. People living in large household have a smaller probability of being selected, hence a post-enumeration calculation of weights and sample estimates will be carried out and a separate analysis file constructed for this section.

Table J1. HIV/Aids knowledge of HIV transmission through sex. Persons 15-24 years by sex, age, highest education completed, economic status, urban/rural residence, and province. In percent. (n=4776)

	"Can the risk of HIV transmission be re-duced by having sex with only uninfected partner who has no other partner?"			"Can a person reduce the risk of getting HIV by using a condom every time they have sex?"		
	Yes	No	Total	Yes	No	Total
Country			100			100
Sex						
Male			100			100
Female			100			100
Age						
15-19			100			100
20-24			100			100
Highest education completed						
Never attended school			100			100
Attended school			100			100
Low primary			100			100
Primary			100			100
Secondary level			100			100
University level			100			100
Economic status						
Self-employed/ employer farm-ing/fishery			100			100
Self-employed/ employer other production/service			100			100
Employed in public sector			100			100
Employed in formal sector (pri-vate owner/ company)			100			100
Employed in informal sector (private owner/ company)			100			100
Other private sector work			100			100
Not economically active			100			100
Place of residence						
Urban			100			100
Rural			100			100
Province						
Province A			100			100
Province B			100			100
Province C			100			100
Province D			100			100
Province E			100			100
Province F			100			100

Table J2. HIV/Aids knowledge of HIV transmission in general. Persons 15-24 years by sex, age, highest education completed, economic status, urban/rural residence, and province. In percent. (n=4776)

	"Can a healthy looking person have HIV?"			"Can a person get HIV from mosqui-to bites?"		
	Yes	No	Total	Yes	No	Total
Country			100			100
Head column as in J1						

Table J3. HIV/Aids knowledge of HIV transmission in general. Persons 15-24 years by sex, age, highest education completed, economic status, urban/rural residence, and province. In percent. (n=4776)

	"Can a person get HIV by sharing food with someone who is infected?"		
	Yes	No	Total
Country			100
Head column as in J1			

10.6. MDG indicators, tables, graphs and highlights

When the reference tables are produced and compiled, they will serve as the basis for the text chapters of the tabulation report, being the presentation of highlights with interpretation. It is recommended to identify 2-4 issues for presentation from each module of the questionnaire and present them in such as three standard formats, two types of graphs and one type of cross-table.

If any of these graphs or cross-tables presents some data-constructs not tabulated among the reference tables, it is essential to up-date the reference table with the same constructed variable presented by the standard set of background tables.

It is recommended to use a pie-charts when presenting pure distribution of the issue variable and barcharts when presenting an issue variable across background variables. A tumb rule is to present more information in tables than in graphs even in the chapter with highlights. Here in the presentation of dummy tables, only one case of each graph is presented as a layout example. Which variables to be presented by graphs should be determined at country level, considering the high priority issues and interesting results.

The MDGs may be presented separately in a first MDG-chapter or within each sector chapter. It is usually recommended to present them within their sector since this will allow for the joint presentation of each MDG within its context of related variables. However if there is a country specific tradition for how to present MDG-statistics, it is recommended following that tradition. If this will be the first MDG-statistical report to be presented, it recommended considering to make a separate initial chapter for the MDG indicators

MDG Goal 1: Eradicate extreme poverty and hunger

Table 1.1. MDG 1.5 Current and usual labor force ratio by sex by age, highest education completed, urban/rural residence, and province. Ratio as labor force in percent of total population. (n=17679)

	Current labour force ratio[1]			Usual labour force ratio[2]		
	Male	Female	Total	Male	Female	Total
Country						
Age						
10-14						
15-19						
20-24						
25-34						
35-49						
50-64						
65+						
Highest education completed						
Never attended school						
Attended school						
Low primary						
Primary						
Secondary level						
University level						
Place of residence						
Urban						
Rural						
Province						
Province A						
Province B						
Province C						
Province D						
Province E						
Province F						

1 Current labour is labour during last 7 days and includes any person who worked, was temporary absent but had work to return to, or was available for work either having worked before or seeking work for the first time.
2 The usual labour force comprise all persons who worked at least one hour during last 12 months.

Table 1.2. Employment and unemployment last 7 days for young people 15-24 years by sex by highest education completed and urban/rural residence. Persons in percent. (n=2779)

	Male				Females			
	Em-ployed	Unem-ployed	Not in labor-force	Total	Em-ployed	Unem-ployed	Not in labor-force	Total
Country				100				100
Highest education completed				100				100
Never attended school				100				100
Attended school				100				100
Low primary				100				100
Primary				100				100
Secondary level				100				100
University level				100				100
Place of residence				100				100
Urban				100				100
Rural				100				100

Table 1.3. Proportion of own-account and contributing family workers in total employment (usual labour force) by sex by age, highest education completed, urban/rural residence, and province. Persons in percent. (n=17679)

	Male	Female	Total
Country			
Age			
10-14			
15-19			
20-24			
25-34			
35-49			
50-64			
65+			
Highest education completed			
Never attended school			
Attended school			
Low primary			
Primary			
Secondary level			
University level			
Place of residence			
Urban			
Rural			
Province			
Province A			
Province B			
Province C			
Province D			
Province E			
Province F			

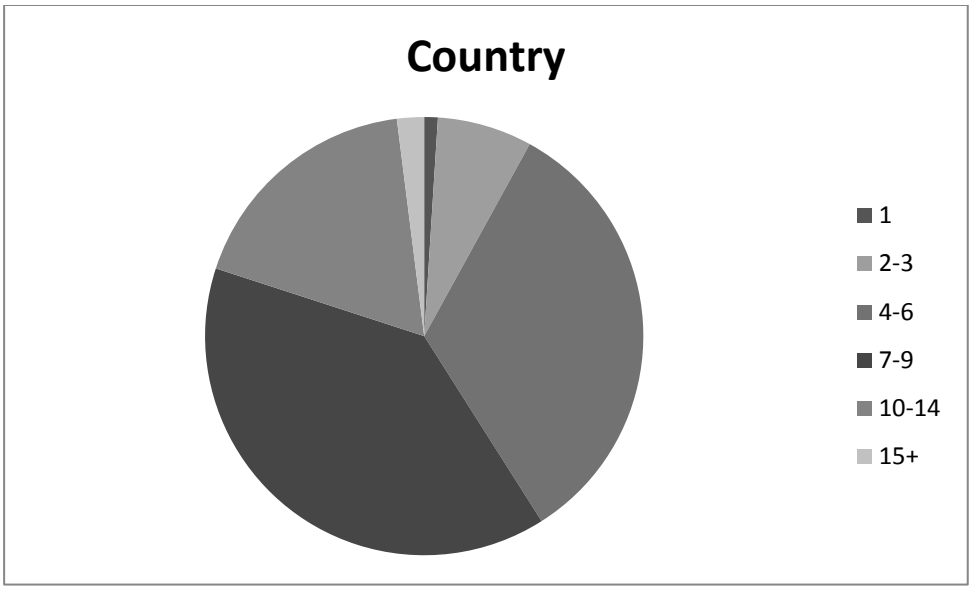
1 The usual labour force comprise all persons who worked at least one hour during last 12 months.

Table 1.4. Proportion of underweight children 0-59 months by sex by age and highest education completed of head of household, urban/rural residence, and province. Children in percent. (n=2018)

	Boys	Girls	Total
Country			
Age in months			
0-11			
12-23			
24-35			
36-47			
48-59			
Highest education completed by head of household			
Never attended school			
Attended school			
Low primary			
Primary			
Secondary level			
University level			
Place of residence			
Urban			
Rural			
Province			
Province A			
Province B			
Province C			
Province D			
Province E			
Province F			

1 The usual labour force comprise all persons who worked at least one hour during last 12 months.

Graph 1.1. Household size. Households in percent. (n=4998)



MDG Goal 2: Achieve universal primary education

Table 2.1. MDG 2.1. Net enrolment ratio in primary education by sex by urban/rural residence and province. Persons in percent. (n=3678)

	Boys	Girls	Total
Country	**87**	**79**	83
Place of residence			
Urban	95	89	92
Rural	83	74	79
Province			
Province A			
Province B			
Province C			
Province D			
Province E			
Province F			

Graph 2.1. MDG 2.1. Net enrolment ratio in primary education by sex by place of residence. Persons in percent. (n=3678)

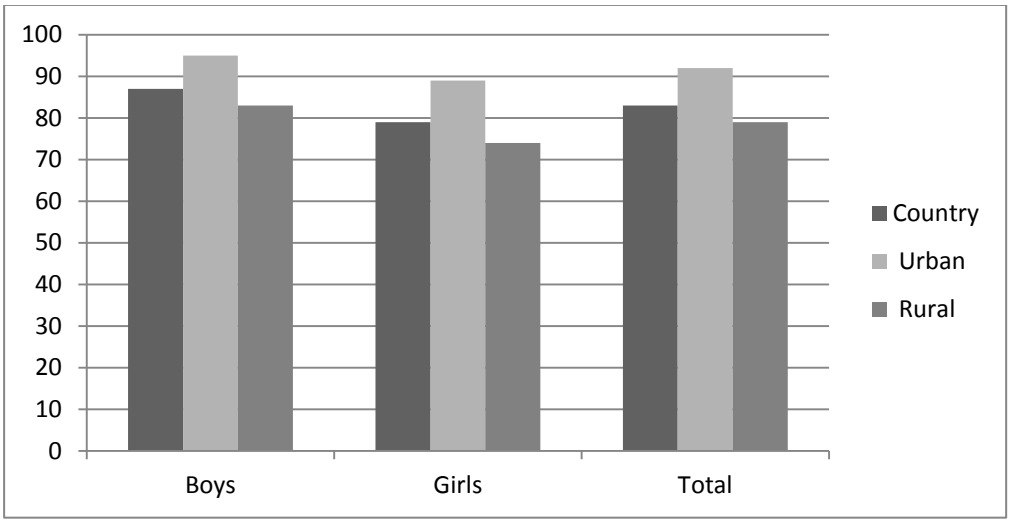


Table 2.2. MDG 2.2. Proportion of pupils starting grade 1who reach last grade of primary by sex by urban/rural residence and province. Proportions calculated based on promotion, repetition and drop out rates from grade to grade

	Boys	Girls	Total
Country			100
Place of residence			
Urban			100
Rural			100
Province			
Province A			100
Province B			100
Province C			100
Province D			100
Province E			100
Province F			100

Table 2.3. MDG 2.3. Literacy rates and ratio of literate women to literate men for population 15 years and above by age, urban/rural residence, and province. Rates in percent and share of women by 100 persons. (n=10678)

	Male	Female	Total	Share of women
Country				
Age				
15-24				
25-34				
35-49				
50-64				
65+				
Place of residence				
Urban				
Rural				
Province				
Province A				
Province B				
Province C				
Province D				
Province E				
Province F				

Table 2.4. Share of women having completed various levels of highest education for population 15 years and above by age, urban/rural residence, and province. Share of women by 100 persons. (n=10678)

	None	Junior primary	Senior primary	Junior secondary	Senior secondary	Post secondary	Total
Country							
Age							
15-24							
25-34							
35-49							
50-64							
65+							
Place of residence							
Urban							
Rural							
Province							
Province A							
Province B							
Province C							
Province D							
Province E							
Province F							

MDG Goal 3: Promote gender equality and empower women

Table 3.1. MDG 3.1. School attendance and ratio of girls to boys in primary, secondary and tertiary education by place of residence. Ratios as number of girls by 100 students. (n=11794)

	Primary education			Secondary education			Tertiary education		
	Boys	Girls	Ratio	Boys	Girls	Ratio	Boys	Girls	Ratio
Country									
Place of residence									
Urban									
Rural									

Table 3.2. MDG 3.2. Men, women and share of women in wage employment in the non-agricultural sector by age, urban/rural residence, and province. Share of women by 100 persons. (n=12564)

	Men	Women	Total	Share of women
Country				
Age				
15-24				
25-34				
35-49				
50-64				
65+				
Place of residence				
Urban				
Rural				
Province				
Province A				
Province B				
Province C				
Province D				
Province E				
Province F				

MDG Goal 4: Reduce child mortality

Table 4.1. MDG 4.1. & 4.2. Proxy infant and child mortality rates by sex, urban/rural residence and province. Ratio by 1000 children. (n=2467)

	Infant mortality rate	12-59 months mortality rate	Child mortality rate
Country			
Sex			
Boys			
Girls			
Place of residence			
Urban			
Rural			
Province			
Province A			
Province B			
Province C			
Province D			
Province E			
Province F			

Table 4.2. MDG 4.3. Proportion of children 12-23 months who are immunized against measles by sex, urban/rural residence, and province. Children in percent. (n=956)

	Vaccinated before one year of age	Vaccinated, but only after one year of age	Not vaccinated	Total
Country				100
Sex				
Boys				100
Girls				100
Place of residence				
Urban				100
Rural				100
Province				
Province A				100
Province B				100
Province C				100
Province D				100
Province E				100
Province F				100

MDG Goal 5: Improve maternal health

Table 5.1. MDG 5.2. Proportion of births attended by skilled health personnel by age, urban/rural residence, and province. Birth in percent. (n=1012)

	Doctor/ clinical officer	Midwife/ nurse	Trained birth attendant	Traditional local attendant	Other	Self	Total
Country							100
Age							
12-24							100
25-34							100
35-49							100
Place of residence							
Urban							100
Rural							100
Province							
Province A							100
Province B							100
Province C							100
Province D							100
Province E							100
Province F							100

Table 5.2. MDG 5.5. Antenatal care coverage by place of residence and age. Pregnancies in percent by age, urban/rural residence, and province. (n=992)

	No care	1 time	2 times	3 times	4 times or more	Total
Country						100
Age						
12-24						100
25-34						100
35-49						100
Place of residence						
Urban						100
Rural						100
Province						
Province A						100
Province B						100
Province C						100
Province D						100
Province E						100
Province F						100

Table 5.3. Birth rates during last 24 months by age, urban/rural residence, and province. Births per 100 women 12-49 years old. (n=7432)

	Birth rate
Country	
Age	
12-16	
17-19	
20-24	
25-29	
30-39	
40-49	
Place of residence	
Urban	
Rural	
Province	
Province A	
Province B	
Province C	
Province D	
Province E	
Province F	

Table 5.4. MDG 5.4. Adolescent birth rate (15-19 years) during last 24 months by urban/rural residence and province. Births per 100 women 15-19 years of age. (n=2172)

	Adolescent birth rate
Country	
Place of residence	
Urban	
Rural	
Province	
Province A	
Province B	
Province C	
Province D	
Province E	
Province F	

MDG Goal 6: Combat HIV/AIDS, malaria and other diseases

Table 6.1. MDG 6.3. Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS by sex, urban/rural residence, and province. Persons in percent. (n=3257)

	Can the risk of HIV transmission be reduced by having sex with only uninfected partner who has no other partner	Can a person reduce the risk of getting HIV by using a condom every time they have sex	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	Comprehensive correct knowledge
Country						
Sex						
Male						
Female						
Place of residence						
Urban						
Rural						
Province						
Province A						
Province B						
Province C						
Province D						
Province E						
Province F						

Table 6.2. MDG 6.4. Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years by sex and place of residence. Attendance and ratio in percent.

	School attendance for children with both parents alive	School attendance for children with only mother alive	School attendance for children with only father alive	School attendance for children with no parents alive	Ratio for orphans[1] to non-orphans
Country					
Sex					
Male					
Female					
Place of residence					
Urban					
Rural					

1 Orphans here are children with no parents alive.

Table 6.3. Ratio of school attendance of orphans to school attendance of non-orphans aged 15-17 years by sex and place of residence. Attendance and ratio in percent.

	School attendance for children with both parents alive	School attendance for children with only mother alive	School attendance for children with only father alive	School attendance for children with no parents alive	Ratio for orphans[1] to non-orphans
Country					
Sex					
Male					
Female					
Place of residence					
Urban					
Rural					

1 Orphans here are children with no parents alive.

Table 6.4. MDG 6.7. Proportion of children under 5 sleeping under insecticide-treated bednets, proportion with fever and MDG 6.8. Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs. By sex, age, and place of residence. Children in percent.

	Proportion sleeping under insecticide-treated bednets. (n=3480)	Proportion with fever (n=3480)	Proportion with fever who are treated with appropriate anti-malarial drugs (n=348)
Country			
Sex			
Male			
Female			
Age in month			
0-23			
24-59			
Place of residence			
Urban			
Rural			

MDG Goal 7: Ensure environmental sustainability

Table 7.1. MDG 7.8 Proportion of population using an improved drinking water source and MDG 7.9 Proportion using an improved sanitation facility by age and economic status of head of household, and by urban/rural residence and province. Households in percent. (n=4998)

	Access to improved drinking water	Access to improved sanitation
Country		
Age of head of household		
<20		
20-29		
30-39		
40-49		
50-64		
65+		
Economic status by head of household		
Self-employed/ employer farming/fishery		
Self-employed/ employer other production/service		
Employed in public sector		
Employed in formal sector (private owner/ company)		
Employed in informal sector (private owner/ company)		
Other private sector work		
Not economically active		
Place of residence		
Urban		
Rural		
Province		
Province A		
Province B		
Province C		
Province D		
Province E		
Province F		

Table 7.2. Main source of fuel for cooking, proportion using solid or other fuel by age and economic status of head of household, and by urban/rural residence and province. Households in percent. (n=4998)

	Solid fuel for cooking	Other fuel for cooking	Total
Country			**100**
Age of head of household			
<20			100
20-29			100
30-39			100
40-49			100
50-64			100
65+			100
Economic status by head of household			
Self-employed/ employer farming/fishery			100
Self-employed/ employer other production/service			100
Employed in public sector			100
Employed in formal sector (private owner/ company)			100
Employed in informal sector (private owner/ company)			100
Other private sector work			100
Not economically active			100
Place of residence			
Urban			100
Rural			100
Province			
Province A			
Province B			
Province C			
Province D			
Province E			
Province F			

Table 7.3. MDG 7.10 Proportion of urban population living in slums by age and economic status of head of household. Persons in percent. (n=2231)

	Lack of access to improved water supply	Lack of access to improved sanitation	Over-crowding[1]	Dwellings made of non-durable material	At least one of these slum caracteristics
All urban areas					
Age of head of household					
<20					
20-29					
30-39					
40-49					
50-64					
65+					
Economic status by head of household					
Self-employed/ employer farming/fishery					
Self-employed/ employer other production/service					
Employed in public sector					
Employed in formal sector (private owner/ company)					
Employed in informal sector (private owner/ company)					
Other private sector work					
Not economically active					

[1] 3 or more persons per room (not counting kitchen, restroom and rooms 4 sq m or less)

MDG Goal 8: Develop a global partnership for development

Table 8.1. MDG 8.15 Mobile cellular subscriptions per 100 inhabitants and MDG 8.16 Internet users per 100 inhabitants by age and economic status of head of household, and by urban/rural residence and province. (n=2231)

	Share with mobile in working order	Share who have used Internet last month
Country		
Age of head of household		
<20		
20-29		
30-39		
40-49		
50-64		
65+		
Economic status by head of household		
Self-employed/ employer farming/fishery		
Self-employed/ employer other production/service		
Employed in public sector		
Employed in formal sector (private owner/ company)		
Employed in informal sector (private owner/ company)		
Other private sector work		
Not economically active		
Place of residence		
Urban		
Rural		
Province		
Province A		
Province B		
Province C		
Province D		
Province E		
Province F		

10.7. Some reminders for data processing and production of tables

Based upon the experience in Statistics Norway survey processing in Norway and other countries we have developed a list of reminders to be considered during this work. This list is not a planning tool, but a list of reminders often based upon hard learning. Hence it is copied here to allow others considering the issues:

- Produce a set of dummy tables, reflecting the objectives of the survey and the content of the questionnaire and:
    - Define the variables to be included
    - Define derived variables, that is, variables that are not readily available from the questions in the questionnaire, such as labour force participation, primary school net enrolment
    - Select background variables that are relevant to the topics being analysed and fairly standardized to allow for comparisons across topics in the Abstract, for instance age groups and educational groups
    - Make sure these background variables are consistent with background variables used in other survey to facilitate comparisons across surveys and over time – if your office have developed a meta data base, use this to check the consistency
- Specify the files you will need and the variables to be included in each of them if more than one. For instance, for this Core survey, there are 3 files specified, and each of them needs to be linked to background variables taken from other files. The information on the head of household comes from

the files with person as unit, and should be aggregated to the household level and then distributed again as background information to the person files

- Create your files and your variables
- Run frequencies to see whether the variables you have defined make any sense (especially multi-response variables)
- If you have too many missings, either there is something wrong with the data or in case you have created a new variable, with your variable specifications (or both) and further cleaning may be needed
- Do you have values outside the range, further cleaning of the data is needed
- If you have created new variables, check against original variables or other relevant variables by a crosstable to see whether your new variables really comprise the groups you want and make sense
- Run some crosstabs to check the consistency in the data, even though they are already cleaned, just to make sure everything is OK. For instance. A person cannot both attend and not attend school at the same time, be employed and unemployed at the same time. This is especially important to do for your derived variables, again to check whether your procedures have been correct
- Decide on new recodes on the basis of your frequencies. For example, your categories for number of jobs need to be decided on the basis of the empirical distribution of number of jobs, the same applies to employment status, source of fuel for cooking, etc
- For each chapter/section within a chapter, specify selections to be made, for instance age groups, persons currently attending school, persons employed
- Make your syntaxes, run them, check them save them. Syntax: A command to tell the program what you want it to do for you
- If more people work on the same data files, make sure that you all use the same variable names and definitions in your syntaxes. This way you will avoid confusion when exchanging files and even more important, not making confusion for future use when persons not involved in the original process want to make use of the data.
- Make your tables and:
    - Check them against other available data
    - Common sense
    - Knowledge of your country
- Remember, if a result is very original and unexpected, it is most often based on an error, so in that case, check all the steps leading up to that result carefully. If you for example find that women in your country are more literate than men, this could be a very interesting result, but most probably it is based on an error made somewhere in the process of creating that result
- Check your tables against your dummy-tables to see whether everything has been included and also check them against the questionnaire to make sure that nothing important is left out.
- Check again that you have included all information needed in relation to the specific objectives of the survey, in the Welfare Core Survey case, that all Millennium Development Goals and the country specific development plan indicators to be derived from the survey appear in the relevant tables
- Edit your tables so that they look nice: Nice and standardized headings and head columns, no decimal points, no %-sign to appear, a design in line with the layout of the dummy tables
- No decimal points in your tables, except when you are presenting means or ratios.
- Check again for ‘impossible’ or highly unlikely results, such as:
    - The net enrolment rate is always lower than the gross enrolment rate for all groups. If you look at an asset, and find that 95 % of the population owns it, you have probably picked the value 2 instead of the value 1, so you run the whole table, and pick the right value, in this case 1, to be included in your table
    - Remember that in tables that only includes proportions, the total should not add up to 100 percent. (If it does, it is purely coincidental)
- When you are designing and running your final tables, always have the updated version of dummy tables, definitions, variable specifications and questionnaire next to you, to make sure that you run the right variables. Your final tables should look exactly like, only with a nicer layout than your dummy tables, that is, have the background variables in the same order, and the table text should be the same

11. Presenting statistics to a wider audience

Dissemination of the results is an integrated part of the survey. All countries have their own tradition and approach. Our recommendation is to consider a more comprehensive approach with the elements as listed below. In addition to the presentation of statistics for a wider audience, it is essential to document the survey work, to store the micro data and make these data available for all national and international research institutions upon a valid request to the national statistical institute as discussed in the next chapter.

The main challenge for presenting statistics to a wider audience is to make the information available in a user friendly manner. Hence this is the main content of this chapter.

The dissemination strategy should include the following elements:

- The dissemination listed in the Release calendar of the national statistical institute
- Making the printed report and press release available to the Ministry in charge 24 hours ahead of release.
- The statistical report made available in printing and on the Web-site at the release day.
- A press release presenting the highlights in 1 page the very same day
- A dissemination workshop at the day of official release
- Offering assistance to the media for interviews and some guidance for proper media presentation of highlights at the day of release

11.1. Some guidelines for making statistics available to the public in a user-friendly way

Presenting statistics to a wider audience (the informed public, the media, teachers, students, libraries; in short: non-experts) is (or should be) different from writing for colleagues and experts. What follow is a few points that should be relevant also when making a tabulation report such as from the Core Survey.

A user-friendly "analysis" or presentation is...

- to select (between all the possible) numbers
- to compare numbers and point out differences, trends and tendencies
- to *point out*/to guide the reader: What is important here?
- to put into context
- to explain (the unexpected/ups and downs, etc.)
- In short: To help the reader answer the question: "What do the numbers really mean?"

Also, this kind of analysis provides *a necessary feedback to the statistical production process*; revealing ambiguities and weaknesses in data, providing ideas for new tables, variables or indicators, thereby contributing to better and more reliable statistics. In this sense, analysis is a necessary and worthwhile ingredient of statistics.

User-friendly presentations usually have three elements, text, tables and graphs.

Text

- KISS: "**K**eep **I**t **S**hort and **S**imple"
- Get to the point: Avoid long introductions (like discussions about methods, etc.). People tend to loose interest if they don't find something interesting at the beginning
- Use "motivating" titles and subtitles. Don't use "Education" or "Health" as subtitles. Instead use titles like "Increasing enrolment" or "Decreasing life expectancy". Such titles will attract the reader's attention and also help them remember the main points of your analysis
- Don't repeat all the numbers that are reported in a table or graph. Don't write "65.8 per cent", but "two out of three"

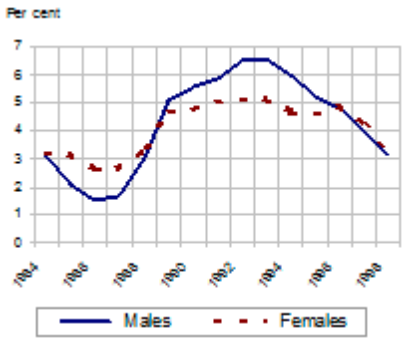
- Don't use acronyms (like MPRSP or PPE) and abbreviations; they are very often not meaningful to the non-expert

Tables & numbers

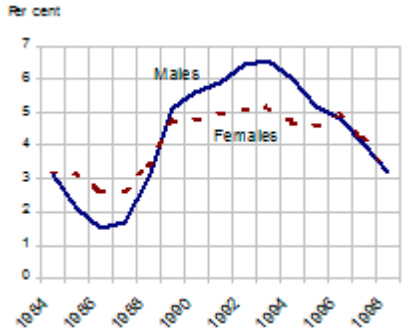
- KISS: For popular presentations, tables should be small and simple (larger reference tables can be put in an appendix)
- Focus on a few indicators/variables at a time
- Reduce number of decimals:
    - Never use two decimals when giving percentages.
    - When reporting percentages from census, adm. data, etc., use one decimal
    - When reporting percentages from surveys, use no decimal, except when the sample is very large
    - For most other indicators (rates, age, life expectancy), the general rule is one decimal
- Rounding: When presenting statistics to a wider audience, details are of little interest. Therefore, rounding numbers (to two or three effective digits) is often effective.
    - For instance: 27,789 → 27 800
- Simplify titles in tables (and graphs).
    - Not: Distribution of households by type of household. Instead: Household types
    - Instead of "…by gender (or sex)" write: "men and women/males and females"

Graphs

Why use graphs, when tables usually give far more (and detailed) information? The answer is that, in large tables, the key information often disappears in numerical noise: There are simply too many numbers.



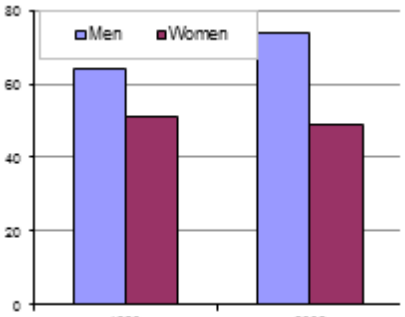
Graphs give a immediate, visual and intuitive impression of trends, differences between phenomena or relationships (correlations) between variables. Graphs compress data and they are – when properly designed – effective means of dissemination. Graphs are well suited *both* for presenting statistics on the Internet *and* for use in printed publications; sometimes replacing a table, more often supplementing a table or a text, illustrating a specific point or visualising a trend.



KISS also applies to graphs; they should be small and simple. A well-designed graph does not need a full (or even a half) page. For most purposes (and depending on the format of the publication), the size should be something like this:

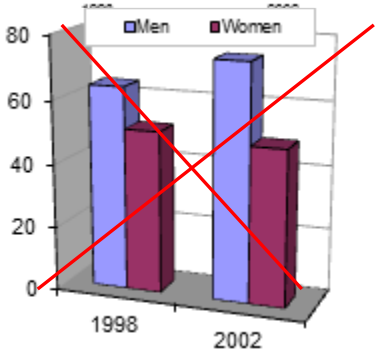
Avoid "overloading" the graph. Don't put too much information into one graph: For example, a line graph should generally not have more than 4 or 5 lines.

If possible, move the legend/explanation into the graph. This makes it easier to read and understand the graph

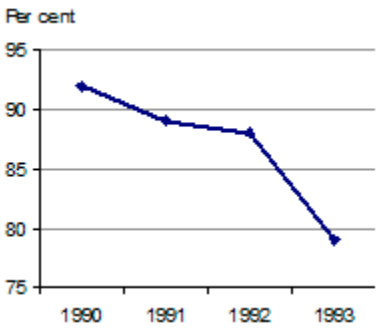


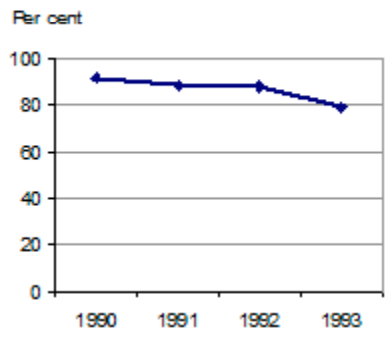
If possible, move the legend/explanation into the graph. This makes it easier to read and understand the graph

Don't use "3D"-charts. So-called three-dimensional charts have become very popular. These are not really three-dimensional, but two-dimensional with some depth and perspective added. Because of this, they are often very difficult to read, and therefore not recommended.



Be careful when "cutting" the value-axis! Sometimes it is tempting to "increase" the variation or amplify a trend in a graph by setting the minimum value at some value above zero. But this may give a very misleading impression of the trend: In the graph on the left, there seems to be a dramatic downturn in 1992 (indicating that the rate has almost reached its "bottom"), but in the other graph, the decrease is much less impressive, but still the best illustration of the reality.





12. Metadata and technical documentation

Metadata is in brief "data about data" or in other words a documentation of the data that gives information necessary to understand and interpret statistics correctly (”interpretation metadata”). Traditionally, metadata includes documentation about the population of a survey, observation unit, sampling, concepts and definitions, information about methods, calculation and estimation, etc.

Many statistical offices have developed some kind of minimum standard for metadata for all their statistical products – to be published in printed publications as well as on the Internet. The guidelines for these usually specify what information should be included and how this information should be structured. This kind of metadata usually summarises several aspects of the statistics like:

- Population, data collection, questionnaire
- Type of sample, sample size, response rate, etc.
- Definitions of concepts and variables, classifications
- Methods used: Estimation, index construction, calculation of rates and ratios
- Sources of error and uncertainty: Non-response errors, sampling errors, other sources of error. Estimates of variance should be given.

The Handbook on Population and Housing Census Editing (UN Statistical Division, 2010) provides further details.

Whereas local agreements and standards for minimum metadata is sufficient for a sub chapter in the survey reference report and thereby accessible to the majority of the users, there is additional need for a comprehensive technical and metadata report for professional documentation and also preferably long term stored close to the final micro data file(s).

For the Welfare Core Survey approach it is recommended to implement the International Household Survey Network (IHSN) Accelerated Data Program (ADP). Their work is based upon the Data Documentation Initiative standards and they have developed guidelines and software for storing and documenting metadata and micro-data.

It is recommended to start with the Quick Reference Guide for Data Archivists, which may be downloaded from:
http://www.ihsn.org/home/sites/default/files/resources/DDI_IHSN_Checklist_OD_06152007.pdf
and to apply the software the DDI Metadata Editor (IHSN, 2012).

This tool is designed to address the technical issues facing the producers. The aim of this program is to promote the adoption of international standards for micro data documentation, dissemination and preservation, as well as to foster best practices by data producers in developing countries. It complements the IHSN other efforts to produce and distribute tools and guidelines for improved management and use of micro data.

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Appendices

This report includes the four large and three minor appendices to the main report on the Welfare Core Survey as follows:

In addition to the printed appendices, three electronic appendices are being prepared, as follows:

- An electronic version of the questionnaire
- Syntax-files for revision of collected information
- Syntax-files for the data constructs and tables for the statistical report

These files will be prepared and tested during 2015 and will then be made available for downloading in 2016 from www.ssb.no.

Appendix 1 Welfare Core Survey Questionnaire 2015

Enclosed in the next 8 pages.

Serial number [12345678]

Sep, 2015

COUNTRY XXX
Welfare Core Survey 2015 Questionnaire

text

A Interview particulars

A1 Regional ID codes **Copy from listing sheet**

State code	County code	Sub-county code	Enumeration area (EA) code

A2 Building, Dwelling and Household number in EA **Copy from listing sheet**

Building number	Dwelling number	Household number

A3 Building type code. **Copy from listing sheet**

A4 Urban / Rural location of household

Urban ☐
Rural ☐

A5 North and East coordinate
Decimal degrees from GPS reading 5 decimals. If south of Equator, remember "-" in front of North

Are coordinates taken?
1. Yes ☐
2. No ☐ → Skip A6

North: |.| East: |.|

A6 Date of visit/ interview started

Day | Month

A7 Accept of interview
Read out explanatory text about the survey (see manual). Then ask if the interview is accepted and can continue.

Yes, accepted for start now ☐
Yes, accepted but return later ☐
No, refused/vaccant end interview and fill in A12-16 ☐

If enumerator should come back later, make appointment /contact details →

A8 *What is the name of the head of the household?*
Who is the head of the household should be decided by the household members at the start of the interview. Should be 15 years old or more. Only one head per household.

Name

A9 *How many of the last 12 months did [NAME], the head of household, reside in the household?*

1. Less than 3 months ☐ →Skip to A10
2. 3-5 months ☐ →Skip to A11
3. 6 months or more ☐ →Skip to A11

A10 If the head of household resided less than 3 months in the household, ask:
Did the head send or bring back any cash or provisions to the household during the last 12 months?

1. Yes, both in cash and kind ☐
2. Yes, but only in cash ☐
3. Yes, but only in kind ☐
4. No ☐

A11 *Who is the main respondent in the household?*
Who is the main respondent should be decided by the household members at the start of the interview. Should be 15 years old or more.

Is the main respondent and the head of household the same person?
1. Yes ☐ → Skip to section B
2. No ☐ → Fill in respondent name, sex and age

Name	Sex	Age
	☐ Male ☐ Female	

Skip to section B and continue the interview. A12 – A16 to be filled in after the interview is ended.

A12 Date of interview completed/ended

Day | Month

A13 Final status for the interview

1. Completed ☐
2. Never completed (vacant or refusal) ☐

A14 Number of forms used for this household

Total number of forms used for this household
☐ One form used only (i.e. vacant/refusal or 1-10 members total in the household)
☐ Two forms used (i.e. 11-20 members total in the household)
☐ Three forms used (i.e. 21-30 members total in the household)

Of which this is the; ☐ first form filled in (i.e. with head of household information in B-C-D) ☐ second form filled in ☐ third form filled in

A15 Interviewer's signature, check mark and ID number

Signature	Checked by the enumerator according to instructions	ID number
	☐ Yes	

A16 Supervisors signature, check mark and check date

Signature	Checked by the supervisor according to instructions	Day	Month
	☐ Yes		

B Household members - Core demographics

	1	2	3	4	5	6	7	8	9	10

For the main respondent in the household

B1 Household member column number (If more than 10 members, write 11,12..20, 21,22 etc)	1	2	3	4	5	6	7	8	9	0
B2 Make a complete list of all individuals who normally live and eat together in this household. Fill in names and B2 to B9 for each member before you continue to fill in C1 to D10. If more than 10 members, use one or more additional forms. **Start with the head of the household as member number one in column one on the first form used.**										

Fill in for all members of the household

B3 ***What is [NAME]'s relationship to the head of the household?***										
1 Head (only one head pr household)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Spouse (of head)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Daughter/Son (of head/spouse)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Grand child (of head/spouse)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5 Parent (of head/spouse)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6 Other relative (of head/spouse)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7 Non relative (of head/spouse)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B4 ***Is [NAME] male or female?***										
1 Male	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Female	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B5 ***How old was [NAME] at his/her last birthday?***										
Completed years. Write 00 if less than 1 year										

Fill in B6 for all members 12 years old or more only. Leave other person-columns unfilled

B6 ***What is [NAME]'s marital status?***										
1 Never married	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Married	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Widowed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Separated	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5 Divorced	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Fill in B7-B10 for all members less than 18 years old only. Leave other person-columns unfilled

B7 ***Is the father of [Name] still alive?***										
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No → Skip to B9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Does not know→ Skip to B9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B8 **If yes:** ***Does he live in the household?***										
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B9 ***Is the mother of [Name] still alive?***										
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No → Skip to next. If last person, skip to C1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Does not know → Skip to next. If last person, skip to C1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B10 **If yes:** ***Does she live in the household?***										
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Fill in section B for all members of the household before continuing to C1

	1	2	3	4	5	6	7	8	9	10

C Household members – Education

	1	2	3	4	5	6	7	8	9	10

Fill in section C for <u>members 5 years old and above only</u>.

For checking by the enumerator

C1	Copy the household member name **for all persons 5 years old or more** from B2										
C2	Copy the corresponding household <u>member column number</u> from B1										

Note: Make sure to write down the same member number which the person was assigned in B1 / B2

For the main respondent in the household

C3 ***Can [Name] <u>read and write</u> a simple sentence in any language?***

1 Yes ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
2 No ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

C4 ***Has [Name] ever attended school?***

1 Yes ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
2 No → Skip to next ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

C5 ***Did [Name] enrol this school year?***

1 Yes ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
2 No → Skip to C8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

C6 ***What grade did [Name] enrol?***

Type in the code corresponding to the grade enrolled in the box to the right.

Country specific codes:
1 P1, **2** P2, **3** P3, **4** P4, **5** P5, **6** P6, **7** P7, **8** P8, **9** Secondary1, **10** Secondary2, **11** Secondary3, **12** Post secondary diploma program, **13** University

C7 ***How old was [NAME] at the start of this school year?***

Completed years

C8 ***Is [Name] currently attending school?***

1 Yes ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
2 No ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

C9 ***Did [Name] attend school at any time during the last school year (20nn – 20NN)?***

1 Yes ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
2 No → Skip to C11 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

C10 ***What grade did [Name] attend last school year?***

Type in the code corresponding to last school year grade of education in the box to the right.

Country specific codes:
1 P1, **2** P2, **3** P3, **4** P4, **5** P5, **6** P6, **7** P7, **8** P8, **9** Secondary1, **10** Secondary2, **11** Secondary3, **12** Post secondary diploma program, **13**. University

C11 ***What is the highest grade of education [Name] completed?***

Type in the code corresponding to highest grade of education completed in the box to the right.

Country specific codes:
0 No grade completed, **1** P1, **2** P2, **3** P3, **4** P4, **5** P5, **6** P6, **7** P7, **8** P8, **9** Secondary1, **10** Secondary2, **11** Secondary3,
12 Post secondary diploma program, **13**. University

	1	2	3	4	5	6	7	8	9	10

D Household members – Labour

	1	2	3	4	5	6	7	8	9	10

Fill in section D for members 10 years old and above only.

For checking by the enumerator

D1	Copy the household member name **for all persons 10 years old or more** from B2										
D2	Copy the corresponding household member column number from B1										

Note: Make sure to write down the same member number which the person was assigned in B1 / B2

For the main respondent in the household

We start by asking some questions about activities and about possible main work during the last 7 days.

D3 ***Did [Name] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 7 days?***

1 Yes → Skip to D7 ☐
2 No ↓ ☐

D4 ***[Name] did not work the last 7 days, but was he/she temporary absent from work and has a job to go back to?***

1 Yes → Skip to D7 ☐
2 No ↓ ☐

D5 ***[Name] did not work the last 7 days, but did he/she work before that period and is available for work?***

1 Yes → Skip to D7 ☐
2 No ↓ ☐

D6 ***[Name] did not work the last 7 days, but is he/she seeking work for the first time and is available for work?***

1 Yes ☐
2 No ☐

Now we would like to ask some questions about activities and possible main work during the last 12 months.

D7 ***Did [Name] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 12 months?***

1 Yes ☐
2 No →Skip to D3 for next ☐

D8 ***What type of work place did [Name] have at his/her main job the last 12 months?*** (Codes based on SNA 2008)

1 Own household member based (no permanent employees) private farm/fishing ☐
2 Own household member based (no permanent employees) private business/industry ☐
3 Owner of private farm/business/ industry w/ permanent employees ☐
4 Work for private owners/ company farm/business/industry ☐
5 State owned company ☐
6 Public service/administration ☐
7 NGO/Ideal organization/Mission ☐

D9 ***How was [Name] paid in his/her the main job during the last 12 months?***

1 Wage/salary with contract ☐
2 Wage/salary without contract ☐
3 Payment in kind ☐
4 Casual (hourly/daily) ☐
5 Profit from sale, including unpaid family workers ☐

D10 ***What was the main activity at [Name]'s place of work during the last 12 months?***

Type in the code corresponding to main activity in the box to the right.

Country specific codes (Codes based on ISIC rev. 4) **11** Agriculture - crops/forestry, **12** Agriculture – animal husbandry, **13** Fishing, **14** Mining & quarrying, **15** Manufacturing, **16** Electricity and water supply, **17** Building and construction, **18** Trade, **19** Repair, 2**0** Transportation, **21** Accommodation and food service, **22** Information and communication, **23** Financial, professional, administrative and support service **24** Public administration and defence, **25** Education, **26** Human health and social work, **27** Arts, entertainment and recreation, **28** Personal service, **29** Domestic service **30** Embassies and international organizations

	1	2	3	4	5	6	7	8	9	10

E Screening to secure that all household member information is completed for section B-D

For checking by the enumerator

E1 Does this household have more than 10 members?

1 Yes ☐
2 No ☐ → Skip to F1 on this form and continue to complete section F to K and thereafter close the interview by filling in A12-16

E2 Is the household member information in section B-D for all members of this household now completed?

1 Yes ☐ → Find the first form used for this household (with head of the household in B1 column one) and continue, on the first form only, to fill in section F-K. Then close the interview by checking & filling-in A12-16 on all forms used for this household
2 No ☐ → Pick the next form used for this household. On the next form check that A1-2 and, A14 are filled in and then fill in B1-10 on the form and continue to fill in information about household members C1 – D10 not yet completed

F Household – Housing and communication

For the main respondent in the household

F1 ***Do you own or rent this dwelling, or have it allocated for free through work or others, or just occupy this dwelling?***
1 Own ☐
2 Rent → Skip to F3 ☐
3 Allocated for free→ Skip F3 ☐
4 Just occupy → Skip to F4 ☐

F2 ***Do you or someone in the household have a written ownership document for this dwelling?***
1 Yes → Skip to F5 ☐
2 No → Skip to F4 ☐

F3 ***Do you have any documentation or agreement for the rental of this dwelling?***
1 Yes → Skip to F5 ☐
2 No ☐

F4 ***Do you feel secure from eviction from this dwelling?***
1 Yes ☐
2 No ☐

F5 ***How many separate rooms do the members of your household occupy?***
(Do not count bathrooms, toilets, storerooms or garages)
Number of rooms ☐☐

F6 ***What is your <u>main</u> source of fuel used for cooking?***
1 Electricity ☐
2 Solar energy ☐
3 Gas ☐
4 Paraffin ☐
5 Charcoal ☐
6 Firewood ☐
7 Grass ☐
8 Dung ☐
9 Other ☐

F7 ***What is your <u>main</u> source of drinking water?***
1 Piped water into dwelling, plot or yard ☐
2 Public tap/stand pipe ☐
3 Tube well/borehole ☐
4 Protected dug well ☐
5 Protected spring ☐
6 Rainwater collection ☐
7 Unprotected dug well ☐
8 Unprotected spring ☐
9 Cart with small tank/drum ☐
10 Tanker truck ☐
11 Surface water (river, dam..) ☐
12 Bottled water ☐

F8 ***What kind of <u>main</u> toilet facility does your household have?***
1 Flush/pour flush into piped sewer system ☐
2 Flush/pour flush into septic tank ☐
3 Flush/pour flush into pit latrine ☐
4 Ventilation improved (VIP) latrine ☐
5 Pit latrine with slab ☐
6 Composting toilet ☐
7 Flush/pour to elsewhere ☐
8 Pit latrine without slab/open pit ☐
9 Bucket ☐
10 Hanging toilet/hanging latrine ☐
11 No facilities or bush/field ☐

F9 ***The roof of the <u>main</u> dwelling is predominantly made of what material?***
1 Grass ☐
2 Iron sheets ☐
3 Clay tiles ☐
4 Concrete ☐
5 Plastic sheeting ☐
6 Other ☐

F10 ***The floor of the <u>main</u> dwelling is predominantly made of what material?***
1 Sand ☐
2 Smoothed mud ☐
3 Smooth cement ☐
4 Wood ☐
5 Tile ☐
6 Other ☐

F11 ***The outer walls of the <u>main</u> dwelling are predominantly made of what material?***
1 Grass ☐
2 Mud ☐
3 Compacted earth ☐
4 Mud bricks ☐
5 Burnt bricks ☐
6 Concrete ☐
7 Wood ☐
8 Iron sheets ☐
9 Other ☐

F12 ***Does someone in the household own a cellular telephone (cell phone) in working condition?***
1 Yes ☐
2 No → Skip to F14 ☐

F13 ***How many of the household members have his/her own cell phone in working order?***
Number of members ☐☐

F14 ***Has someone in the household used Internet on a personal computer at home, in an Internet café or elsewhere during the last month?***
1 Yes ☐
2 No → Skip to G1 ☐

F15 ***How many of the household members have used Internet on a personal computer at home, in an Internet café or elsewhere during the last month?***
Number of members ☐☐

G Children under 5 years old, birth and vaccination

G1-G3 for checking by the enumerator

G1 Does this household have any children under 5 years old?
1 Yes ☐
2 No ☐ → Skip to I1

	1	2	3	4	5	6	7	8	9	10
G2 Copy the household member name **for all children less than 5 years old** from B2										
G3 Copy the corresponding household member column number from B1										

To the child's mother or other representing the child in the household

G4 ***Does anyone in the household have a card/document where the child [Name]'s birth date and/or vaccinations are written?***

	1	2	3	4	5	6	7	8	9	10
1 Yes, card/doc. is shown	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Yes, but card/doc. not shown	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 No	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

If Yes in G4, the enumerator should request to see the card and read out/fill in G5and G9 based on the information given in the card

G5 ***When was the child [Name] born – month and calendar year?***

	1	2	3	4	5	6	7	8	9	10
Month (2 digits) (January = 1.... December =12)										
Calendar year (4 digits) (2009, 2010 etc)										

G6 ***Is the child [Name] weighted during the interview?***
1 Yes ☐
2 No ☐ → Skip to G8

G7 ***Weight in kg with 2 decimals?***

	1	2	3	4	5	6	7	8	9	10
(3.40, 6.25 etc)	|▪|	|▪|	|▪|	|▪|	|▪|	|▪|	|▪|	|▪|	|▪|	|▪|

G8 ***Is the child [Name] vaccinated for Measles?***

	1	2	3	4	5	6	7	8	9	10
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No → Skip to H1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

G9 ***Did the child [Name] get the vaccination before or after his/her 1st birthday?***

	1	2	3	4	5	6	7	8	9	10
1 Before 1 year of age	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Only after 1 year of age	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

H Children under 5 years old – Malaria

To the child's mother or other representing the child in the household

H1 ***In the last two weeks, has child [Name] been ill with fever any time?***

	1	2	3	4	5	6	7	8	9	10
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No → Skip to H5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

H2 ***Was the child [Name] given any medicine for fever or malaria during this illness?***

	1	2	3	4	5	6	7	8	9	10
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No → Skip to H5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

H3 ***What type of medicine was the child [Name] given?***

Read out from list below:	1 Yes	1 No	2 Yes	2 No	3 Yes	3 No	4 Yes	4 No	5 Yes	5 No	6 Yes	6 No	7 Yes	7 No	8 Yes	8 No	9 Yes	9 No	10 Yes	10 No
1 Fansidar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Chloroquine	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Mefloquine	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Lariam	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5 Panadol (pain killer)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6 Other																				
If no for all, -> skip to H5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

H4 If "Yes" in H3 for any of medicines: ***How many days after the fever started did the child [Name] take this anti-malaria drug for the first time?***

	1	2	3	4	5	6	7	8	9	10
Number of days										

H5 ***Did the child [Name] sleep under an insecticide treated (treated with chemicals to kill/repel mosquitoes or bugs) mosquito net last night, that is***

	1	2	3	4	5	6	7	8	9	10
1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No →Skip to next child. If complete, skip to I1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

[12345678]

I Antenatal care

To women 12-49 years old in the household

I1 ***Did any woman 12 – 49 years old in this household give live birth during the last 24 months?***

1 Yes ☐
2 No → Skip to J1 ☐

	1	2	3	4	5	6	7	8	9	10

For each woman 12-49 years old in the household that gave birth last 24 months

I2 ***Who in the household gave live birth last 24 months?***

For each woman 12-49 years old that gave live birth last 24 months, copy the household member name from B2										
I3 Copy the corresponding household member column number from B1										

I4 ***Is [Name] present in the household now and is it possible to ask her a few questions?***

1 Yes, present for questions	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Not present, but others can answer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 No → Skip to I2 next woman. If complete, skip to J1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I5 ***How many live birth did [Name] give last 24 months***

Number of live births										

For the most recent live birth

I6 ***Did you [Name] see anyone for antenatal care for the most recent live birth pregnancy?***

1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No →Skip to I2 next woman If complete, skip to J1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I7 ***Who did you [Name] see for antenatal care for the most recent live birth pregnancy?***

1 Doctor/Clinical officer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Midwife/nurse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Trained birth attendant	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Traditional local attendant	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5 Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I8 ***How many times did you [Name] receive antenatal care during the most recent live birth pregnancy?***

Number of times										

I9 ***Who assisted you [Name] at the delivery of the most recent live birth?***

1 Doctor/Clinical officer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 Midwife/nurse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Trained birth attendant	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Traditional local attendant	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5 Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I10 ***Where did you [Name] give the most recent birth?***

1 Health facility	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 At home	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3 Other place	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I11 ***In what month and year was the most recent live birth child [Name] born – month and calendar year? (*Probe*: What is his/her birthday?)***

Month (2 digits) (January = 1.... December =12)										
Calendar year (4 digits) (2010, 2011 etc)										

I12 ***Is the child [Name] still alive? [If twins, we like to know about the first born twin child]***

1 Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 No	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

I13 ***How old was the child [NAME] at his/her last birthday? TODAY or WHEN PASSED AWAY***

Age in completed years write 0 if less than one year										

	1	2	3	4	5	6	7	8	9	10

J HIV /AIDS knowledge in the household

Questions about HIV/AIDS knowledge should be asked to a random selected person age 15 to 24 years old in the household.

For checking by the enumerator

J1 Copy the household member column number from B1 for the selected person 15-24 years old interviewed about HIV/AIDS ☐

J2 Sex of the selected person
1 Male ☐
2 Female ☐

For the selected person 15 to 24 years old

J3 ***Can the risk of HIV transmission be reduced by having sex with only uninfected partner who has no other partner?*** 1 Yes ☐ 2 No ☐

J4 ***Can a person reduce the risk of getting HIV by using a condom every time they have sex?*** 1 Yes ☐ 2 No ☐

J5 ***Can a healthy looking person have HIV?*** 1 Yes ☐ 2 No ☐

J6 ***Can a person get HIV from mosquito bites?*** 1 Yes ☐ 2 No ☐

J7 ***Can a person get HIV by sharing food with someone who is infected?*** 1 Yes ☐ 2 No ☐

K End of interview

Dear Sir/Madame/All, we are now through with the interview. On behalf of the National Bureau of Statistics, I would like to thank you very much for your help and for the information you and all the members of this household have shared with us.

End of the interview → Skip to A11

For the enumerator or supervisor

K1 Any comments or notes?
1 Yes →Use box below ☐
2 No ☐

Comments / notes to supervisor and/or central data editing staff:

Appendix 2 Welfare Core Survey Concept Paper

Welfare Core Survey 2015

Concept Paper

Contents

List of Acronyms

- EA Enumeration Area
- GDP Gross Domestic Product
- GPS Global Position Satellite
- MDG Millennium Development Goals
- PARIS21 Partnership in Statistics in the 21st Century
- PSU Primary Sampling Unit
- SDG Sustainable Development Goals
- UN United Nations

1. Executive Summary

This concept paper present the rationale, means and outputs for a household survey system built upon and around a welfare core survey. The policy makers, other professional users and the public at large may learn about an option for a national survey system which will provide annual information on the current situation and changes from year to year. At the same time this approach will build the national statistical capacity and hence serve the country with a solid base for evidence based resource allocation and other policy decisions.

This prototype presentation is based upon the Millennium Development Goals, but at the national level, it may rather build upon the national development plan and may well be adapted to serve the Sustainable Development Goals in 2016.

The Welfare Core Survey has three main objectives:

- To provide information on the level of priority indicators, such as the MDGs or the national development goals
- To provide information on the annual changes in priority indicators
- To provide a means to link more detailed sector information to these priority indicators

To achieve these objectives in a sustainable manner, there are also three institutional objectives:

- To improve and sustain national capacity for the collection, processing and dissemination
- To improve and sustain national capacity for quality, timeliness and efficiency at an affordable price
- To improve and sustain national capacity for combining the core information with other sector information

The survey will use the national survey system, usually with mobile teams collecting information over 2-3 months. 15 survey teams comprising a supervisor, four enumerators and a driver may collect information from 3-5000 households using either electronic forms, tablet PCs and small laptop PCs or traditional paper based forms for scanning.

The results will be presented and disseminated in a statistical tabulation report including a chapter with highlights and interpretation. From the second year, the tabulation report will include tables showing the trends in development of the main variables.

Both statistics on the levels of each indicator and the trends will also be posted at the Internet-site of the national statistical office. The micro-data will be made available for further analysis and research for national research institution upon request.

The costs will vary with the sample size, salary and per diem levels and be dependent upon whether the survey is based upon paperforms to be scanned or electronic forms. The prototype budget for a sample of 5000 households and paperforms are estimated to US$ 680,000.

2. Introduction

This concept paper presents the main objectives, instruments and processes for a Welfare Core Survey. The main objective of this survey is to provide regular information of general priority issues for the national development with a focus on improved resource allocation ensuring inclusive growth and poverty reduction. The rationale for a repeated core survey is to provide regular information on the impact of major policy decisions. A Welfare Core Survey is intended to be repeated on a regular basis between the decennial population censuses.

Hence the Welfare Core Survey should include basic information for the main socio-economic sectors of the society and complement the regular economic statistics.

Such a core survey may then serve as the core for the decennial household survey program. Each year one specific sector module may be added, such as for expenditures and consumption, health, education, and agricultural and informal sector production. It is essential that this extra information is collected by a separate module. Hence one may split the processing of the core information and the extra module information and publish two separate tabulation reports, a fast Welfare Core Survey tabulation report and later a separate sector tabulation report. The national statistical office will be able to improve quality, reduce the costs and speed up the processing time for publishing the regular Welfare Core Survey tabulation report. They may both increase their own capacity for national socio-economic statistics and also the reputation of the national statistical office.

The combination of policy information, economic statistics and the welfare core survey would allow analysts and planners to ascertain the impact of resource allocation and policy decisions.

In general a core survey will only provide basic information from each sector, but through well laid out statistical models, it may even be used for presenting annual model based estimates on more demanding issues such as poverty.

The prototype version of the Welfare Core Survey is designed to provide MDG indicator information as well as the general socio-economic information. Hence it is likely to provide most of the socio-economic information needed for national development plans. For any country specific application it is still recommended to review the prototype Welfare Core Survey according to the information needs for the national development plan and redesign the instruments including the questionnaire as need be. And likewise, when the UN General Assembly has agreed upon a set of Sustainable Development Goals in the fall of 2015, it may be time for a revision of the core indicators.

3. Objectives of the survey

3.1. Overall objectives

The overall objective of the survey is to provide information which may guide the resource allocation and policy decisions in a country in order to ensure economic and social development.

In order to fulfill the overall objective there are both major objectives for data provision and a major objective to ensure a sustainable national capacity for providing regular statistics at a proper quality in a timely and efficient manner

3.2. Three major data provision objectives

The Welfare Core Survey has three major objectives, as follows:

- To provide information on the level of socio-economic MDG-indicators, national development plan indicators and core sector information at a given point in time
- To provide information on the changes in socio-economic MDG-indicators, national development plan indicators and core sector information over a decennial period allowing for monitoring of the impact of resource allocation and policy decisions over time.

- To provide a means to link more detailed sector information to the basic socio-economic information.

3.3. Three national capacity building objectives

In order to provide this information in a regular manner, there are three institutional objectives:

- To improve and sustain national capacity for the collection, processing and dissemination of this information both at a given point in time and in a regular manner such as every year or every second year
- To improve and sustain national capacity for quality control, time line control and efficient collection, processing and dissemination at an affordable price
- To improve and sustain national capacity for combining the core information with other sector information in a decennial household survey program

3.4. Specific objectives

The list of specific objectives includes both data provision objectives and institutional development objectives.

Specific data provision objectives

The first set of data provision objectives is to collect survey based information for all MDG indicators which may be provided through an ordinary household survey, i.e. a household survey with ordinary statistical enumerators and a reasonable sample size. These are as follows:

Goals and targets	Indicators
GOAL 1: ERADICATE EXTREME POVERTY AND HUNGER	
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age
GOAL 2: ACHIEVE UNIVERSAL PRIMARY EDUCATION	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men
GOAL 3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary and tertiary education 3.2 Share of women in wage employment in the non-agricultural sector
GOAL 4: REDUCE CHILD MORTALITY	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1 year-old children immunized against measles

GOAL 5: IMPROVE MATERNAL HEALTH	
Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio Target 5.B: Achieve, by 2015, universal access to reproductive health	5.2 Proportion of births attended by skilled health personnel 5.4 Adolescent birth rate 5.5 Antenatal care coverage (at least one visit and at least four visits)
GOAL 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES	
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it	6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.7 Proportion of children under 5 sleeping under insecticide-treated bed-nets 6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs
GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY	
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums
GOAL 8: DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT	
Target 8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	8.15 Mobile cellular subscriptions per 100 inhabitants 8.16 Internet users per 100 inhabitants

The second set of data provision objectives is the provision of a basic but still comprehensive set of indicators within the following sectors:

- Background information allowing for comparison on geographical and other basic background information with the census and other surveys
- Demographics
- Education
- Employment
- Housing standard and amenities
- Maternal and child health

Specific institutional development objectives

In order to fulfill the major institutional objectives, the following specific institutional objectives need to be fulfilled:

- To improve and sustain national capacity for questionnaire design for provision of national priority information
- To improve and sustain national capacity for quality control at every stage of the data collection, data processing and data publication proves
- To improve and sustain national capacity for budget control and efficiency

- To improve and if need be build and sustain national capacity for a meta data approach which allows for dissemination of trends and combining and comparing information collected in a core survey, sector modules and other household surveys
- To ensure the utilization of new technology for data collection, verification and processing at the national level

4. Review of literature and related activities

There are a number of survey program which are implemented across a number of countries. These are main sector surveys such as the Demographic and Health Survey, DHS program, the Multiple Indicator Cluster Survey, MICS or research oriented survey programs such as the Living Standard Measurement Study, LSMS survey program.

There are not many survey programs aimed at providing core information. But the World Bank Social Dimensions of Adjustment, SDA program launched a Priority Survey back in 1990 with a similar objective. They also launched the Core Welfare Indicator Questionnaire later in the 90s aiming at a focus on measuring rapid changes such as school attendance rather than enrollment and even user satisfaction with basic public social service.

For some reason a dedicated MDG survey has only been promoted at the very end of the MDG period, the End line survey.

There has however been an implementation of monitoring core surveys in some countries where these prototype surveys have been adapted to national needs, such as the Questionário de indicadores básicos de bem-estar, QUIBB surveys in Mozambique and the Welfare Monitoring Survey, WMS in Malawi.

5. Methodology

5.1. Level of estimation and publication

The national policy needs should guide the level of publication and estimation. The proposed Core Survey estimation is based upon an assumption of demand for annual or bi-annual information at the national level, while it is sufficient with sub-national publication such as every five years. In both cases the policy makers would also need information separately for urban and rural areas.

In order to be able to publish unbiased estimates for urban/ rural and sub-national categories the sample need to be designed with stratification along the same lines. Hence the sample will always be stratified on urban versus rural areas and in cased where an NSO plan to publish figures for the sub-national level, the sample will also be stratified according to the same sub-national level. It is however always an advantage to stratify as far as possible in order to avoid large variance in your sample. Hence if the information is available, the sample will be stratified according to other important economic and social variables, such as typical production patterns and distance to large cities.

Hence the sample should be a well stratified two stage sample approach with systematic PPS sampling of primary sampling units = enumeration areas within each domain and a fixed take of 20 households within each rural PSU/EA and 24 households in each urban PSU/EA.

5.2. Sample-size

The required sample size n for binominal (yes/no) variables can be calculated from the following equation:

$$(1)\quad n = (z_{\alpha} / d)^2 \times p \times (1-p) \times (deff / r) \qquad (2)$$

where the normally distributed variable z has an accuracy of α which we may set to 0.05 and the tolerable error d = 0.025 at national level and d = 0.05 at for each sub-category, the probability p of a certain variable being 1 is assumed to be 0.3 and hence being a probability of being 0 of 0.7, a design effect, deff of 1.376 (Aliaga and Ren, 2006), and a response-rate of 95 percent.

$n\ (national) = (1.96 / 0.025)^2 \times 0.3 \times 0.7 \times (1.376 / 0.95) = 1870$

$n\ (sub\text{-}national) = (1.96 / 0.05)^2 \times 0.3 \times 0.7 \times (1.376 / 0.95) = 467$

In order to allow for presenting information for such as 6 background variables with an accuracy of 5 percent, a sample-size of 6 * 467 = 2802 or around 3000 is required for the national estimates. For a sub-national sample the design will have to balance the need for accuracy for even the smallest sub-national areas with a proper accuracy for the largest. Hence a Kish-balanced design will be applied and a sample of around 5000 is usually required.

Rotating panel
In order to reduce the variance it is quite common to keep the sample from one year to the next. With proper GPS based GIS location based listing, this is today quite possible. However this approach has two shortcomings. First, the sample will miss all changes such as new household who have established themselves in the area during the last 12 months. Second, over a couple of years there may be a respondent fatigue among some groups and you may end up with a biased estimate. Third, when you finally have to replace the sample you are likely suddenly to face larger changes which are difficult to explain to any non-statistician. Hence a partial rotation approach will be applied. In this design half the sample will be retained from the first survey to the second survey. For later surveys the respondents will be retained for two consecutive surveys in a rotating manner. This will reduce variance and still keep control with a possible bias.

6. Data collection

The data collection will be done by mobile survey teams comprising a team-leader/supervisor, four enumerators and a driver. They will work as a team within each enumeration area. Before entering a district they will visit the district administration and learn who are in charge in each of the selected enumeration areas. The team will approach this local leader and with his/her guidance list all households in the area. The supervisor will then do the second stage sampling and identify the respondents and allocate 5 respondents in rural areas and 6 in urban areas to each enumerator. The enumerators will then interview “their” respondents the following two days.

6.1. Data collection technology

When the data collection is done by electronics forms or paper based questionnaires for scanning.
For the electronic option the enumerators will collect the answers by Tablet PCs, while the supervisors will be equipped with small PCs which will allow them to review the data-files in the field before transfer of data to headquarter.
When the data collection is done by paperforms for scanning, a messenger will pick up the forms and take them back to headquarter for processing.

6.2. Questionnaire

There will be one main questionnaire for each household. This questionnaire will comprise household level information, information for each individual in the household and additional information for various sub-groups, such as all persons in school-age or above, all person at work age, children below 5 years of age and a section for one random person 15-24 years of age. The questionnaire is presented in the Appendices document.

6.3. Field work sequence and organization

Training, pretest, and pilot-test
Training and testing should be undertaken in two steps. At the first step, the officers and main field supervisors will be trained and undertake a pretest to learn whether the questions are understood by the respondents as planned by the survey staff. Then the forms will be revised and ready for the pilot. All supervisors will be trained for field work and serve as enumerators for a pilot-test. The pilot-test should aim at testing the field approach, data entry and quality control rather than the questionnaire forms. Upon completion of the pilot-

test some modification of the field work approach may be undertaken before the general training of the enumerators is conducted.

Listing and enumeration
For the Welfare Core Survey it is recommended to use either an existing corps of decentralized field staff or mobile teams. Given the type of questionnaire and the mixture of households and individual questions a one visit field approach is sufficient.

The field work teams will include 4 enumerators, 1 supervisor and 1 driver. With a sample size of 5000 households, 3000 in rural areas and 2000 in urban areas, 150 EAs are selected in rural areas and 84 EAs in urban areas.

A total of 15 teams will each cover 10 rural EAs with a gross total of 15 x 10 x 20 = 3000 respondents and 6 urban EAs with a gross total of 15 x 6 x 24 = 2160 respondents in 10 weeks. This will yield a net sample of 5000 respondents.

Each survey staff officer would supervise 5 teams and they will all report to one field manager, i.e. survey project leader. He/she will also be assisted by two messengers who will pick up and return the questionnaires and other forms and one driver.

7. Data entry and revision

7.1. Data entry methods
There are two options for data collection and data entry, either using paper forms for scanning with optical character reading at headquarter or using tablet PCs and electronic forms.

7.2. Data entry and first round verification of paper forms for scanning
In order to ensure consistency of data entry and verification, it is recommended that this is done at headquarter. With scanning one officer and one operator may jointly do the scanning and data verification during 4 weeks. It will also allow them to produce timely quality control reports of each team, supervisor and enumerator and be able to report back at an early stage for improvement of the field work at an early stage.

7.3. Data entry and first round verification of electronic forms
The enumerators will collect the information using small tablet PCs. The electronic forms will include range and legal checks. Every evening the forms will be downloaded either through Wi-Fi access to the server or to the supervisor PC. The supervisor will check the administrative information and partial missing before sending the data to headquarter. At headquarter data will be checked for consistency and special enumerator or team bias. This will allow the headquarter team to give a feed back to each field team and if need be ask for a second visit to some respondents.

Data revision and production of analysis files
Upon completion of the field work, the field teams will summarize the work and write their field experience report. The field experience report should evaluate how the questionnaire and other forms worked in the field and where to expect proper quality of data and where to be aware of possible quality problems. This report is written both to guide the data analysis and tabulation report writings as well as future surveys.

Upon completion of the field report, the survey officers will form the survey analysis team and work jointly with the scanning team to do the second round of data editing addressing the data checks across sections and produce draft crosstables to check data quality. This work will allow the team to produce final analysis files.

8. Data processing and tabulation

8.1. Data processing and production of tabulation report

The survey analysis team will produce a statistical tabulation report, comprising 2-3 taylormade crosstables and graphs for each MDG target and other main issues. They will also produce reference tables where all subject matter variables will be presented by a standard set of background tables. The final tabulation section will present the background tables. The tabulation report will also include documentation of questionnaire, other forms, sampling approach and other methodological information.

8.2. Quality control means

The quality control framework will address quality of both product and process level. The survey process and products need quite rigid quality control at several stages.
Quality control steps:

- Questionnaire and other survey forms – the pretest
- Field work design – the pilot-test.
- Initial field work – review including data entry and tabulation of first field period (2/4 2 weeks for light/12 months survey)
- Enumerator's work – review and approval of each form by supervisor
- Consider remuneration structure, only payment for forms approved by supervisor and passing verification and/or a bonus system.
- Supervisors' work – review and approval by survey officer
- Data entry – double data entry by scanning for at least one month

9. Time line

A detailed time line showing how tasks are dependent upon previous tasks is a must. The final time line will show a further break down of tasks and weeks rather than months.

Welfare Core Survey																	
Time schedule		Time period	Year 1												Year 2	
Activity	W		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Develop draft survey documents and identifying project staff	7	1-7														
Preparation for field work and training	16	8-23														
Initial and main field work	15	24-38														
Data entry, verification, cleaning and processing	14	25-38														
Data revision, draft tabulation, tabulation report	15	39-53														
Disssemination & storage of meta data, documentation & micro data	4	54-57														

10. Budget

It is essential to include a detailed budget, both to document the need for resources and for possible revisions during the planning process. Any budget need to show unit costs, number of units and total costs. This will make it possible to adjust the total budget if need be. The budget presented below is for paper based questionnaire forms for scanning. Electronic forms will reduce costs for scanning, messengers and data revision, but will need to include investments in tablet PCs and small field PCs for the first year. It will also require some more time to design range and legal checks.

Welfare Core Survey budget		Preparatory phase			Pilot phase			Field phase			Processing phase			Project
Type of expenditures In US$	Unit costs	No	Time	Costs	No	Time	Costs	No	Time	Costs	No	Time	Costs	Total
Survey staff – months														
Management and adm.staff time	1			3 000			2 250			6 750			7 500	19 500
Survey project leader and field manager	1 500	1	2	3 000	1	2	2 250	1	4,5	6 750	1	5	7 500	19 500
Survey officers	1 000	3	1	3 000	3	2	4 500	3	4,5	13 500	3	5	15 000	36 000
Supervisor and field team leaders	500	4	1	1 000	4	2	3 000	8	4,5	18 000				22 000
Drivers	300				2	1	600	19	4,5	25 650				26 250
Messengers	300				1	1	300	6	4,5	8 100				8 400
Scanning and data verification officer	1 000				1	2	1 500	1	4,5	4 500	1	5	5 000	11 000
Scanning operator	500				1	2	750	1	4,5	2 250	3	5	7 500	10 500
Totals				10 000			15 150			85 500			42 500	153 150
Field staff – weeks														
Supervisor and field team leaders	125							8	22	22 000				22 000
Enumerators	100							64	22	140 800				140 800
Total										162 800				162 800
Field allowances - weeks														
Officers	300	4	2	2 400	4	4	4 800	4	17	20 400				27 600
Supervisors	250	4	2	2 000	4	4	4 000	16	17	68 000				74 000
Enumerators and support staff	200							89	17	302 600				302 600
Totals				4 400			8 800			391 000				404 200
Non-expandable goods - units				106 000			3 788			21 375				141 788
Expandable goods - units				41 500			8 600			98 050			14 500	162 650
Grand totals				161 900			36 338			595 925			57 000	861 788
Recurrent government contr.in US$				12 500			18 938			106 875			42 500	180 813
Recurrent government contr. in percent				8			52			18			75	21
Project funding				149 400			17 400			489 050			14 500	680 975

11. Tabulation report

The tabulation report will be designed in order to reach the target audiences, first and foremost the professional users such as policy decision makers, planners and other non-statistical subject matter specialist but also media and public at large. Hence the main outline will be as follows:

- Preface
- Executive summary, 1-2 pages
- Highlights being a presentation of 2-4 issues for each module using graphs and tables with interpretation
- Reference tables
- Methodological chapter.
- Questionnaire
- List of previous publications from the NSO covering similar statistical information

The work on the tabulation report will however move forward as follows:

- Test tabulation and final identification of background variables and values for households and individuals
- Reference tables
- Special tables and graphs for 4-6 issues for each module
- Identification of 2-4 issues for publication and writing interpretation for the chapter on highlights
- Preparing the final tabulation report

12. Storing of documents, meta-data and micro-data

The data team will use the software from the Integrated Household Survey Network under PARIS21 to store all documentation, produce meta data files and micro data on memory sticks and the Internet. Documentation and metadata will then be available for public at large, while micro-data only will be available upon request to the national statistical office and approval by the head of the institution.

Appendix 3 Welfare Core Survey Supervisor's Manual

Statistisk sentralbyrå
Statistics Norway

Welfare Core Survey 2015

Supervisor's Manual

Contents

1. Introduction

1.1. Welcome!

The success of this survey depends on your clear understanding of this survey and careful supervision of the interviews conducted by your team. For this reason this manual has been prepared.

This survey is an important tool to help policymaking in your country, and you are now a crucial part of that effort. This manual will help you to carry out your duties in the most effective manner.

The objectives of this manual are the following:

- To be used as a tool during training
- As a resource for you to consult during fieldwork
- To make the purpose and structure of the survey clear to you
- To clarify your responsibilities and to give guidance on how checking should be done

A supervisor's manual will normally contain the following information:

- The duties of the Supervisor of the supervisor as team leader
- Sampling procedures
- Verification of questionnaires
- Procedures for sending the filled in questionnaires to the Head quarters

2. Supervisors

2.1. Responsibilities of supervisors

The supervisors are the immediate supervisor for the enumerators in the team. In order for the enumerator to do a good job, s/he needs to have adequate supervision and to be able to easily request rapid assistance if required. The supervisor is responsible for making sure that the enumerator is able to do his/her work properly – that s/he has the correct information and tools needed for the job. However, the two main aspects of the job are to draw the sample (if relevant) and supervision of the field work.

Supervisor duties

The duties can be specified as follows:

- The supervisor is directly responsible for the technical execution of the fieldwork. He/she should give permanent support to the personnel he/she is responsible for, check and evaluate the enumerator's work as well as the driver and take direct instructions from the project team at the Headquarters
- Distribution of households among the enumerators. In doing so, the supervisor should be impartial. He/she should never systematically favor some interviewers. For example, avoid assigning to the same interviewer the most remote housing units or those most difficult to access. The distribution of housing units should obey rotating criteria.
- The supervisor has to ensure the quality of the work executed by the field staff. He has to verify that the responses are consistent and valid throughout the questionnaires, before sending them for processing. He should coordinate all activities for collecting the information in the selected households (see section 4 for more information).
- The supervisor should be aware and knowledgeable of customs of the areas in which he/she will operate and respect them to the extent that they do not interfere with the survey work.
- The supervisor is responsible for the behavior of his/her team. He/she takes care of the welfare of all before heading to the field (is anyone sick, hungry, etc.)
- The supervisor is a role model to his/her team.
- The supervisor is responsible for the control and maintenance of the survey equipment.

Supervisor tasks in the field

As head of the field team, the supervisor should carry out the following tasks:

- Give advice on local factors, including the translation of questions;
- Present the field team to the local authorities and request their cooperation;
- Ensure that the interviewers have all necessary documents and supplies to carry out their work;
- Locate the EAs/clusters selected in the areas assigned to his/her team;
- Select the households to be interviewed, see **Listing** (section 3 below);
- Allocate lists of selected housing units to each enumerator in his/her team;
- Accompany interviewers to the selected housing units to verify that the interviews are executed in conformity with the given instructions;
- Do rigorous monitoring of interviewers' work in order to solve problems that may occur and to avoid non-responses;
- Verify that the information corresponds to the selected housing units;
- Review the questionnaires already filled in order to control the quality of the information collected, see **Editing questionnaires** (section 5 below);
- Maintain permanent contact with Headquarters and send completed questionnaires to the Headquarter as soon as possible after the enumeration of an EA has been finalized.
- Write a field report summarizing the data collection experience and any challenges faced;
- Have full knowledge of the supervisor and enumerator manuals and the control forms and be able to apply the instructions during the interviews;
- Conduct spot interviews on the basis of a sub-sample of households for controlling data quality;
- Insist on careful handling of the questionnaires, keeping them clean, all together and unfolded;
- Report any important problems to the National Supervisor or Headquarters
- Meet with the enumerators at least twice every day, not only to give and take the questionnaires but also to check and solve any problem that could surface and make recommendations. The first meeting should take place in the morning before starting the day and the last one in the afternoon or evening to control the work done

Supervisor performance:

- The supervisor should never delegate his/her function to another person
- The supervisor should never make unnecessary gifts and promises in the name of the NSO, nor accept any bribes
- The supervisor should not make any comments about the respondents to any unauthorized person, nor divulge any information collected. This way, he/she guaranties the confidentiality of the data collected

2.2. Training of supervisors

The field supervisors (or just supervisors) will serve as an enumerator during the pre-test and pilot-test of the questionnaire. The supervisors should also participate in the main training of enumerators for the main field work and both to learn further details and to serve as training assistants towards the enumerators. Active involvement of supervisors in the training is necessary for an understanding of the role of the interviewer and the problems teams may encounter during fieldwork. Supervisors should participate with interviewer trainees in role playing interviews and supervise the practice interviewing in the field prior to the start of fieldwork. The practice in interviewing gives supervisors and interviewers experience in working together as a team.

The field supervisors will also be trained in the specific duties of supervisors. This is to ensure that all teams will be following a uniform set of procedures and to teach supervisors how to check the fieldwork and edit completed questionnaires.

3. Preparing for fieldwork

3.1. Collecting materials for fieldwork

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

- Fieldwork documents:
- Supervisors manual
- Interviewers Manual
- Maps and household listing forms for all clusters in the assigned area
- Letters of introduction to local authorities
- Questionnaires
- Control forms

Supplies:

- Blue/ black pens for interviewers
- Red pens for supervisors
- Clipboards, and satchels
- String, staplers and staples, cello tape, etc.
- Envelopes to store completed questionnaires

3.2. Arranging transportation and accommodations

It is the supervisors' responsibility to make all necessary travel arrangements for his or her team, whenever possible, in consultation with the Headquarter. Vehicles are generally provided to transport the team to assigned work areas; however, in some cases, it may be necessary to arrange for other means of transportation. The supervisor is responsible for the maintenance and security of the team vehicle. The vehicle should be used exclusively for survey related travel, and when not in use, it should be kept in a safe place. The driver of the vehicle takes instructions from the supervisor.

If they wish, interviewers may make their own food and lodging arrangements, as long as these do not interfere with fieldwork activities or break the team spirit. Lodging should be reasonably comfortable, located as close as possible to the interview area, and provide secure space to store survey materials. Since travel to rural clusters is often long and difficult, the supervisor may have to arrange for the team to stay in a central place.

3.3. Contacting local authorities

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

3.4. Contacting the central office

Each supervisor should arrange for a system to maintain regular contact with the central office staff before leaving for the field. Regular contact is needed for supervision of the team by central office staff, payment of team members, and the return of completed questionnaires for timely data processing.

3.5. Using maps to locate clusters

A major responsibility of the field supervisor is to assist interviewers in locating households in the sample. The supervisor will be supplied with maps and a copy of the household listing for each of the clusters in which his/her team will be working. These documents enable the team to identify the cluster boundaries and to locate the households selected for the sample. The representative-ness of the whole survey depends on finding and visiting every sampled household.

Regional or district maps help the supervisor to determine the location of sample areas and the distance between them, while general cluster maps and sketch maps of the sampled clusters will help identify how to reach selected households or dwellings.

Each team will be given general cluster maps, household listing forms, and sketch maps and/or written descriptions of the boundaries of selected areas.

4. Listing

The first most important task for the supervisor is to organize the listing of households in each enumeration area and then draw the sample of households to be enumerated.

You will start by identifying the village headman and show him/her the authorization for the survey from the Ministry. You will then tell him/her that you like to hire either himself/herself or another person as a local guide to assist you in listing all the households in the EA.

There are two approaches for listing of households. Either the whole team follows the guide around to all households or you get assistance from the guide to split the EA in one part for each enumerator. In both cases you will assign each enumerator to list and number all households in their part of the enumeration area. Each enumerator will be assigned a number series. If there are four enumerators, the number series would be 101-199, 201-299, 301-399, and 401-499.

In any case, it is important that the household number is written with chalk on the main building of the household.

We recommend that each enumerator is assigned their part of the EA. In that case, you and the guide will check the work by moving around and verify the lists at the end of work. It is especially important to make sure that even households in the more remote part of the EA are included.

When you have satisfied yourself that the enumerators have thoroughly listed the Enumeration Area [correctly identified the boundaries] and included all the necessary information in the listing form, the next step is to do the sample selection. You will make the selection in the evening of the day you did the listing.

Start by renumbering all households in a continuous series starting with 001. Be sure that all households are numbered so that each household within the EA has a unique 3 digit number.

We are to use systematic sampling to select the **20 (or 24) households**, as described here:

- Divide the number of households in the Enumeration Area by the total number of households to be selected. Example: If a rural EA has 546 household, the resulting figure is 27,3.
- Select the first household to be sampled from a list of random numbers. You find a random number generator in many cell phones. You may also use the list of random numbers presented below. In that case you should start at a new row every time and select the first number which is equal to or less than the resulting figure. In the example case that is number 08. If none of the numbers in the row is low enough, you continue in the next row. When you come to the last row, you continue at the top again.
- Then select the other households to be enumerated by systematic random selection. That is to continue in a systematic manner from the first randomly selected household and add the resulting figure 19 times. You will then select 08, 08+27=35, 08+2x27=62, …… 08+19x27=521

Random numbers												
38	55	59	55	54	32	88	65	68	80	08*	35	55
17	54	67	37	04	92	05	24	65	15	55	12	12
32	64	35	28	61	95	81	90	24	31	00	91	19
69	57	26	87	77	39	51	03	59	05	14	06	04
24	12	26	65	91	27	69	90	64	94	14	84	54
61	19	63	02	31	92	96	26	17	73	41	83	95
30	53	22	17	04	10	27	41	22	02	39	68	52
03	78	89	75	99	75	86	72	07	17	74	41	65
48	22	36	33	79	85	78	34	76	19	53	15	26
60	36	59	46	53	35	07	53	39	49	42	61	42
83	79	94	24	02	56	62	33	44	42	34	99	44

At this stage you will renumber the households from 01 to 20. But make sure that the original listing number from the 4 number series 101-199, 201-299, 301-399, and 401-499 are also included.

Then you would assign ¼ of the selected households to each of your enumerators. You would usually give each enumerator the same number of households, but if the village and EA include some very remote compounds, you will consider this when assigning the number of households. If the team split in four for the listing, each enumerator will find it easier to return to some of the household he/she listed, hence they should be assigned households they have listed themselves as far as possible.

5. Organizing and supervising fieldwork

5.1. Assigning work to interviewers

The following tips may be helpful to the supervisor in assigning work:

- Make daily work assignments. Be sure each interviewer has enough work to do for the day, taking into account the duration of an interview and the working conditions in the area. It is suggested that in rural areas 20 households are selected, and 24 households in urban areas.
- Distribute work fairly among the interviewers. Work should be assigned taking into account the capabilities and strengths of each interviewer but never consistently assigning more difficult workloads to certain interviewers. Drawing numbers out of a hat is a good system to ensure that team and interviewer assignments are distributed on a random basis and that interviewers are aware of this. Bad feelings among the interviewers can be avoided by using this system. If an interviewer is unlucky and consistently draws difficult assignments, the supervisor can purposely provide him/her some easier assignments.
- Ensure that each interviewer has all the required information and materials for completing the work assignment.
- Maintain complete records each day.. All assignments and work completed by each interviewer and for each work area should be carefully monitored for completeness and accuracy.
- Finally, it is the responsibility of the supervisor to make sure that the interviewers fully understand the instructions given to them and that they adhere to the work schedule. The work schedule is prepared in advance by the central office, and adherence to it is crucial to avoid overruns in the total amount of time and money allocated for the fieldwork. Supervisors should also monitor the work of each interviewer to assess whether she or he is performing according to the standards set by the central office.

5.2. Monitoring interviewer performance

Controlling the quality of the data collection is the most important function of the supervisor. Throughout the fieldwork, he/she will be responsible for observing interviews and carrying out field editing. By checking the interviewers work regularly the supervisor can ensure that the quality of the data collection remains high throughout the survey. It may be necessary to observe the interviewers more frequently at the beginning of the survey and again toward the end. In the beginning, the interviewers may make errors due to lack

of experience or lack of familiarity with the questionnaire; these can be corrected with additional training as the survey progresses. Toward the end of the survey interviewers may become bored or lazy in anticipation of the end of fieldwork; lack of attention to detail may result in carelessness with the data. To maintain the quality of data, the supervisor should check the performance of interviewers thoroughly at these times.

5.3. Observing interviews

Observing the fieldwork is one of the main tasks of the supervisor and one of the most important for the quality of the data. Supervision is an integrated part of the training program of the enumerators, it provides the supervisors the opportunity to observe the progress of the survey. This activity allows the supervisor to better comprehend the problems concerning the data collection process and reinforce his/her ability to support the enumerators.

The first observations are extremely important in identifying the areas where the enumerators need additional training. During the first interviews the supervisor should observe all the enumerators if possible on a daily basis. After the first interviews, the supervisor should make some unannounced visits to each interviewer. He/she should pay attention to those enumerators who seem to have difficulty complying with some tasks.

The supervisor should organize the supervision in a way to be physically with the enumerators (on the basis of a rotating system) and ensure that the supervision work will be done completely. For example, the supervisor could attend interviews in the morning and verify questionnaires in the afternoons.

In attending interviews the supervisor should observe the following rules:

- Never obstruct an interview. His/her presence should not make either the respondent or the interviewer uncomfortable or embarrassed;
- Never interrupt an interview to correct an interviewer;
- Correction and revision of errors should be done after the interview;
- Never reprimand an interviewer in the presence of a respondent.

The purpose of the observation is to evaluate and improve interviewer performance and to look for errors and misconceptions that cannot be detected through editing. It is common for a completed questionnaire to be technically free of errors but for the interviewer to have asked a number of questions inaccurately. Even if the supervisor does not know the language in which the interview is being conducted, she can detect a great deal from watching how the interviewer conducts herself, how she treats the respondent, and how she fills out the questionnaire. The supervisor should observe each interviewer many times throughout the course of fieldwork. The first observation should take place during interviewer training and may also be used as a screening device in the selection of interviewer candidates. Each interviewer should also be observed during the first two days of fieldwork so that any errors made consistently are caught immediately. Additional observations of each interviewer's performance should be made during the rest of the fieldwork. The supervisor should observe at least one interview per day per enumerator during the course of the fieldwork, with the heaviest observation at the beginning and end.

During the interview, the supervisor should sit close enough to see what the interviewer is writing. This way, he/she can see whether the interviewer interprets the respondent correctly and follows the proper skip patterns. It is important to write notes of problem areas and points to be discussed later with the interviewer. The editor should not intervene during the course of the interview and should try to conduct himself/herself in such a manner as not to make the interviewer or respondent nervous or uneasy. Only in cases where serious mistakes are being made by the interviewer should the supervisor intervene.

After each observation, the supervisor and interviewer should discuss the interviewers' performance. The questionnaire should be reviewed, and the supervisor should mention things that the interviewer did correctly as well as any problems or mistakes.

5.4. Evaluating interviewer performance

The supervisor should meet daily with the interviewers to discuss the quality of their work. In most cases, mistakes can be corrected and interviewing style improved by pointing out and discussing errors at regular meetings. At team meetings, the supervisor should point out mistakes discovered during observation of interviews or noticed during questionnaire editing. He/she should discuss examples of actual mistakes, being careful not to embarrass individual interviewers. Re-reading relevant sections from the Interviewers Manual together with the team can help resolve problems. The field editor can also encourage the interviewers to talk about any situations they encountered in the field that were not covered in training. The group should discuss whether or not the situation was handled properly and how similar situations should be handled in the future. Team members can learn a lot from one another in these meetings and should feel free to discuss their own mistakes without fear of embarrassment.

The supervisor should expect to spend considerable time evaluating and instructing interviewers at the start of fieldwork. If they feel that the quality of work is not adequate, the interviewing should stop until errors and problems have been fully resolved. In some cases, an interviewer may fail to improve and will have to be replaced. This applies particularly in the case of interviewers who have been dishonest in the recording of ages of women and/or children.

Spot interviews

During a spot interview, the enumerator returns to a household which has been interviewed previously and re-interviews it.

Spot interviews are necessary for two reasons:

- To check whether the enumerator has omitted an item or information. If so, the supervisor should send the enumerator back to collect the missing information;
- To verify if an interviewer really executed the interview in the proper household. Particularly at the beginning of the fieldwork, when the enumerators are not yet fully familiar with applying the questionnaire, the supervisor should make frequent spot interviews, as many as possible, as the workload would permit it.

The supervisor should make re-interviews on a sub-sample of at least one household per EA/cluster. This is particularly necessary during the first week of implementation of data collection. The objective of this task is to establish a comparison between the initial interview executed by the enumerator and the second one done by the supervisor. This being done, the errors or differences noted will be discussed with the enumerator in order to avoid their repetition. This practice should continue even after the first week in order to keep the interviewers alert, knowing that his/her work can effectively be monitored and controlled at any time.

6. Editing questionnaires

Ensuring that questionnaires are edited for completeness, legibility, and consistency is the most important task of the field supervisor. *Every* questionnaire must be completely checked in the field. This is necessary because even a small error can create much bigger problems after the information has been entered into the computer and tabulations have been run. Often, small errors can be corrected just by asking the interviewer. For example, if an answer of 2 MONTHS is inconsistent with another response, the interviewer may recall that the respondent said 2 years, and the error can easily be corrected. In other cases, the interviewer will have to go back to the respondent to get the correct information. Timely editing permits correction of questionnaires in the field.

Since errors make the analysis of the data much more difficult, the data processing staff has prepared a computer program that will check each questionnaire and print out a list of all errors. If the errors are major ones, an entire questionnaire may be omitted from the analysis. As you are editing questionnaires in the field, it may help to try imagining how the questionnaire would look to a clerk in the office. Would he or she be able to read the responses? Are the answers consistent? Since editing is such an important task, we have prepared a set of instructions that describe the procedures for editing questionnaires.

6.1. General instructions

As you go through the questionnaires, if a response is missing (that is, there is no answer recorded because the question was not asked) or the response is inconsistent with other information in the questionnaire and you cannot determine the correct response, put a question mark next to the item **with a red pen.** Write the page number or the question number on the front or back of the questionnaire; this way, you can quickly remember later what problems you found. When you have completed the editing, discuss with each interviewer, individually, the observations you found. Any errors that you find frequently should be discussed with the whole team.

6.2. Procedures for verification

There are three levels of verification. Level 1 is compulsory for ALL questionnaires – this is the routine checking you must perform for every questionnaire you receive. Level 2 is more detailed verification. Level 2 checking should be done regularly, and in the first few days of the survey (while enumerators are not yet fully familiar with the questionnaire) Level 2 checking should be completed for ALL questionnaires. Level 3 verification is complete checking of the entire questionnaire. Level 3 verification should be employed when mistakes are found in a questionnaire or you have a reason to believe that a particular enumerator is making mistakes.

After verification of any level has been performed on a questionnaire, do not forget to provide feedback to the enumerator. Correct any mistakes and explain them to the enumerator. If no mistakes are found, let the enumerator know that he or she is doing well.

Level 1 – compulsory manual editing (all questionnaires)

Verify the cover page (Module A). Verify that:

- All geocodes are filled in correctly, including the EA code.
- The household number is correctly filled in (identical to that found on the listing form)
- All items are filled in
- A14 is filled in and correct (both parts). This is very important! Even if only one questionnaire was used, both boxes should be filled in.

Now check the rest of the questionnaire:

- Check C1/C2, D1/D2, G1/G2, and I1/I2 against B1 and B2. Make sure that each household member has the correct member number in C2, D2, G2, I2 against B1. This is very important!
- Make sure that there are no marks in the area of the reference number or the questionnaire ID.
- Make sure that the page corners are not folded or torn apart on top of the reference number.

Level 2 – regular checks

First, complete the level 1 verification. Then proceed:

- Verify that section F is completely filled in for every household. Every question should be answered.
- Household head will be listed in column 1 on the first form. Column 1 on any subsequent forms left blank.
- Verify that there is information for each question from B1 to B4 for each listed individual.
- Verify that the proper individuals have responses corresponding to their age and sex at the beginning of the following sections:

Section B	
B1-B5	All members
B6	All members 12 years and above
B7-B10	All members below the age of 18
Section C	
C1-C11	All members 5 years and above
Section D	
D1 to D10	All members 10 years and above
Section G and H	
G1-G9, H1-H5	Children less than 5 years old (check that all are listed in I1, from all forms used for this household)
Section I	
I1-I13	Women 15-49 years old who gave birth during the last 24 months
Section J	
J1-J7	Randomly selected member, 15 years or older

Check that the following skip instructions have been respected:
Module B
B6 is skipped for people less than 12 years of age
B7 to B10 skipped for people over 18 years of age

Module C skipped for people under 5 years of age
C4 = no, go to next person or if last person to D1
C5 = no, go to C8
C9 = no, go to C11

Module D is skipped for people less than 10 years of age
D3-D5 = yes, go to D7
D7 = no, go to D3 for the next person or to section E if this is the last person

Module G is skipped for people 5 years and above
G6 = no, go to G8
G8=no, go to next person or if last person go to H1

Module H is skipped for people 5 years and above
H1=no, go to H5
H2=no, go to H5
H5=no, go to next child or if last child go to I1

Module I is answered by women 15-49 years
I1 = no, go to J
I4 = no, go to next woman or if last woman go to J1
I6 = no, go to next woman, or if last woman go to J1

Module J is answered by one randomly selected household member 15-24 years of age

Level 3 - complete verification
First complete Level 1 and Level 2 verification, then proceed:
Check the following for all questions:
That only one answer marked, except where multiple answers are permitted .

Section B
Head of household is listed in column 1 with a consistent age. If head younger than 15 years, check if this is really the head
B3 (relation with the head) should be consistent with B4 (sex) and B6 (marital status)

Section C
C11 (highest level completed) is consistent with B5(age)
C6 (current level) is consistent with B5 (age) and C11 (highest grade completed)

Section G
Member number of the children should correspond to a child number in Section B, a child that is not yet 5 years (check B5)

Section H
Member number of the child should correspond to a child number in Section B, a child that is not yet 5 years (check B5)

Section I
Check that age is 15-49 (B5) and sex is female (B4)

Section J
Check that code number of respondent (J1) should be valid (B1), age 15-24 (B5),and first name should start with a letter earlier in the alphabet than those of the other 15-24 household members (B2)

6.3. Forwarding questionnaires to the head office

After all the checking described above has been completed, the field supervisor should put all the questionnaires along with the Supervisors Assignment Sheet and the sketch maps for the sample point into the envelopes provided. On the outside of the envelope, he/she should write the cluster number, the name of the locality, and the number of Household Questionnaires for that cluster. If the questionnaires are too bulky to fit into one envelope, he/she should use two or more and write PACKET 1 OF 3, PACKET 2 of 3, etc. on the outside of each envelope. The packets should be kept securely until they can be transported to the central office by a messenger. It is very important that questionnaires are bundled and labeled properly and protected from dampness and dust

7. Supervisor's Manual Appendix 1: GPS

7.1. About the GPS tool

A GPS is in principle a high precision digital watch combined with a signal receiver. It is equipped with 2 AA Duracell alkaline batteries (or Energizer batteries), and only this type of batteries should be used. The Supervisor will be responsible for ensuring availability of batteries. The GPS equipment should be handled with great care and stored in a safe cool and dry place when not in use. If necessary to change batteries, be sure that the new batteries are positioned correctly.

The GPS makes it possible to find the geographical position on the earth surface by longitude and latitude (ref. representation point above). The position is found by continuously measuring the time that a signal uses to reach from satellites in the sky to the signal received by the GPS device on the earth surface. Clear signals from at least four satellites are necessary to calculate the geographical position with reasonable accuracy. The better sight to the sky the GPS device has, the clearer and more signals are received. Shadows of trees, buildings etc. should be avoided while using the GPS equipment in the field.

8. Step by step instruction for use of GPS, Garmin e-trex vista for household listing

Start up and Reset for new waypoint listing

1. Go near to the location (compound entrance, house entrance etc) *of the first household you plan to list in an EA*. Find a location with free sight to the sky.

2. Switch on the GPS by pressing and holding the lowest right side button of the device for ca half a second. The GPS will respond with an e-trex opening page in the display "owned by SSCCSE".
3. Stay still with GPS free sight to the sky, press the upper right side button once and let the GPS search for satellites signal (1-2 minutes - variation). You will see an image of the satellite positions on the display and also indicators on the strength of signals received (black bars pulsing).
4. When at least 3 satellite signals are received (3 or more black bars visible on the lower part of the display), press the upper right side button repeatedly until the GPS display shows the page with icons for "Mark", "Find" , "Routes", "Tracks" , "Setup" etc .
5. Use the "rocker" button located just over the display and move the black cursor on the display in position over the "Find" and press the "rocker" button 3 times. (Pressing three times moves you to submenus "Find" > "Waypoints" > "By name")
6. In the display you now see partly the waypoint list and partly an alphabetic key board. The cursor is locked inside the key board.
7. Use the "rocker" button and move the black cursor in the keyboard to the "OK" field and press "OK". Then the alphabetic keyboard disappears
8. Use the "rocker" button to scroll the black cursor up to the very top of the display and highlight the "Menu" symbol just left of the "X" field. Press the "Rocker". A menu with "Find nearest", "Delete all" and "Delete by symbol" appears in the upper half of the display.
9. Use to "Rocker" button and scroll the black cursor to "Delete all" and press the "Rocker button".
10. Use the "Rocker" and scroll the cursor to "Yes" and press. *This will delete all the old waypoints in the GPS memory and you are ready to start a completely new listing exercise.*

Start registration of way points

1. Press the upper right side button repeatedly until the GPS display shows the page with icons for "Mark", "Find", "Routes", "Tracks "Setup" etc.
2. Use the "Move" button to *scroll the black cursor in to position over "Mark"*. You are now ready to start to mark waypoints for households in the Enumeration area.

Mark a waypoint

1. Be sure that you are in front of a house or other position where the household is located, be sure that the GPS have free sight to the sky and that signals from at least 3 satellites are received. Press the "Rocker" button over the "Mark" field twice (first click gives you a new waypoint page – second click means OK and storing the waypoint) and thereby enter a new way point to your GPS internal memory waypoint list. Repeat this exercise *for each household in the EA*.
2. When all households are "listed" with the "Mark" function, or you temporary break off the exercise (if long distance between the households, or other breaks) switch off the GPS by pressing the lower right side and hold it for ca half a second.
3. Start the GPS by following step 2-3 described under B2 above
4. To see the waypoint list created, use the "Rocker" button to scroll the cursor over "Find" and press the move button 3 times through the following menus "Find" > "Waypoints" >"By name" and the waypoint list appears in the display.
5. Use the "Rocker" button to see and take note of specifically selected waypoints i.e. N/E coordinates and other characteristics
6. Press upper right button to come back to the previous page.

9. Set up of GPS GARMIN e-trex vista (done by the supervisor before the listing starts)

- Switch on GPS and press upper rights side button repeatedly until main menu appears at the display.
- Scroll to "Set up" and press "Move" button
- Activate "Units" and set up as follows:
    - Position format: hddd.ddddd
    - Map datum: WGS 84
    - Distance/Speed: Metric
    - Elevation: Meters
    - Depth: Metric
    - Pressure: Millibars
- Activate "System" and set up as follows:
    - GPS: Normal
    - WAAS: enabled
    - Language: English
    - Compass: On
    - Battery: Alkaline (Use DURACELL AA Alkaline only)
    - Auto calibration: On
- Activate "Time" and set up as follows:
    - Time format: 24 h
    - Time zone: Other
    - UTC Offset: +04hrs 00 min
    - Time: etsdTUMuse scroll to main menu "
- From Main menu activate "Find" and do the following set up:
    - Scroll and press "Go to" waypoint and set up lower right cell to "accuracy" and lower left cell to "distance"

Supervisor's Manual Appendix 2: Code Descriptions (from ISIC)

Country specific codes (Codes based on ISIC rev. 4)

11 Agriculture - crops/forestry

This includes any activity relating to the cultivation of crops, such as ploughing, planting and harvesting. It includes some basic post-harvest activities, such as threshing, but it does not include further processing of crops, such as production of flour. This also includes both growing trees and harvesting wood from wild forests. It does not include making charcoal, since this is manufacturing.

12 Agriculture – animal husbandry

This includes any activity relating to the rearing and slaughtering of animals, such as herding cattle or other livestock, tending birds, bee-keeping, slaughtering animals and hunting. It also includes milking animals. It does not include making dairy products, leather, or other processed animal products.

13 Fishing

This includes both fish-farming and catching wild fish.

14 Mining & quarrying,

This includes working in the petroleum sector, as well as all other mining and quarrying activity.

15 Manufacturing

This includes any industry in which goods are made from raw materials and/or other unfinished goods. This includes processing of crops and animal products, for example production of flour, dairy products, charcoal, and leather. It also includes repair and installation of machinery, except for repair of motor vehicles.

16 Electricity and water supply

This includes provision of electric power supply, distribution of piped water and removing of sewage or other waste from households and businesses. But it does not include sale of charcoal, petrol and any other type of energy. Nor does it include sale of service such as exchange of small gas tanks or supply of water by a water tank car.

17 Building and construction,

This includes roads, bridges and other civil engineering projects as well as buildings.

18 Trade

This includes wholesale and retail trade and any industry in which goods are bought and re-sold without being changed.

19 Repair

This includes all types of repair such as of motor vehicles, motorcycles and domestic appliances.

20 Transportation

This includes land transport of people and goods (e.g. mini-buses or trucks carrying goods), water transport, air transport, and postal services. It also includes warehousing for goods being transported. It does not include telecommunications (e.g. working for telephone companies) since this is part of 'Information and communication'.

21 Accommodation and food service

This includes all hotels, restaurants and cafes, as well as catering companies.

22 Information and communication

This includes TV, radio, newspaper, and any other publishing or broadcasting activities. It also includes telecommunications, computer programming and other information technology.

23 Financial, professional, administrative and support service

This includes banking, insurance and all types of financial services, buying and selling of land and property, law, accounting, architecture, scientific research, advertising and veterinary activities, rental and leasing activities, travel agencies, security services, and other business support activities.

24 Public administration and defence

This includes soldiers and civil servants of all levels of government. It does not include all public sector employees: for example, teachers employed by the government are in 'Education' and doctors are in 'Human health and social work'.

25 Education

This includes all education, both public and private.

26 Human health and social work activities
This includes all types of health service both public and private and from school medicine doctors and nurses to traditional healing.
27 Arts, entertainment and recreation
This includes all types of art, culture, entertainment and recreation except accommodation, food service and travel agencies.
28 Personal service
This includes all types personal service activities except domestic services provided in a home.
29 Domestic services
This includes all types of domestic services such as cleaning, cooking, and child care
30 Embassies and international organizations
This includes UN agencies, foreign embassies, and international and foreign NGOs

Supervisor's Manual Appendix 3: Province/ District names & codes

Country specific

Supervisor’s Manual Appendix 4: Events calendar - 1955 to 2015

Country specific

Appendix 4 Welfare Core Survey Enumerator's Manual

Statistisk sentralbyrå
Statistics Norway

Welfare Core Survey 2015

Enumerator's Manual

Contents

1. Introduction

1.1. Welcome!

Welcome to the WCS team! We're very glad you could join us.

This manual has been designed and written for you, the enumerator. The success of this survey depends on your clear understanding of this survey and careful administration of the interviews you conduct That is why this manual has been prepared.

The objectives of this manual are the following:

- To be used as a tool during training
- As a resource for you to consult during fieldwork
- To clarify the manner in which you should ask each question
- To make the purpose and structure of the survey clear to you

This survey is an important tool to help policymaking in the country and you are now a crucial part of that effort. This manual will help you to carry out your duties in the most effective manner.
The main content of the enumerator's manual will be as follows:

- The objectives of the survey
- Duties of the enumerator
- Definitions of main concepts
- Field work, i.e listing and enumeration. The main focus will be on how to fill in and interpret the survey questionnaire. The field work is described in more detail later in the chapter.

The survey organization, including staffing requirements as well as sampling will also be covered in the manuals.

1.2. The objectives of the WCS

The Welfare Core Survey has three major objectives, as follows:

- To provide information on the level of socio-economic MDG-indicators, national development plan indicators and core sector information at a given point in time
- To provide information on the changes in socio-economic MDG-indicators, national development plan indicators and core sector information over a decennial period allowing for monitoring of the impact of resource allocation and policy decisions over time.
- To provide a means to link more detailed sector information to the basic socio-economic information.
-

2. Field work and organization of the survey

2.1. Central Management

The central management of the project will be the responsibility of the WCS project team at NSO. Senior statisticians from the NSO will be responsible for the training of field staff and data entry clerks and the supervision and monitoring of fieldwork. This team will also be responsible for technical and administrative tasks of all the survey steps. Finally, this team will oversee and carry out the data analysis and the production of the final report.

The WCS project team reports to the NSO management and may be supported by experts from development partners of the NSO.

Mobile teams

The survey work will be carried out by mobile teams. Each team will consist of the following members:

- A team supervisor
- 4 enumerators
- A vehicle with a driver

It is planned each field team will cover a mix of urban and rural EAs and a total of 16 EAs. The allocation of work areas to the teams will be done in such a way as to minimize travelling time.

Local authorities
The local authorities will be contacted and informed of the team coming in by the supervisor. Coming into a local community, the supervisor will present him-/herself to the administrator (the local community leader) and request their assistance to locate the EAs/clusters where the survey will be done.

2.2. Execution of the field work. Responsibilities in the field

Drivers
The drivers are responsible for driving the team cars, ensuring maintenance of the cars and transport the team members to the areas selected for the survey. They are under direct order of the supervisor.

Messenger
The messengers will be set up with motorbikes. They are responsible for transporting the completed questionnaires from the field teams to the headquarter and return with information on the next EAs, EA maps and a new load of questionnaires. Each messenger will serve two field teams. They will also take care of minor maintenance of the motorbike. They are under direct order of the two teamleaders/ supervisors they are serving.

Enumerators
The enumerators will be collecting the information from the selected households.

Supervisors
The team supervisors will supervise the work of the enumerators. In turn, the team supervisors will be supervised by the national WCS staff.

Your *team supervisor* will assess your work. After you submit the household questionnaires to your field supervisor upon completing your interviews, he or she will return to you those of your questionnaires that are incomplete or that contain errors. If time allows, you will have to go back to the survey households to make the corrections.

Project management
At NSO headquarter, the *national WCS project group* will operate under the oversight of the NSO management. Data entry will be done through optical reading, at the head office.

Analysis of the data that you collect will be undertaken by the WCS project group and by other statisticians at NSO.

2.3. The role of the enumerator

The roles of the enumerator include, but are not restricted to, the following:

- by the help of the supervisor locating structures and dwelling units in the sample Enumeration Areas (EAs) which are assigned to him/her by the supervisor;
- identifying all persons in each household and conducting interviews in accordance with the procedures described in this manual;
- going through the questionnaire, after completing an interview and ensuring that all questions are properly filled-in and that questions not meant to be filled-in are completely clean and free of marks;
- making call-backs to households for which information on some members was not available at earlier visit, if that is possible within the timeframe the team is staying in the EA or nearby;

- verifying questionnaires completely before handing them over to the supervisor and most of all before leaving the locality.

Apart from minor editorial errors, the enumerator should never correct a questionnaire without asking the respondents the questions again.

Selecting the main respondent
Only one person per household is to be enumerated, the household head, or another adult, preferably 18 years or older, who is knowledgeable regarding the households affairs. The exceptions are the child modules, which should be answered by the mothers or guardians of children under five years, and the HIV/AIDS module, where a randomly selected household member 15 years and above should be asked. See section 5.1 for more details on choosing the main respondent.

Usually you will speak with the head of household when you visit a house and explain the reason for your visit. If the head of household is not available, then you should ask to interview the head of household's spouse or other responsible adult members of the household (the person should be at least 15 years of age).

If not one of the acceptable respondents described above is available, ask when you can return to speak with one of these persons.

When interviewing, try to ask questions of adult household members directly when they are present. In cases where head household or any adult member provides the particulars of the children, you should try to see the children if they are present at the time of interview. To ensure confidentiality, explain that neighbors must not under any circumstances be present during the interview.

Households without acceptable respondents
If an acceptable respondent cannot be found, ask a neighbor when you might be able to find the responsible members of the family or an acceptable respondent at home. Your supervisor will assist you in selecting a replacement household for the interview.

Interacting with respondents
When an enumerator is approaching a respondent for the first time he/she should:
- Choose words that will make the respondent feel free and at ease for the interview.
- Dress appropriately: proper clothing and attire are strictly required as a sign of respect to the respondents and as a representative of the implementing institution.

Introduction.
To introduce himself/herself, the enumerator will clearly state his/her name, show the enumerator's identification card and request politely to talk to the head of the household or any adult member who has knowledge about the household.

The enumerator should also be able to state the objectives of the survey.

Neutrality during interview
Most respondents are polite and will tend to give answers they think the enumerator wants to hear. It is therefore very important that the enumerator remains absolutely neutral as he/she asks questions. The enumerator should not, either by facial expression or by tone of voice, allow the respondent to think he has given the 'right' or 'wrong' answers to the questions.

Maintain the sequence of the questions
The sequence in the questionnaire must be maintained. If the respondent misunderstands a question, the enumerator should explain the purpose of the question. To follow the sequence of the questions the enumerator should respect the filter and skip instructions indicated in the questionnaire.

Be tactful.
In a situation where the respondent shows no interest, acts bored, detached, contradicts previous answers or refuses to answer the questions, the enumerator must tactfully bring back the respondent's interest in the interview**.**

Do not hurry the interview
You should ask questions slowly and give the respondent time to think to ensure that he/she understands what is being asked. If the respondent is not allowed to think and formulate his/her opinion the response may be "don't know" or he/she may give an inaccurate answer. If the respondent seems to be responding slowly there is no need to hurry or to discontinue the interview.

Do not express any sensitive opinions
You *must not* express your religious or political inclinations during your interviews.

Unusual situations
Most of your interviews will be simple and go smoothly. However, we will discuss some rare situations that may occur so that you will know what to do.

Language barriers
If a respondent speaks a language that you do not speak, try to find someone else in the household who speaks English or a language you understand. Kindly ask the person if they would interpret your questions to the respondent and the respondent's answers to you. Notify your supervisor if you are unable to solve the problem within the household.

Respondent refuses to be interviewed
You may encounter a household that is unwilling to be interviewed. You should make every effort to persuade the household to grant you an interview. If you are unsuccessful, you should:

- Explain the necessity of their participation for a representative selection of households
- Tell them their answers will be used to inform decision-makers about the people and needs of their community and country.
- Inform them that their responses will be kept confidential.
- Take help of community leaders and your supervisor.

If you are unable to convince them to be interviewed:

- Note the location of the building/compound on your EA map.
- Contact your supervisor as soon as possible.

Do not provide false information. Submitting made-up information is worse than receiving no information

Incomplete information for persons or households
If the respondent cannot give you complete information about a person:

- Find out when that person or someone more knowledgeable about that person will be home.
- Complete as much information as possible for that person during your current visit. Many times the respondent will be able to provide the majority of information.
- Arrange a time with the household for your return visit to complete the questionnaire. Make a note in your notepad of the return date and location of the household
- Do not allow this to take a large part of your time. Try to gather information for all persons during the first visit.
- If you are unable to get complete information on a person tell your supervisor.

Definition of main concepts
Definitions of main concepts will have to be country specific, unless there are internationally accepted standards.
However, the following concepts are crucial to the correct implementation of the survey, and should be given special considerations.

- Household
- Head of household
- Household member

UN statistical office provides a standard definition of household: *The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food and other essentials for living. A household may be either (a) a one-person household, that is to say, a person who makes provision for his or her own food and other essentials for living without combining with any other person to form a multi-person household or (b) a multi-person household, that is to say, a group of two or more persons living together who make common provision for food and other essentials for living. The persons in the group may pool their resources and may have a common budget; they may be related or unrelated persons or constitute a combination of persons both related and unrelated.*

A standard and shorter definition of a household is a group of people who live together, pool their money, and eat at least one meal together each day.

A household may be either a person living alone or a group of people, either related or unrelated, who live together as a single unit in the sense that they have common housekeeping arrangements (that is, share or are supported by a common budget). It is possible that individuals who are not members of the household may be residing with the household at the time of the survey. In most cases, but not all, someone who does not live with the household during the survey period is not a current member of the household.

The head of the household is defined as that person in the household who is acknowledged as such by the other members. Countries may use the term they deem most appropriate to identify this person (head of household, household reference person, or others) as long as solely the person so identified is used to determine the relationships between household members

Usual members in a household are defined as those who have lived in the household for at least 6 months in the past 12 months. However, it includes persons who may have spent less than 6 months during the last 12 months in the household but have joined the household with intention to live permanently or for an extended period of time.

It is important to recognize that members of a household need not necessarily be related by blood or by marriage. On the other hand, not all those who are related and are living in the same compound or dwelling are necessarily members of the same household. Two brothers who live in the same dwelling with their own wives and children may or may not form a common housekeeping arrangement. If they do not, they should be considered separate households.

2.4. Listing

The field work in each EA will start with the listing of all households.

The supervisor will take the whole team to meet with the village headman or another local contact-person and find a local guide.

The supervisor will with the assistance from the guide split the EA in four parts. Each enumerator will list and number all households in their part of the enumeration area follow an assigned number series such as 201-299.

The supervisor and guide will tell you in which direction to move and which areas to cover.

For each compound and potential household you will identify the household and record the name of the head of household and the number of persons (adults and children) living in the household (including all members who are present or temporarily away). You will then write the same number with chalk outside the main entrance.

You will then hand over the list to the supervisor.

The next morning the supervisor will assign you a sample of households for enumeration. This will usually be some of the households you have listed, but you may also have to enumerate some other households. At that stage the supervisor will re-number the selected households from 1 to 20, but even the number from the listing will be retained and allow you to locate the households.

You will usually be assigned ¼ of the selected households for you to enumerate, but if the village and EA include some very remote compounds, you may be assigned one or two less or extra to compensate for remote allocation.

2.5. EA maps and their use

An Enumeration Area (EA) is a "statistical area" which was created for use during the fieldwork of the Population and Housing Census 2008. It has later been used for several surveys. At the time it was created in 2007, it was populated by 150 – 200 households in average. Some of the EAs are very big in number of Households, exceeding 1 000. However this may have changed due to returnees and other reasons. An EA is located within the lowest administrative unit - the Boma. An EA can contain part of a village, several villages or part of an urban area.

2.6. Getting to know your EA

You will be given a map of your EA at the start of the fieldwork. When you arrive at your EA, you should get to know your EA and understand how to read the map. Use your map to:

- Plan the path you will walk during total listing of all households. Eventually you have to decide how to do a sub area exercise if the EA is expected to exceed 200 households
- Plan the path you will use to visit the selected household
- Plan meetings with your supervisor during enumeration
- Note the locations of problems that require call-backs and/or supervisor assistance

After deployment to your EA, you must first familiarize yourself with your area of responsibility. Check the names of the Boma, village(s) or street(s) that you will be working in with local officials and *identify your EA boundary both on your map and on the ground*. Link up with the local chief or one person mandated by him as a guide.

Rural Areas

In rural areas, Enumerators and Supervisors should check with the Boma chief on the best way to travel from one village to another in the EA, and how much time it takes to get there. Then work out an enumeration plan with your supervisor.

Check the EA boundaries by identifying them on the map. If you are enumerating part of a large village or town, check your common boundaries with enumerators covering adjacent EAs to ensure there are no gaps ('no man's land') and/or overlaps between the EA boundaries.

Urban Areas

In urban areas, enumerators should actually walk along their EA boundary before they start listing. Check that you can identify the EA boundary on the map and that you understand the EA boundary description, which is attached to the EA map.

2.7. Map reading

Map 'reading' means map interpretation. That is, understanding how the symbols shown on your map relate to the actual features they represent on the ground. The symbols are listed in the 'map legend', which is shown on the Boma maps. Map reading also comprise understanding of the scale and north-direction-arrow indicated on the map.

For map reading be aware of the following issues:

- Pay particular attention to the how the different administrative boundaries (International, State, County, Payam, and Boma) are shown in the legend and on the map.
- Check how EA boundaries are shown in the legend and on the maps. Note how the EA boundaries never cut across the Boma boundaries. Also note that EA boundaries follow natural and man-made features on the maps where possible, like rivers and streets.
- Become familiar with the other symbols in the legend. These can be for: main roads, minor roads, tracks and footpaths; permanent and traditional housing; and water features such as rivers, streams, lakes and swamps. Review these symbols in the legend and make sure you can identify them on the map and on the ground.
- Become familiar with scale and north-direction on the map. In brief, the EA map is a simplified and compressed picture of the true ground area/landscape. How much the true area is compressed is documented as the scale of the map. A scale of 1:2000 means that 1cm measured on the map equals 2000 cm in the true terrain. (2000cm = 20 meters). Similar a scale of 1: 50 000 means 1 cm on the map equals 500 meters on the ground. The EA maps will have a scale bar in its legend to help the enumerator to calculate distances by using the map.
- A separate geo-reference grid (degrees, minutes and seconds) is overlaid the map to better show the geographical position of the different items on the map. By comparing the geo-reference grid with the co-ordinates on the GPS display, it should be possible to have a rough idea of where on the map you actually are.
- The EA map is always oriented on the A3 sheet so that geographical North is on the top of the page – see also the North arrow in the map legend. By using the GPS compass in the field to find the geographical north-direction, you can turn the map sheet so that its north-arrow is oriented in the true North direction. This will make it easier for the enumerator to compare the map with the true ground/terrain in the EA.

2.8. Making notes on your map

The survey maps are usually maps which were prepared from the last Census, but may also include some areas which already has been prepared for an upcoming Census. So it's possible that there have been some changes. For example, resettlement of many Internally Displaced Persons (IDPs) or refugees may have taken place in the EA *after* the map was prepared.

Before you begin enumeration, show your EA map to the Boma chief, or other local official, and ask them if there are any changes compared to what is shown on your map. For example, *whether people have returned to any previously abandoned villages that have been cancelled on the map*, or whether there are any new villages or streets that have not been shown. Make notes on the map accordingly, using the symbols in the map legend where possible.

During the listing work you should mark roughly where the household numbers are located. To avoid possible overloading on the map, f.exe only every 10 -15 household should be marked on the map only.

When making notes on your map, pay particular attention to the positions and spellings of village names, streets, schools, health centers etc, and to the alignment of boundaries, roads and tracks.

You should make notes on names, boundaries and features, as follows:

- If a name (of a Boma, village, street, school, health centre, etc) has been spelled wrongly on the map, cross it out and write it correctly.
- If a boundary (State, County, Payam, or Boma) has been shown in the wrong place on the map, cross it out and draw it correctly using the symbols in the map legend;
- If a feature (road, track, school, health centre, etc) has been left out, draw it and/or name it on the map using the symbols in the map legend.
- At the end of the survey you will turn in your EA map (together with the other tools) to your supervisor which in his/her turn will send it back to the NSO head quarter.

The GIS Department will review your EA map notes. Please write as neatly as possible so that your notes can be used to improve the statistical maps for future use.

3. Filling in the questionnaire

3.1. General issues

Marking on the Survey Questionnaire
The surveys will be read and interpreted by a machine. For this reason, they have a special layout and there are specific rules for filling them in. If these rules are ignored, the machine will not be able to read the form, causing problems during data entry.

Here are the rules you must follow at all times when filling in the questionnaires:
First of all: Any use of locally made copies of this questionnaire is absolutely not allowed. Then:

- Keep forms neat, clean, and dry at all times
- Do not fold or wrinkle the paper
- Put one form on the clipboard at a time so that you can make clear marks
- ONLY use the provided pen(s) to make marks on your questionnaires
- Write in numerals and marks where directed
- *For mark boxes*: Tick the box diagonally (like an 'x'). If you accidentally cross the wrong box, fill in in the box *completely* with your pen (so that it is all black) and mark a diagonal cross in the correct box.
- *For numeric values*: write neat numbers (with decimals on the indicated position *only* if the box is designed for decimals). The written numbers should not touch the box frame. Leading zeros should *not* be used (for example, always '5' instead of '05'). If a wrong number is written in a correct field, make a diagonal line across the box and rewrite the correct number (making the digits small*) within* the same box. If a correct number is written in a wrong field, make a diagonal line across the erroneous field and fill in the numeric value in the correct field instead.
- No marks should be entered on the form outside the fields provided – *Do not overwrite the page numbers, the recognition marks (+) or the bar codes*

Reading out the questions
The way respondents answer questions depends on the way the questions are asked. Since we want all respondents to be asked exactly the same questions, it is important that you convey the meaning of the question exactly as it was intended.

To make this easier, the questionnaire is designed so *that any text that should be read out loud to the respondent is given in italic font.* So if you see any text that looks *tilted like this*, that means you should read it out loud. If the text looks normal (not tilted), it contains instructions to you as the enumerator, or response categories that should not be read out\ loud

When the respondent does not speak English, you will not be able to read the question out loud directly from the questionnaire. In this situation you must translate the question into the local language while keeping its meaning as much as possible. During the training, translation and use of local terms discuss to try and ensure that the same questions are asked in each state and each EA.

3.2. The questionnaire, section by section

Section A. Cover page
When you arrive at the household you should firstly ask the members to *identify and agree on a respondent.* This should be the head of household or a person appointed by him/her. A respondent should be at least 18 years old.

Before the interview starts, fill in A1 – A6

A1. Regional ID codes: Fill in regional code (without leading zero) for the relevant geographical areas, e.g province and districts.. For this filling in, use the codes the listing form. *Be absolutely sure that these codes are correctly filled in.*

*A2. Building and Household number in EA***:** Copy from listing form

*A3 Building type***:** Copy from listing form

A4. Urban / Rural location of household: Fill in by crossing the box for either urban or rural location of household. All households in an EA are defined as either urban or rural. This is indicated on the EA map.

A5. North and East coordinate: Copy coordinates from listing form

A6. Date of visit and interview started: Fill in day and month (without leading zero). If second day in month, then write: **2** . If month is March, then write: **3** .

Then continue with A7 to A16

*A7. Accept of interview***:** Tick off whether the interview is accepted for interview now, now or later, or whether it is a refusal. If you agree to return, write contact details.

A8. Name of head f household: Make sure you have identified the head of household, using the definition given above, and then write the name of the person

A9. How many of the last 12 months did the head reside in the household and A10. Did the head send or bring back any cash or provisions. If the head lived more than 6 of the last 12 months away from the household such as for work, he/she may also be interviewed in that location. In order to avoid such double counting, but still learn about his/her relationship to this household we need to know how long he/she was away.

A11. Main respondent in the household: Fill in the name of the main respondent in the box to the left. This will either be the name of the head of the household indicated in the listing form or someone else decided by the household. Fill in the sex and age of the respondent in the boxes to the right (age should at least be 18). Remember the age when filling in B4 on page 2 in the questionnaire.

After the interview is finished, fill in A12 – A16:

*A12. Date of interview completed/ended***:** Fill in day and month (without leading zero).

A13. Final status for the interview: Tick one of the boxes, completed or never completed
A14. Number of forms used for this household: Fill in both boxes: total number of forms and the number of this form.

A15. Interviewer's signature and ID number: Sign with your name and fill in the code.

A16. Supervisor's signature, check mark and check date: The supervisor should check the interview the same day the enumerator has completed the questionnaire.

Section B. Core Demographics
Purpose of Section B.
This section will give information on the composition of the household: the name and age of each household member, and some details about them, such as marital status and orphan hood. This section is extremely important and should be filled out with extra care because this section will provide background information to be used when tabulating the data. . For this reason, you should check carefully to make sure the answers you record are the correct ones.

B1. – B5. Characteristics of household members
Once you have identified and agreed on the respondent in the household, begin by asking the respondent about name (B1), give them serial numbers starting with 1 for the head (B2), relation to head (B3), sex (B4) and age (B5) of head of household (head of household is the first person for which information should be filled in on the form) and thereafter repeat question B1-B5 for each of the other persons in the household in systematic order (see box 1 below). All questions B1-B5 should be filled in for each person before the next person is listed. In this way you establish the full list of names and composition of the household and can therefore better plan for the rest of the interview.

B.3 Relationship to household head
The head of the household should always be listed in the first column, regardless of whether or not the head is present at the time of interview. Other members should be identified in one of the categories in the questionnaire. The spouse is the married partner or partner by mutual consent of the head.

Ideally we should ask about the relationship to the head and/or spouse. But experience has shown that it is easier to start by asking for relationship to the head and then give a follow up when needed. Hence if a respondent hesitate about the relationship to the head of household for a child, you should add "or to the spouse".

Particular care must be taken in recording relationship information when the respondent is someone other than the head of the household; clarification must be made to the respondent that we are interested in the *relationship of the person to the head of the household/spouse, not to the respondent.*

- When the respondent gives you a name, ask what is the person's relationship to the 'head of household or his(her) spouse' and sex.
- Enter the name of each person in the columns under *B1.*
- Mark the relationship (B3) for each person as they are named.
- Children should always be listed after their mothers, starting with the eldest child.
- If the respondent(s) names more than 10 persons as members of the household, you will need to ask them to pause while you get out another questionnaire (see box 2 below).
- When the respondent finishes listing persons, ask if they are sure they have listed all persons who belongs to the household. Check especially on babies, elderly persons, guests and servants.

B5. Age in completed years
Starting with the first person listed "Person 1"; ask, "What is (person's name) age in completed years?" You must record the person's exact age in completed years <u>on enumeration day</u>.

- For babies less than one year, write "0" because the child has not yet lived one complete year.
- If the person is over 94 years of age, write "95". For example, if a person is 98 years old, write "95"
- If the respondent does not know the age of a person, ask them to estimate the age using a calendar of historical events and ask if the person was born around some event listed or what events the person remembers
- Do quick checks to make sure the ages given make sense in relation to the age of other household members.
    - For example, if a child's age is 15 years and the parent's age is 25, then this would mean that the parent was 10 years old when the child was born.
    - If an age seems incorrect, ask the respondent if the information seems correct and work with the respondent to get the correct ages of all persons.

NAME, RELATIONSHIP, SEX AND AGE SHOULD NEVER BE LEFT BLANK.

Box 2. About continuation questionnaires
If the respondent lists more than 10 persons in the household, then you need to copy the EXACT SAME geographical information (Section A1) on all questionnaires used for the household. This includes the same household number, since it is the same household.

Mark both how many questionnaire are used for each household and which number each questionnaire is. (Section A14)

B6. Marital status
This question is to be asked of anyone 12 years old and above. Select only one option for each household member over 12.

B7. – B10. Father and/or mother alive and living in the household
These questions are to be asked of any household member less than 18 years of age. The purpose of these questions is to establish whether some children are orphans and to what extent they live with their parents.

Section C. Education
The purpose of this section is to capture information both on literacy, school enrolment and education completed.

Questions about education are proposed to be asked to persons above the age of five, allowing for the cases where some children start one or even two years younger than recommended in the county. National educational systems may require a different lower age limit.

Check the age of the person as reported in B5. If they are less than the lower age limit, you are finished asking questions about that person under Section C and should skip to Section D for that person.

C1. Copy the household member name from B1
C0 should be completed for all household members aged 5 years and above. The enumerator will identify all the members aged 5 years and older and copy the household member name from B2.
C2. Copy the household member number from B2
For each person, copy the correct member number from B2. Make sure to keep each member with his or her correct member number.

C3. Can [NAME] read and write a simple sentence in any language?
C3 is intended to capture 'literacy', a person's ability to read and write a simple sentence in any language, not just the main or official language, provided it is commonly used even in a written form.

This is not necessarily the same as a person's ability to speak and/or understand a particular language. If a person can read but cannot write, he/she is considered illiterate and the proper response to C3 is 'No'. The WCS does not include rigorous testing of literacy; enumerators will have to use the information from the respondent to assess each person's literacy status. Literacy can be in any language, not just the main or official language.

C4. Has [NAME] ever attended school?
This is to know if the member had attended school at any time during his/her life. If a person attended school but did not complete a term or school year, he/she should still be considered as having attended school. For example, a person who dropped out of school in first grade after going to school for only two weeks will be considered as having attended school and a response of 'Yes' should be recorded..

The term 'school' means formal schooling, which includes preschool, primary, secondary, and postsecondary schooling and any other level of schooling in the formal school system. This definition of school does not include Bible school or Koranic school or short courses like typing or sewing.
If the respondent answered 'No', no more questions on education for this person will be asked, and you should continue to ask questions on education for the next person, alternatively, go to Section D.

C5. Did [NAME] enroll this school year, (define the school year)?
Mark 'yes' if the person was enrolled for the specified school year, even if he/she has dropped out during the school year. Mark 'no' if the person did not enroll at all this year.

- If the response is 'yes', continue to C6. If the response is 'no', skip to C8

C6. What grade did [NAME] enroll ?
Record the appropriate code using the codes given in C6.

C7. How old was [NAME] at the start of this school year?
In order to be able to compare the survey results with the data collected by the school head masters we need to know the age at the start of the school year.

C8. Is [NAME] currently attending school?
Currently attending school means being enrolled and actually going to class at the time of the survey. If a person is on holiday or is serving a suspension but will return to school after the break, he/she should be considered as currently attending school.

C9. Did [NAME] attend school last school year? (State the last school year)
This is about the last school year before the current school year. If the current school year is 2015/2016, the last school year was 2014/2015. Mark 'yes' if the person attended school in the last school year. Even if a person attended school last school year, but did not complete the school-year, he/she should be considered as having attended school and the response 'Yes' should be recorded.

- If 'yes' is recorded, proceed to C10. If 'no' is marked, skip to C11.

C10. What level did [NAME] attend last school year?
Record the level the person attended in the last school year. To record the level, use the codes given.

C11. What is the highest level of education [NAME] completed?
Only for persons who have ever attended school. For this question, record the code corresponding to the level or class that the respondent successfully completed. For example, someone who attended primary 6 but never finished that year would be recorded as having completed primary 5. If he/she is repeating primary 6, you should record primary 6 in the boxes. Someone currently attending secondary 3 would be recorded as having completed secondary 2. A code zero '0' indicates that a person started primary 1 but did not complete the year.

Section D. Employment
The purpose of this section is to capture the both current labor force status as well as usual labor force status. The current labor force status refers to the last 7 days before the survey, while the usual labor force status refers to the last 12 months preceding the survey. Both current and usual labor force status will be used for computing the employment-related MDG indicators included.
The WCS proposes that questions pertaining to the labor force be posed to persons at the age of 10 years and above. National rules and regulation may prescribe a different age limit.

Screening questions: questions D3 to D6 are screening questions, designed to find out which persons are currently in the labor force and who are not. The reference period for all these questions is the last 7 days preceding the interview. The amount of time devoted to work is 1 hour or more during the reference period.

- Once a person has answered 'yes' to any question between D3 and D6, you may move on to question D7 immediately.

D3. Did [NAME] do any type of paid work for at least one hour for pay or without pay, profit in kind or for family based farming or other business during the last 7 days
In the definition of paid work we include both formal and informal work, as long as the person is being paid in some way. Being paid includes cash payments like salaries, wages, and work for a commission but also any payment in kind (for example work for food). Even if the person did not receive any payment this time, but usually get paid and is likely to get paid next time, this is considered paid work.

This also include all types of work for own and family farming either livestock and/or crop cultivation whether the person is in charge of this production, work under the management of another household member or assist on a regular or irregular basis.

This also include all types of work for own and family and business whether the person is in charge of this business, work under the management of another household member or assist on a regular or irregular basis.

Household chores for own household, like cooking, cleaning, collecting water or firewood, caring for the sick etc. do *not* count as work. However, it may be the case that even though household work is the main activity of a person, this person is also engaged in some income generating work in addition to the household work. Examples may be cultivating minor crops, selling own produce along the roadside, making baskets for sale etc.

Also in many families, children perform some kind of work, such as livestock tending, selling water or food, etc. for pay in cash, kind or barter. It is necessary to capture those children as having employment activities, either instead of, or in addition to, attending school.

For these reasons, it's important not to assume women, children, or elderly persons do not work.

- Make sure to ask the question of any household member at 10 years of age or above.
- If the person answers 'yes' to this question, skip to D7. If he or she answers 'no', carry on to D4

D4 – D6. Being a member of the labor force
In these questions we try to identify whether the persons who did not do any work during the last 7 days, still are among the people who usually work and/or are ready to start working, but for some reasons was temporarily away or just have started to look for work.

Main job: the next four questions (D7 – D10) try to find out more about persons who are working by asking about the main job the person worked at during the last 12 months. Here job can mean formal employment but it can also mean occupation or activity.

If a person has only one job, this is the job which is meant. If a person has more than one job, then you must find out which is the main the job. The main job is the job from which the person receives the most income per week. If the person receives no income from any job or activity (or receives the same amount of income from two or more jobs), the main job is the one he/she spends the most hours working at.

D7. Did [NAME] do any type of work for at least one hour for pay (or without pay), profit in kind or for family based farming or other business during the last 12 months
This is a new screening question similar to D3 but referring to last 12 months rather than only the last 7 days. This is to be sure to include anybody who may not have been doing any work during the last 7 days, but still some work during the last 12 months.

D8. What type of work place did [NAME] have at his/her main job during the last 12 months?
Determine in what sector of the economy the person is working. Employment sector refers to whether the employment is public (governmental) or private (non-governmental).

- Own household member based private farm/ fishing (often called self-employment) means that the person works on a farm (including forestry) and/ or fishing for him/herself or for a family member, but without any employees from outside the household.
- Own household member based private business/ industry (often called self-employment) means that the person works in production or service based business for him/herself or for a family member, but without any employees from outside the household.
- Owner of private farm/business/ industry with permanent employees. The private sector is further categorized into private owners and formal sector companies.
- Parastatal refers to semi-public companies in production or service.
- Public service/administration are all ministries and public institutions and organizations.

- NGO/Ideal organization/Mission refer to civil and religious organizations, whether national or international.

For example: Someone working as a clerk in the National Bureau of Statistics will be classified as working for the government. Someone working as a cleaner at the Ministry of Finance will also be classified as working for the government. Someone who works as a cleaner at a privately owned company will be classified as working for a private business. A maid or a gardener in a private home will be classified as working for a private individual/household. A priest in a church will be classified as working for a mission, while the receptionist at Save the Children's office will be classified as working for an NGO. The owner of a formal private trading company will be classified as company based private business. Anybody engaged in subsistence farming will also be classified as self-employed, whether he/she owns the holding or not.

D9. How was [NAME] paid in the main job
This question captures the way the employed person is paid in his/her main job. If he/she has no permanent payment arrangement, you will tick the type of payment most often received.

Someone who is '*not paid'* is someone who does work but receives no pay of any kind for this work, for example a subsistence farmer. This is often the case in rural areas where the household depends on agriculture as a means of living.

A person paid with *wages/salary* is someone who is regularly paid a salary in money on a weekly or monthly basis. If the person has a written paper documenting his status as an employee of a company this is considered a contract. If he/she only has an oral agreement with his employer, this is not considered a contract even if he/she has worked for a number of years.

Payment in kind refers to being paid not with money, but with goods and services, equal in value to the money that would otherwise have been received.

A casual worker is someone who is paid (cash or in kind) by the hour or by the day.

Profit from sale. Owners or self-employed persons do not receive direct salary or payment for their work, but rather get the profit from the sale of produce or service. Employers, self-employed in agriculture, business and service as well as *unpaid family worker* are people who do not receive any direct payment, but rather earn their living from produce and services being sold either by themselves or by another family-member.

D10. Main activity in main place of work
By asking the main activity at the place of each person's job, you will be obtaining the industry in which the person works. Note that we're not asking what function the person performs at his/her workplace, rather with the type of activity the workplace is engaged in, normally related to the goods and services produced at the workplace. For example, if a person is a doctor, but works in a mining company, the activity to be marked is 'Mining and quarrying'. Likewise, if a cook works in the canteen of a big construction company, the activity to be marked is 'Construction'.

Do not read the activity codes out loud. Simply ask the question and then write the code that best corresponds to the activity described. Country specific codes (Codes based on ISIC rev. 4) 11 Agriculture - crops/forestry, 12 Agriculture – animal husbandry, 13 Fishing, 14 Mining & quarrying, 15 Manufacturing, 16 Electricity and water supply, 17 Building and construction, 18 Trade, 19 Repair, 20 Transportation, 21 Accommodation and food service, 22 Information and communication, 23 Financial, professional, administrative and support service 24 Public administration and defence, 25 Education, 26 Human health and social work, 27 Arts, entertainment and recreation, 28 Personal service, 29 Domestic service 30 Embassies and international organizations

Once you have asked this question, begin again at D2 with the next household member over 10 years of age, or if you have completed section D for each household member over 10, you can carry on to E1.

Section E. Screening
This section is for you, the enumerator. It is meant to make sure you have recorded all the relevant information for each household member, especially for cases in which households have more than 10 members and therefore need more than one form. Do not read these questions out loud to the persons you are interviewing.

E1. Household more than 10 members
If the household has more than 10 members, mark 'yes' and move on to E2. If it has 10 or fewer members, mark 'no' and continue on to F1 in the questionnaire

E2. Household member information in sections B-D complete
If the information for each member of the household in all sections B-D is complete, mark 'yes' and move to E3.

Section F. Housing and Communication
All questions in this section (F1- F15) should be asked of the main respondent, and he or she should answer on behalf of the whole household.

Purpose of Section F.
The purpose of this section is to help us understand more about the living conditions of the households. We want to assess the housing conditions such as the type of dwelling, tenure status of the dwelling, number of rooms, materials for making the floor and roof of the dwelling, main sources of drinking water, sources of energy for cooking and lighting, sanitary facilities and possession of mobile phones.

Note: questions F1 to F14 refer to the main building used by the household. If the household occupies more than one building or structure, the main building may the largest or most important one.

F1-F4 is meant to measure security of tenure for the dwelling..
Those questions are meant to measure security of tenure to the dwelling Mark the appropriate boxes for each question

F5. Number of rooms the household has
Write the number of rooms in the box without leading zeros, meaning that if the household has 4 rooms, you should write '4' and not '04'.
A room should be constructed with roofing and walls. If the household lives in several huts or other types of roofed and walled constructions, add up the number of rooms in all the buildings. and write this number in the box for F5.

F6 Main sources of fuel used for cooking
A household may use various energy sources for various needs, such as electric power or paraffin for lighting and firewood, charcoal, dung or gas for cooking. You must ask them which type of fuel they use for <u>most</u> of their cooking. If the respondent is uncertain, read the categories aloud.

F7 Main sources of drinking water
A household may obtain water from numerous sources. You must ask them from which source they get *most* of their water. If the respondent is uncertain, read the categories aloud.

- Tick the box corresponding to the answer provided by the respondent.
- Remember that only one of the sources listed should be marked.

F8 Main toilet facility
Since toilet facilities are important for disease control and health improvement, we need to obtain a measure of sanitation level of the household.

A household may have or use more than one toilet facility. You must ask them which toilet facility they use *most often.* If the respondent is uncertain, read the categories aloud.

- Tick the box corresponding to the answer provided by the respondent.
- Remember that only box should be ticked.

F9 – F11 Material predominantly used for roof, floor and outer walls of the main dwelling
If two or more types of materials are used for roof, floor or outer walls, report the material that was most often used in the main dwelling. Then mark the appropriate response box.

F12 – F13 Cell phones
These two questions both address whether the household has any cell phone in working order. The first question is to screen whether at least one household member owns a cell phone in working order. The second is then asking for how many household members own a cell phone in working order.

F14 – F15 Internet use
These two questions both address whether anybody in the household has used internet at home, in an internet café or somewhere else during the last month. The first question asks whether anybody has used internet during the last month and the second how many household members have done so.

Section G. Children under 5 years old, birth, weight, vaccination and malaria

Child sections
Questions in sections G and H are about children under five years. These questions should be asked of their mother, or mothers, if more than one female member of the household have children aged under five years. If the household has under-five children without the presence of the mother in the household, another knowledgeable person in the household can be asked those questions on behalf of the child. If there are no under-5 children in the household, skip to the next sections.

Purpose of Section G.
This section asks about all children presently living in the household, about date of birth, their weight and vaccinations received.

G1 – G3 Children under 5 years of age
G1 is a screening question where you as an enumerator would check from the B section whether there is any child less than 5 years in the household and if so you will copy the name and household number for each child from B1 – B2 to G2 – G3.

G4 – G5, G8 – G9. Card/document with vaccinations and/or birth date
In some cases, the respondent may not be willing to take time to look for the vaccination card or birth certificate, thinking that you are in a hurry. Encourage the respondent to look for the vaccination cards of all the children aged below the age of 5 years. It is critical to obtain written documentation of the child's immunization history; therefore, be patient if the respondent needs to search for the card. When reading the card, be very careful so that you transfer the correct information.

Mark 'yes and seen' if a card is provided, "yes, not seen," 'No,' otherwise mark 'don't know'.

G5 When was the child born?
Write the day, month and year of each child's date of birth. If there is no vaccination card, no birth certificate, nor any other document for the child, see whether the respondent knows a firm birth date for any other child in the household and relate it to that. If the mother gives you a year of birth but does not know the month of birth, probe to try to estimate the month and day. For example, if she says her daughter was born in 2012, but she doesn't know which month, ask her whether she gave birth in the dry or wet season, whether she remembers if she was pregnant at Christmas or Easter time, during the month of Ramadan, or during some other significant event/season of the year to try to determine the month of birth, then probe for the day of the month. Convert days and months to numbers. If the respondent cannot recall the year when the birth occurred, you need to probe carefully. You must enter a day, month and year for all children, even if it is just your best estimate.

G6 – G7 Weight of child
All children below 5 years of age are supposed to be weighted during the interview. With the electronic scales this is straight forward. The children may step on the scale by themselves. But if the children are too young or reluctant to step on the scale, this may be done in two steps. First the mother (or another family member) and the child is weighted and then only the adult. Most scales give the difference = tara weight = child weight automatically, but if not, the enumerator has to record the total weight and the adult weight on a note pad and then do a substraction to find the weight of the child. Remember to give each weight with two decimal-points, but the last one should be 0 or 5. Always write the decimal 0s, but not the leading 0s. Hence a weight of exactly 7 kg should be written 7.00.

G8 – G9 Has the child received a measles vaccination and if so, was the first one received before his/her first birthday?
If the respondent shows you the health card, fill in the responses to G8 and G9 by marking off whether the child has received any vaccination against measles and whether this was done before his/her first birthday.

Sometimes, a child receives a vaccine but no record is made on the health card. After copying information from the card, and no measles vaccination has not been found on the card, ask the respondent whether the child has received any measles vaccination given at a health post/clinic or in a national immunization campaign. Register the measles vaccinations not already on the card by ticking in the relevant boxes.

For children without a vaccination card, you must probe for an injection against measles, explaining that the measles vaccination is given at or soon after reaching 9 months.

Measles vaccine is normally given as an injection in the arm at the age of 9 months. In some countries, some children may receive it as an injection in the thigh. In some countries, measles vaccine is administered at 15 months of age. Tick the box corresponding to the response.

Section H. Children under 5 years old - Malaria

Purpose of Section H.

This section asks about malaria treatment and prevention for children under five. Malaria is a principal cause of death among under-5 children. The purpose of this section is to collect information on how households protect their children against mosquito bites.

H1. In the last two weeks, has [NAME] been ill with fever?

Some respondents may not be able to distinguish fever from malaria. You therefore need to ask the respondent if the child was sick with malaria ***or*** fever at any time during the 2-week period prior to the survey. If the answer is no, skip to H5, otherwise proceed to H2. Mark the relevant answer and continue with interview.

H2. Was [NAME] given any medicine for fever or malaria during this illness?

This question is a filter question to find out whether the child was given any drugs in response to the fever/malaria. If the child was not given any drugs, skip to H5, otherwise proceed to H3.

H3. What medicine was [NAME] given?

Various drugs can be used for the treatment of fever/malaria. Record all the drugs that the child was given by ticking the relevant boxes. For each type of drug record whether the child did receive this type of drug.

H4. How many days after the fever started did [NAME] take this anti-malaria drug for the first time?

Only ask this question if 'yes' was recorded for any of medicines 1-4 in H7. Record the number of days in the spaces provided (without leading zeroes) and continue with the interview.

H5. Did [NAME] sleep under an insecticide treated mosquito net last night?

If the child slept under a bed net (which was bought or have been treated with insecticide the last year) the night prior to the interview, mark yes otherwise no.

Section I Antenatal care

This module is to be administered to all women aged between 15 and 49 years of age in the household.

Purpose of Section I.

This section asks about antenatal care coverage of women aged 15-49 with a live birth during the last 24 months that received antenatal care.

I1. Did any woman 15 – 49 years old in this household give live birth during the last 24 months?

Proceed with the interview if the response is 'Yes', otherwise go to section J if the response is 'No'.

I2. For each woman 15-49 years old, copy the woman's name from B2

I3. Copy the woman's member number from section B1

I4. Is this woman present in the household now and is it possible to ask her a few questions?

Interview her if she is present and ready for questions, if not ask whether another present household member may answer on her behalf. Skip to the next woman if it is not possible to get the information from any person. If this was the last woman in the household who gave birth during the last 24 months, skip to section J.

I5. How many live birth did [NAME] give last 24 month?

Record the number of birth given. This is not a question of the number of children being born, but the number of live birth. Hence a twin birth should be counted as one birth.

If she has given more than one birth, tell her we have some questions about the most recent birth.

I6. Did you [NAME] see anyone for antenatal care for most recent live birth pregnancy?
If she says 'yes', continue to I6. If she says no, skip to I9.

I7. Whom did you see for antenatal care?
Choose one option only and continue. If the respondent gives several answers, choose the one with the lowest number.

A doctor, clinical officer, nurse, or midwife would have received formal training at a medical institution. A TBA (traditional birth attendant) is someone who required training in the community from traditional sources.

I8. How many times did you [NAME] receive antenatal care during this pregnancy?
Record the number of times she had been attending to during pregnancy.

I9. Who assisted in the delivery of the child?
Although a number of persons may have been in attendance at birth, this question is aimed at determining who was the most qualified person in attendance. We want to know who assisted with the delivery itself, not who helped in other ways such as boiling water or wrapping the baby in a blanket.

If a respondent reports that a doctor assisted at the delivery of the child, you should probe further since some respondents will report that they were attended by a doctor when in fact they were attended by a nurse. If family members or friends were the only persons attending the birth, the enumerator will record 'relative/friend'. If the mother did not receive any assistance, the enumerator will record 'No one''.

I10. Where was the child delivered?
The intent of this question is to identify where births took place. Register the answer by marking the relevant box. A health facility may be a primary health care unit, a private or public hospital or any other health facility.

I11. In what month and year was the most recent live birth?
Record the month and year and probe for the birthday of the child and his/her age. Check that the child should not be older than 2 years.

If the mother gave birth to twins, this is the time to tell that the following questions are about the first born child.

I12. Is the child [NAME] still alive?
This is of course a sensitive question and you may find it better to ask with an introduction: *Unfortunately some children pass away even at a young age. Is this child still alive?*

I13. How old was the child [NAME] at his her last birthday?
This question should be asked whether the child is alive or has passed away. It would usually be 0 or 1 year, but may even be 2 years if the child had his/her last birthday during the last 30 days.

If the child has passed away you should still ask for the age of the child when he or she passed away. That will be the last birthday when the child was still alive.

Section J. HIV/AIDS Knowledge

Purpose of section

The purpose of this section is to find out about individuals' perceptions of the HIV/AIDS: how the AIDS virus is transmitted from one person to another. Only one randomly selected person between 15 and 24 years (both included) should be enumerated.

Selection of respondent

To select a random person in the household, look at the first name of the household members who are 15 – 24 years. Arrange the first names in alphabetical order, and select the one whose first name starts with the letter earliest in the alphabet. If the first names of the 15-24 years are Mading, Martha and Victoria, Mading is the person to be asked the questions in section J. Follow this rule strictly – even if Victoria knows more about HIV/AIDS than Mading, in this household Mading is the right respondent in the age group 15-24.

Since some of these questions are sensitive, you will have to be tactful when asking them, as some respondents may feel offended. It is also important that the respondent is interviewed in privacy; i.e. other persons are not in attendance.

J1. Copy the selected person's member number from B1

Write the member number of the person selected by the randomization method.

J2.Have you ever heard of an illness called AIDS?

This question serves as an introduction and allows us to verify whether a respondent has heard of AIDS. If there is a local term for AIDS, use the local term in addition to 'AIDS'.

If a respondent has never heard of HIV virus or AIDS, end the interview.

The following questions ask the respondent about a specific ways to avoid HIV transmission. They focus on programmatically important ways to avoid HIV – by limiting the number of partners and by using condoms. They also probe into misconceptions concerning HIV transmission, through mosquito bites or sharing food, for instance.

For questions J3-J7, tick the box for the response given. If the respondent cannot provide a 'Yes' or 'No' answer, mark the box corresponding to 'Don't know'. Do not prompt the respondent or indicate the 'correct' answer in any way. Give the respondent time to think and consider his or her answer.

Section K. Interview completion

The interview is now complete. You may read the text out loud to the respondent to indicate that the interview is over. Remember to thank him or her.

K1. Comments

Please remember to fill in K1 whether you have any comments or not. This part of the questionnaire is where any comments from any part of the questionnaire can be written down. Please, remember to specify clearly what part of the questionnaire that you are commenting on.

Enumerator's Manual Appendix 1: Code Descriptions (from ISIC)

Country specific codes (Codes based on ISIC rev. 4)

11 Agriculture - crops/forestry
This includes any activity relating to the cultivation of crops, such as ploughing, planting and harvesting. It includes some basic post-harvest activities, such as threshing, but it does not include further processing of crops, such as production of flour. This also includes both growing trees and harvesting wood from wild forests. It does not include making charcoal, since this is manufacturing.

12 Agriculture – animal husbandry
This includes any activity relating to the rearing and slaughtering of animals, such as herding cattle or other livestock, tending birds, bee-keeping, slaughtering animals and hunting. It also includes milking animals. It does not include making dairy products, leather, or other processed animal products.

13 Fishing
This includes both fish-farming and catching wild fish.

14 Mining & quarrying,
This includes working in the petroleum sector, as well as all other mining and quarrying activity.

15 Manufacturing
This includes any industry in which goods are made from raw materials and/or other unfinished goods. This includes processing of crops and animal products, for example production of flour, dairy products, charcoal, and leather. It also includes repair and installation of machinery, except for repair of motor vehicles.

16 Electricity and water supply
This includes provision of electric power supply, distribution of piped water and removing of sewage or other waste from households and businesses. But it does not include sale of charcoal, petrol and any other type of energy. Nor does it include sale of service such as exchange of small gas tanks or supply of water by a water tank car.

17 Building and construction,
This includes roads, bridges and other civil engineering projects as well as buildings.

18 Trade
This includes wholesale and retail trade and any industry in which goods are bought and re-sold without being changed.

19 Repair
This includes all types of repair such as of motor vehicles, motorcycles and domestic appliances.

20 Transportation
This includes land transport of people and goods (e.g. mini-buses or trucks carrying goods), water transport, air transport, and postal services. It also includes warehousing for goods being transported. It does not include telecommunications (e.g. working for telephone companies) since this is part of 'Information and communication'.

21 Accommodation and food service
This includes all hotels, restaurants and cafes, as well as catering companies.

22 Information and communication
This includes TV, radio, newspaper, and any other publishing or broadcasting activities. It also includes telecommunications, computer programming and other information technology.

23 Financial, professional, administrative and support service
This includes banking, insurance and all types of financial services, buying and selling of land and property, law, accounting, architecture, scientific research, advertising and veterinary activities, rental and leasing activities, travel agencies, security services, and other business support activities.

24 Public administration and defence
This includes soldiers and civil servants of all levels of government. It does not include all public sector employees: for example, teachers employed by the government are in 'Education' and doctors are in 'Human health and social work'.

25 Education
This includes all education, both public and private.

26 Human health and social work activities
This includes all types of health service both public and private and from school medicine doctors and nurses to traditional healing.

27 Arts, entertainment and recreation
This includes all types of art, culture, entertainment and recreation except accommodation, food service and travel agencies.

28 Personal service
This includes all types personal service activities except domestic services provided in a home.

29 Domestic services
This includes all types of domestic services such as cleaning, cooking, and child care

30 Embassies and international organizations
This includes UN agencies, foreign embassies, and international and foreign NGOs

Enumerator’s Manual Appendix 3: Province/ District names & codes

Country specific

Enumerator’s Manual Appendix 4: Events calendar - 1955 to 2015

Country specific

Enumerator's Manual Appendix 4: Supervisor Procedures for Verification

The supervisor is instructed to check the work along several lines. One line it to check how each questionnaire has been filled in according to the instructions presented below. It will be the duty of the supervisor to perform these checks, but it may be an advantage for you as an enumerator to do the checks in advance.

Supervisor Procedures for Verification

There are three levels of verification. Level 1 is compulsory for ALL questionnaires – this is the routine checking performed for every questionnaire. Level 2 is more detailed verification. Level 2 checking should be done regularly, and in the first few days of the survey (while enumerators are not yet fully familiar with the questionnaire) Level 2 checking should be completed for ALL questionnaires. Level 3 verification is complete checking of the entire questionnaire. Level 3 verification should be employed when mistakes are found in a questionnaire or there is a reason to believe that a particular enumerator is making mistakes.

After verification of any level has been performed on a questionnaire, do not forget to provide feedback to the enumerator. Correct any mistakes and explain them to the enumerator. If no mistakes are found, let the enumerator know that he or she is doing well.

Level 1 – compulsory manual editing (all questionnaires)

Verify the cover page (Module A). Verify that:

- All geocodes are filled in and correct, including the EA code.
- The household number is correctly filled in (identical to that found on the listing form)
- All items are filled in
- A14 is filled in and correct (both parts). This is very important! Even if only one questionnaire was used, both boxes should be filled in.

Now check the rest of the questionnaire:

- Check C1/C2, D1/D2, G1/G2, and I1/I2 against B1 and B2. Make sure that each household member has the correct member number in C2, D2, G2, I2 against B1. This is very important!
- Make sure that there are no marks in the area of the reference number or the questionnaire ID.
- Make sure that the page corners are not folded or torn apart on top of the reference number.

Level 2 – regular checks

First, complete the level 1 verification. Then proceed:

- Verify that section F is completely filled in for every household. Every question should be answered.
- Household heads will be listed in column 1 on first form. Leave column 1 blank on any subsequent form.
- Verify that there is information for each question from B1 to B4 for each listed individual.
- Verify that the proper individuals have responses corresponding to their age and sex at the beginning of the following sections:

Section B	
B1-B5	All members
B6	All members 12 years and above
B7-B10	All members bekow the age of 18
Section C	
C1-C11	All members 5 years and above
Section D	
D1 to D10	All members 10 years and above
Section G and H	
G1-G9, H1-H5	Children less than 5 years old (check that all are listed in I1, from all forms used for this household)
Section I	
I1-I13	Women who gave birth during the last 24 months
Section J	
J1-J7	Randomly selected member, 15 years or older

Check that the following skip instructions have been respected:

Module B
B6 is skipped for people less than 12 years of age
B7 to B10 skipped for people over 18 years of age

Module C skipped for people under 5 years of age
C4 = no, go to next person or if last person to D1
C5 = no, go to C8
C9 = no, go to C11

Module D is skipped for people less than 10 years of age
D3-D5 = yes, go to D7
D7 = no, go to D3 for the next person or to section E if this is the last person

Module G is skipped for people 5 years and above
G6 = no, go to G8
G8=no, go to next person or if last person go to H1

Module H is skipped for people 5 years and above
H1=no, go to H5
H2=no, go to H5
H5=no, go to next child or if last child go to I1

Module I is answered by women 12-49 years
I1 = no, go to J
I4 = no, go to next woman or if last woman go to J1
I6 = no, go to next woman, or if last woman go to J1

Module J is answered by one randomly selected household member 15-24 years of age

Level 3 - complete verification
First complete Level 1 and Level 2 verification, then proceed:
Check the following for all questions:
That only one answer marked, except where multiple answers are permitted (these are marked with 'check all that apply').

Section B
Head of household is listed in column 1 with a consistent age. If head younger than 15 years, check if this is really the head
B3 (relation with the head) should be consistent with B4 (sex) and B6 (marital status)

Section C
C11 (highest level completed) is consistent with B5(age)
C6 (current level) is consistent with B5 (age) and C11 (highest grade completed)

Section G
Member number of the children should correspond to a child number in Section B, a child that is not yet 5 years (check B5)

Section H
Member number of the child should correspond to a child number in Section B, a child that is not yet 5 years (check B5)

Section I
Check that age is 15-49 (B5) and sex is female (B4)

Section J
Check that code number of respondent (J1) should be valid (B1), age 15-24 (B5),and first name should start with a letter earlier in the alphabet than those of the other 15-24 household members (B2)

Appendix 5 Welfare Core Survey 2015 – Household Listing

Listing day and month		State code	County code	Sub-county code	EA code	Enumerator name and code			Sheet no
									of
L1	L2*	L3*	L4*	L5*	L6*	L7	L8	L9	L10
Ser no	**Address or any description that helps to locate the housing structure within the Enumeration Area**	**GPS North coordinates** *Decimal degrees from GPS reading with 5 decimals. If south of equator remember "-" in front*	**GPS East coordinates** *Decimal degrees from GPS reading with 5 decimals. If west of 0-meridian remember "-" in front*	**Housing Structure Serial no in EA** *(Serial no from first->last structure)*	**Dwelling Unit Serial no in EA** *(Serial no from first->last dwelling unit)*	**Household Serial No in EA** *(Serial no from first->last household)*	**Name of the head of the household**	**Number of persons** *(reported during listing)*	**Household present** *1 - Present 2 - Temp away 3 - Season. away 4 - Vacated*
1									
2									
3									
4									
5									
28									
29									
30									
		For all sheets: Totals on sheet							
		For use by supervisor only: Totals on sheet and in EA	L11 Total structures		L12 Total dwellings		L13 Total households		
		For last sheet only: Totals in EA							

* If more than one dwelling unit within a housingstructure, leave L2 blank and fill in 0 for L3, L4, L5 for the second and other dwelling units. If more than one household within a dwelling unit, leave L2 blank and fill in 0 for L2, L3, L4, L5 and L6 for the second and other household

Appendix 6 Welfare Core Survey - Household Sample Form

Listing day and month		State code	County code	Sub-county code	EA code	The EA has 4 sampling forms, this is no:		
|___|___| |___|___|		|___|___|___|	|___|___|___|	|___|___|___|	|___|___|___|		|___|	
S1	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**
HH Serial no in EA	**Address or any description that helps to locate the housing structure within the Enumeration Area**	**GPS North coordinates** *Decimal degrees from GPS reading with 5 decimals. If south of equator remember "-" in front*	**GPS East coordinates** *Decimal degrees from GPS reading with 5 decimals. If west of 0-meridian remember "-" in front*	**Name of the head of the household**	**Number of persons** *(reported during listing)*	**Household present during listing** *1 - Present* *2 - Temp away*	**Questionnaire completed** *1 - Completed* *2 - Part. completed* *3 - Vacant* *4 - Refusal*	**No of forms**
Enumerator name and code		..................................|___|___|___|		Enumerator signature				
Supervisor name and code		..................................|___|___|___|		Supervisor signature				

Appendix 7 Welfare Core Survey2015 – EA Control Form

	EA1	EA2	EA3	EA4	EA5	EA6	EA7	EA8	EA9	EA10	EA11	EA12
S no	State code	County code	Sub-county code	EA code	No of supervisor	No of completed questionnaires	No of partially completed q.	Date checked by project officer	Signature	Date scanned	Date verified	Signature by scanning officer
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
Supervisor name and code				.....				Supervisor's signature				
Project officer name and code				.....				Project Officer's signature				

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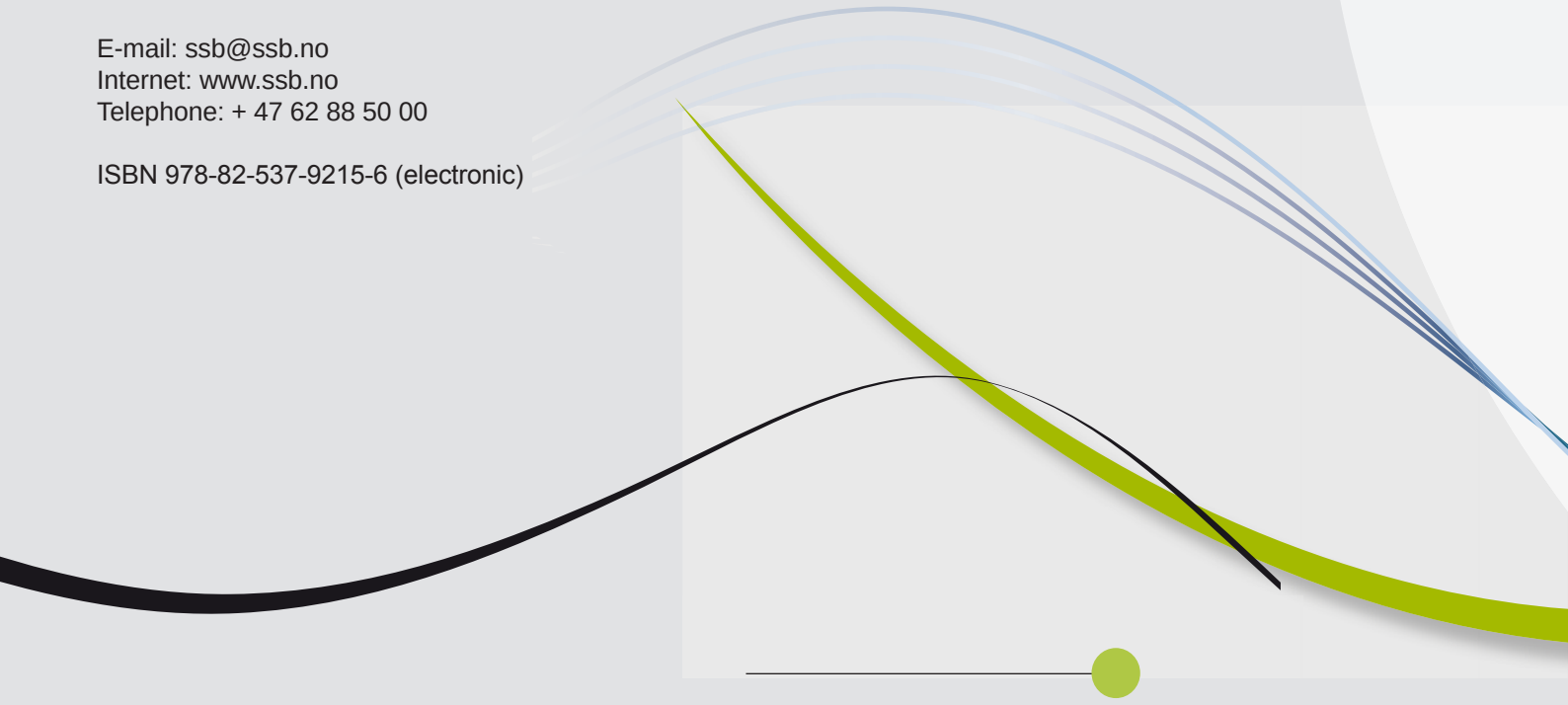

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