

Per Schønning

Documents

Scanning of questionnaires

Statistics Norway's experience from
development projects in Africa
2003-2008

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Abstract:

Statistics Norway (SN) has built up in-house capacity on the use of scanners and advanced software for optical character recognition (OCR) since early 1980s. Starting from 2003, SN has shared its scanning experience with cooperation partners in the statistical offices of Uganda, Malawi, Angola and Southern Sudan. The objective of the present document is to summarize the SN experience from the introduction of scanning in the cooperating institutions in the period from 2003 to 2008 and to give recommendations on how to optimise the use of scanners in future similar projects.

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- 5 Data processing based on scanning. Application for project funding. Memo 14. March 2006

1 Summary

Capacity for accurate and timely data processing is a precondition for sustainable production of statistics in industrialized as well as developing countries. Statistics Norway (SN) has build up its in-house experience with scanning of paper based questionnaires for national surveys and censuses since early 1980s. Since 2003, SN has introduced advanced scanning software and related procedures and methods to its partners in the National Statistical Offices (NSOs) of Uganda, Malawi, Angola and Southern Sudan. For the NSOs in Uganda and Southern Sudan this was the first time ever to build up in-house capacity on scanning techniques.

After more than 4 years' experience from projects in developing countries, we can confirm that scanning technology and methods work well also for our cooperating institutions in Africa. However, more follow-up time is in most cases still needed to establish full institutional understanding of the scanning process and to ensure sustainability, motivation, proper organization and local ownership to the systems. It is necessary to underline the need to plan for scanning as a building block in a holistic data processing system stretching from questionnaire design via fieldwork to scanning and further processing of data.

The advantage with the software SN use for scanning is that it opens up for using typical marker reading combined with typical character interpretation and thereby flexibility concerning the questionnaire design. The software is Window based with a user interface easy to use. Questionnaires can be produced locally with commonly available software such as Microsoft Excel and Word and can, if needed be, printed on local high quality office printers on standard 80 grams paper. A small table scanner linked to a lap-top with a complete single user scanning software license has proved to be a good, open ended and otherwise flexible approach as a starter package.

"Successful scanning" is a situation where the data from filled in questionnaires are close to 100 percent correctly copied to a digital data file of ASCII characters/numbers. Following this logic, corrections of data during the scanning process should be kept at a minimum. The core scanning process using the actual software comprises 4 steps:

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

Scanning technology has through the project period 2003-2008 clearly proved to be efficient and robust also for African conditions. However, still some challenges remain before we will see our South-partners fully taking over the ownership and responsibility.

All experience from the project period indicates that the time used for manual on-screen verification of "not interpretable" or "uncertain" characters/numbers is the bottleneck during OCR scanning. The biggest problem encountered is however to organize the work *around* the scanner efficiently. Therefore the organization of questionnaire/data flow, data storage and optimal design of questionnaires should be the focus for the remaining training and for a SN scanning exit strategy in the four cooperating institutions.

2 Background

SN introduced scanning for the first time in connection with the Norwegian Population Census in 1970. At that time the scanning was outsourced. From mid 1980s scanning software and technical equipment were placed in-house SN. Capacity on specialized questionnaire design, use of software, scanners and other relevant hardware as well as organization of data processing for scanning, is therefore built up over more than two decades. Since 2000 also Internet based solutions for data reporting directly from the respondent have developed fast. Consequently data processing by manual keying of paper based questionnaires is reduced to almost not existing in SN current work.

The situation in the African institutions when SN entered statistical development cooperation projects was that paper based questionnaires and interview visits to the respondent still were the main tools for data collection. It was also observed that statistics in most projects were still mainly captured by manual keying from paper forms, even though some of the NSOs already had tested digital scanners for this work. Our development partners were typically introducing, or had at least tested, scanning technology in connection with the 2000 round of population and housing censuses. Internet with country wide cover, capacity and stability enough for extensive use of fully electronic data reporting was not yet in place in these countries. However, Internet technology and cover is developing fast and data reporting between governmental institutions and larger companies can be expected soon to be possible to organize via the Internet in the African countries where we cooperate.

The news introduced by SN to the NSOs in Uganda, Malawi, Angola and Sudan was the use of a more advanced and flexible scanning technique where hand written characters, numbers in combination with a series of marks and cross off boxes all could be captured in the same process. And most important, the SN contributed to substantial capacity building on how to organize statistical surveys that applied scanning and corresponding requirements for questionnaire design and thereby increased efficiency by the cooperation partners.

The objective with the present document is to identify advantages and disadvantages of the scanning methods, to sum up the experience with the introduction of scanning and to give recommendations for how to optimise the use of scanners in twinning projects with African NSOs for the future.

3 General introduction to terminology and methods

3.1 Optical versus Digital

Techniques for optical recognition of characters and marks started around year 1900 with true optical comparison of text and templates using lenses and projections of light. The term "optical" is still commonly used to describe current scanning techniques. Correct terminology should now preferably include terms such as "computerized recognition" and "use of digital algorithms", since optical instruments are not anymore involved. However both this report and most other available literature on this issue maintain the term "optical" for practical and historical reasons.

3.2 Optical Marker Recognition (OMR)

Versions of OMR techniques have been practiced in several areas and over a long time. The origin for this technique can be found in the 18th century metal discs for mechanical pianos. More recently punch cards and paper roles were commonly used for data entry and storage in Norway as late as up to up to the early 1980s. In brief OMR means scanning of paper to detect whether marks are present (or absent) in predefined positions.

The OMR technique has been used for data capture in statistical censuses and surveys for decades and it is thoroughly discussed by the UN forums for the 2000 and 2010 rounds of population censuses (ASSD 2006/07). OMR was for example used for the data processing of the population and housing censuses in Tanzania (2002) and in Zambia (2000). This technique is also used for the Ethiopian census in 2007 and for the census in Sudan in 2008.

OMR recognizes marks very fast and returns up to 100 percent accuracy. Current OMR software can be used to recognize different geometric shapes inclusive barcodes, shaded "bubbles" and the presence of different ticks and check marks.

The disadvantage with OMR is first and foremost that the volume and the complexity of the questionnaires very often increase when designed for OMR. Typically, questionnaires designed for OMR requires extensive training of interviewers for them to fully understand the concept. This also means that questionnaires with advanced/complex use of OMR are normally not well-suited for postal distribution i.e. directly addressing the respondent. Moreover the method makes it impossible to capture open ended answering and text strings.

3.3 Optical Character Recognition (OCR)

Modern OCR software translates images, handwritten or typewritten text (usually captured by a scanner) into machine-editable text/ASCII characters. OCR software translates pixel patterns of numbers and characters into a standard encoding scheme representing them. Current state of the art systems have a high degree of recognition accuracy and can even "learn" specific fonts used, and thereby improves its recognition of patterns over time.

The advantages of OCR used for data capture from statistical censuses and surveys is that compared to the use of OMR, questionnaire design can be simplified, the volume shortened and thereby achieving a more user friendly layout. The method also gives flexibility when it comes to open ended questions and comments. OCR software was used by Kenya and South Africa in the 2000 round of population and housing censuses.

Compared to the traditional manual keying, the OCR method reduces the need for data processing staff dramatically and it also reduces the problem of possible manual keying errors. However, compared to "bubble recognition" by OMR, the time needed for recognition of a specific character when OCR is used, increase the total time use of the scanning process.

The experience of Statistics Norway in using a scanning software with both OMR and OCR capacity, roughly 96 to 98 percent of filled in numeric values can be expected correctly interpreted by the software. The automatic interpretation rate for single characters (Latin alphabet) is slightly lower. Additional on-screen manual verifying is needed for achieving 99-100 percent correct capture of written characters and numbers.

4 Software and hardware used by SN for scanning

4.1 The scanning software

As far back as 1980, Statistics Norway did a thorough user need specification and tested several commercially available software solutions for scanning of paper based questionnaires. The outcome of these tests led to the selection of Eyes&Hands (READSOFT) software. Although alternative very good OCR soft-wares currently are available on the international market, investments in in-house

E&H specific capacity and work routines promote its continued use. The software is flexible and supports in practice both OMR and OCR techniques.

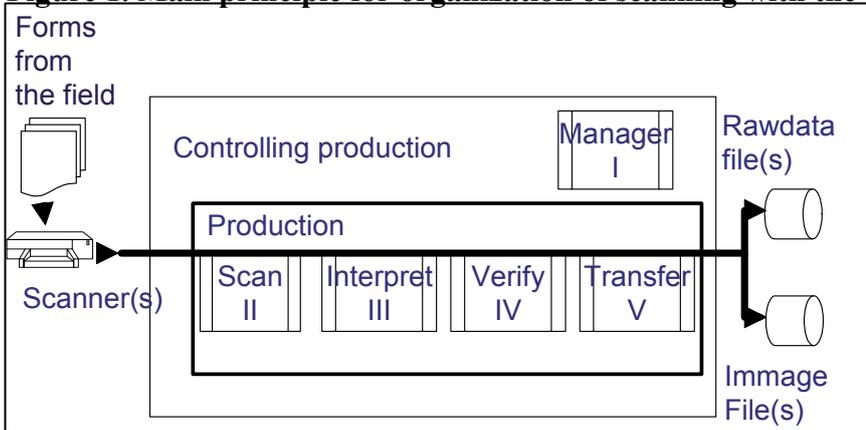
4.2 Build in functions for strengthening the OCR interpretation and verification procedures

The software currently used by SN comprises 5 modules:

1. Manager (programming and controller tool)
2. Scan (scanning in production mode converting information from paper copies to digital raster format)
3. Interpret (automatic digital character and marker recognition)
4. Verify (manual on-screen verification of unrecognizable or uncertain characters and marks)
5. Transfer (export to external data file/data base - statistical data and optional also TIFF files)

A full single user license comprises all 5 modules. Network solutions also allow for separate specialized licenses for scanning, interpretation and verification.

Figure 1. Main principle for organization of scanning with the software used by SN



In order to optimize the automatic interpretation of the filled-in figures and characters on the forms scanned, the software's "Manager-module" should be pre-programmed as much as possible with information about what to expect filled in for a specific area of the paper questionnaire such as:

- Exact order in which the forms should be scanned
- Identification marks on each questionnaire
- Exact location on the paper questionnaire where filled in information is expected
- Level of accuracy required by the automatic interpretation (on a scale from 1-8)
- Valid ranges of numeric values (min-max)
- Number of decimals and exact decimal position for numeric values
- Valid combination of words or codes (look-up tables)
- Type of information (numeric, alphanumeric, symbols, marks etc)
- Type of alpha numeric characters (type of alphabet, type of language, hand/machine-written, upper/lowercase etc)
- Procedures to automatically handle errors like:
 - Multiple response in single response fields
 - Too much ("black-out") or too little (dirt/pollution) of a marker field filled in
- Option for "Mass verification" (a well organized on-screen visual verification of how each single number and character actually is interpreted by the software)
- Option for out-put file description and format (fixed position, semi colon separated etc.)

- Option for storing of image files (.TIFF) of each scanned questionnaire
- Option for conversion to SPSS format

The "Manager" program environment is based on the Windows concept and therefore user-friendly.

4.3 The total **soft- and hardware solution used for scanning in SN**

For data capture of the National Population and Housing Census (PHC 2000), SN used a combination of scanners and software as shown in box 1 below.

Box 1. Software, hardware and organization of data processing for Norwegian PHC 2000

The job size:

1.7 mill forms for scanning (1 A3 sheet double sided printed per form)

Scanned, interpreted and verified in 42 work days - a combination of OCR and OMR

The equipment:

2 high capacity scanners used most of the time (2 x 3000 sheets per hour)

2 OCR scanning software basic licences

2 scanning software additional interpretation licences

10 scanning software additional verification licences (leased for a shorter period)

The organization:

9 persons in 2 shifts for opening envelopes, un-foiling the forms and for bringing forms to and from the work areas

4 to 5 persons in 2 shifts to operate the scanner and store the scanned forms

10 persons in 1 shift for verification

Interpreting was done unattended during the night

Data transfer was done every morning by the supervisor

The capacity:

Scanning: 6 000 sheets per hour (2 scanners working in parallel)

Verification: 675 sheets per hour per verifier license or 5.3 sec/sheet (6 efficient hours per day)

As of August 2007, Statistics Norway has 4 high capacity scanners available with 2 full basic scanning software licenses and a series of verifier stations, all connected in the SN LAN.

5 SN scanning assistance in Africa

In 2003, SN introduced scanning technology to Uganda Bureau of Statistics. This was the first time SN was exporting its scanning concept to a cooperation institution in Africa. It was also the first time ever that UBOS used scanners for data entry. The limited amount of data implied that a technically simple solution with a small table scanner linked to a lap-top with a full single user license of the scanning software was chosen. A similar solution of soft and hardware was introduced in the National Statistical Office (NSO) of Malawi for use in the 2005 Welfare Monitoring Survey (WMS). Two years later, SN also assisted on training and installation of software and hardware for scanning of the agricultural census of Malawi.

In 2005, scanning was introduced for piloting a socioeconomic survey in cooperation with Institute National Estatística (INE) in Angola. The experience with the pilot in 2005 resulted in SN assisting INE in 2006 to set up a comprehensive system with several verification stations, a high capacity scanner and a server - all connected through a Local Area Network (LAN). The most recent SN

scanning advisory assignment is part of the cooperation with Southern Sudan Commission for Census, Statistics and Evaluation (SSCCSE). Here a simple single-user solution has been in use since early 2006.

6 Designing scan-able questionnaires for development projects

6.1 General observations and recommendations

The SN experience is based upon the use of a specific software product, but some basic requirements will have to be full filled for most software currently available and some general recommendations can therefore be given:

1. Questionnaires meant for scanning and data capture by OMR and/or OCR need special page design and good paper quality, high printing precision and accurate paper cutting. The actual software and scanner type used as well as the size of survey and funding available are also of importance for how to finally design the forms for a specific survey.
2. Questionnaires can be designed and produced with a variety of soft-wares currently available on the market. SN itself is using specialized design software. For the work taking place in our development partner's countries, we use less specialized but easy available tools such as Microsoft Word and Excel with acceptable results.
3. As an overall requirement, scanning techniques needs a number of special adjustment marks or position marks/tracks on each page. Referring to these marks the software can find the accurate position of areas of the page where answers are expected to be written/marked by the respondent/interviewer. The software is normally very sensitive on the positioning, printing quality and possible unintended dirt/ writing across or close to the adjustment marks.
4. Furthermore, scanning techniques will need some type of recognition marks on each sheet, this is obligatory when multiple sheet/booklet questionnaires are used. Recognition marks is necessary in order to avoid confusion of missing sheets or wrongly sorted sheets during scanning. Recognition marks could be such as page numbers, barcodes etc. The introduction of barcodes can also be used to link forms to specific geographical locations or clusters.
5. Depending on technical and economic resources available for a survey, the questionnaires could be designed with or without drop-out colour(s). Drop-out colour means use of a special colour on the printed form that is visible for the respondent/user of the form but not for the scanner. The advantage of using dropout colour is that it can be used to:
 1. Pre-write instructions inside the box/area that the respondent should mark
 2. Add an extra frame with drop out colour inside the initial respond-boxes for markings that can increase the precision of manual filling in.
 3. Improve the overall visual impression of the form - important especially if the form is distributed directly for the respondent to fill in him/herself.

When introducing dropout colours it is important to know the exact numeric colour-code used. The scanner-sensor should be able to identify and omit the dropout colour. There are several examples of serious problems with use of dropout colours not sufficiently checked and harmonized with the soft- and hardware used.

The main types of questions to be answered that occur in statistical surveys are:

- Single response i.e. actual age, age group, main source of income code etc.
- Boolean (special version of single response) i.e. yes or no for screening/skipping etc.
- Multiple response i.e. list of diseases last year, list of items owned etc.
- Open ended responses such as:
 - A text string i.e. name of person/place,
 - "Other specify", comments etc.

All these different types of questions will need special design. However, the main difference between OMR and OCR based forms design is that OMR needs a bubble or box to shade/tick for all possible alternatives, while OCR can use numbers direct or a set of predefined numeric codes to be filled-in. Thereby one saves space on the form and also achieve a less abstract method for filling-in. See example in Box 2 below.

Box 2. Example of main principles for questionnaire design for OMR and OCR

OMR solution: Respondents age in years (tick off)?	<table style="display: inline-table; border: none;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">[0]</td> <td style="border: 1px solid black; padding: 2px 5px;">[1]</td> <td style="border: 1px solid black; padding: 2px 5px;">[X]</td> <td style="border: 1px solid black; padding: 2px 5px;">[3]</td> <td style="border: 1px solid black; padding: 2px 5px;">[4]</td> <td style="border: 1px solid black; padding: 2px 5px;">[5]</td> <td style="border: 1px solid black; padding: 2px 5px;">[6]</td> <td style="border: 1px solid black; padding: 2px 5px;">[7]</td> <td style="border: 1px solid black; padding: 2px 5px;">[8]</td> <td style="border: 1px solid black; padding: 2px 5px;">[9]</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px 5px;">[0]</td> <td style="border: 1px solid black; padding: 2px 5px;">[1]</td> <td style="border: 1px solid black; padding: 2px 5px;">[2]</td> <td style="border: 1px solid black; padding: 2px 5px;">[X]</td> <td style="border: 1px solid black; padding: 2px 5px;">[4]</td> <td style="border: 1px solid black; padding: 2px 5px;">[5]</td> <td style="border: 1px solid black; padding: 2px 5px;">[6]</td> <td style="border: 1px solid black; padding: 2px 5px;">[7]</td> <td style="border: 1px solid black; padding: 2px 5px;">[8]</td> <td style="border: 1px solid black; padding: 2px 5px;">[9]</td> </tr> </table>	[0]	[1]	[X]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[0]	[1]	[2]	[X]	[4]	[5]	[6]	[7]	[8]	[9]
[0]	[1]	[X]	[3]	[4]	[5]	[6]	[7]	[8]	[9]												
[0]	[1]	[2]	[X]	[4]	[5]	[6]	[7]	[8]	[9]												
OCR solution: Respondents age in years (fill inn)?	<table style="display: inline-table; border: none;"> <tr> <td style="border: 1px solid black; padding: 5px 10px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 5px 10px; text-align: center;">3</td> </tr> </table>	2	3																		
2	3																				

6.2 Questionnaire design for scanning in cooperation projects from 2003-2008

From Statistics Norway cooperation projects, the experience is that 80 grams bleached paper of the standards used for office printer is acceptable for the scanning. We have avoided simpler paper qualities f.exe from recycling products. We have also, with good results, used thicker paper (100 grams) in Sudan 2007. Thicker paper quality increased the robustness and this can be crucial under difficult field-work conditions such as rainy season. The limits and recommendations for paper quality/size and weight usually come with the technical specifications for the scanner.

Up to 2007, we have consequently used standard A4 size paper formats for questionnaire design in all the development projects. Forms was designed as single sheets or with several sheets stapled to booklets, depending on the characteristics of the actual survey.

The printing quality of the questionnaires is crucial for successful scanning. The best results, measured as little or now problems with rejection during scanning, is achieved when we printed all the forms on the same printer and in one batch, with normal amount of toner applied, and on a professional high capacity laser printer. Grey shaded boxes were avoided in order to save toner and for not introducing possible reduced contrasts.

Both in Uganda and in Sudan we experienced that it was necessary to follow the local printing companies closely to get acceptable quality of the printed forms. In Uganda the first round of the PASS forms were obviously printed in two batches and we had to program the scanner for capturing two slightly different layout-versions of the forms. For Sudan we experienced that the local printing company first delivered a wrongly formatted form on very thin paper. However, due to the contract wording, the company had to redo the printing job and finally managed to deliver high quality work.

Serious problems with recognition during scanning occurred due to local ad-hoc printing on low quality printers, very bad handling of forms in the field and when the adjustment-marks were

overwritten by the enumerator. Worst case is when extra copies are made ad-hoc on local copy centres in the villages during the field work. A system of storing forms (clusters of forms) in envelopes has worked well to prevent bad treatment of the questionnaires in the field and also to ease subsequent handling.

6.3 Some details on questionnaire design

When SN started the project of developing a scan-able questionnaire for the Permanent Agriculture Statistical Survey in Uganda in 2003, a 100 percent OCR based solution with filling of numeric codes and characters was chosen¹. The main reason for this was that the questionnaire was complex due to the national owner's demands and that OCR made it possible to minimize the physical size of the forms. See first season questionnaire module for crop production (Annexe 1). More use of tick-off boxes and OMR techniques combined with the OCR design would have increased the rate of automatic interpretation and thereby speeded up the scanning process.

The quarterly Household Budget Survey questionnaire used in Sudan 2007, is also mainly designed for OCR. Due to the type and amount of questions, a strict matrix design was chosen. Onwards from third quarter, a system of tick-off boxes (yes/no) was introduced for the screening question for each commodity listed (Annexe 2). This speeded up the scanning process compared to the initial layout where code 1 (yes) or 2 (no) had to be filled in for all items and interpreted by OCR. The questionnaire has potential for further developing by introducing tick-off boxes also for the codes "money unit", "place of purchase" without increasing the total form size. The questionnaire has 6 sheets that are stapled together.

The single sheeted form developed for the SN mission on SSCCSE Staff Human Resource Assessment 2007, is mainly designed for OMR. Grouping of age, formal education, priorities for further training etc. were introduced for simplification for the respondent (this form was filled in directly by the respondent), for keeping the total form within one A4 sheet and not at least for speeding up the scanning process. The name of the respondent was captured by OCR. So was also coding in section C of the form. All in all this approach proved to be efficient and serves as a good starting point for further development (Annex 3).

A Welfare Monitoring Survey questionnaire was developed for use in Malawi 2005. This form was adapted for use in Sudan in 2007 and also used for redesigning the labour force survey questionnaire in Angola 2008. The Angolan version comprises 6 double sided A4 sheets. It is designed trying to arrive at an optimal combination of OMR and OCR (Annex 4).

7 Organizing scanning for development projects

For a scanning project to be successful, efficient soft- and hard ware as well as a high quality questionnaire are all necessary but not sufficient preconditions. In fact, our work in African partner countries points to the organization *around* the scanning technology as the real challenge. The possibility for organizing the data capture with a small and permanently employed group of well trained staff in order to ensure transparency, quality and continuity is one of the main arguments for introducing scanning to our cooperating partners.

¹ Example copies/extracts of questionnaires from the Permanent Agriculture Statistical Survey in Uganda (UBOS), from the Household Budget Survey in Sudan 2007 (SSCCSE), from the Human Capacity Assessment in Sudan 2007 (SSCCSE) and from the National Census of Agriculture and Livestock in Malawi 2007 (NSO) are annexed to this report (Annex 1-4).

Scanning should be planned for as an integrated part of a holistic data capture and processing program - starting with the fieldwork and ending with tabulation and storage of the cleaned final data set. Continuous pre- and post scanning data checking of completeness and quality should, in particular for larger projects, run parallel to the actual scanning. It is crucial for such projects that a system for reporting back to the scanning staff is established so that errors can be detected and corrected at an early stage. Sufficient time should be used for testing the complete data capture system. It is an unfortunate tendency that pilot surveys tend to focus mostly on the field work.

Questionnaire flow logging, physical and electronic storage space, file structures, variable names and variable specifications must be properly planned for all types of statistical surveys - also when scanners are used.

An obvious advantage with scanning is that an electronic archive of forms can be created and thereby make possible back-checking during the data cleaning process more efficient. Also the need for final and long term storage space for hardcopy forms for documentation can be reduced or eliminated totally if an electronic archive system is introduced. However, additional organization and good planning is needed to take advantage of this capacity.

8 Experience with scanning in Uganda 2003-2005

8.1 Background for the project

In 2002, the Norwegian Government signed an agreement with the Government of Uganda concerning a 3-year project for strengthening statistics on agriculture. In the agreement, Uganda Bureau of Statistics (UBOS) and the Uganda Ministry of Agriculture (MAAIF) contracted Statistics Norway as technical advisor to the project. A pilot Agricultural Census (PCA) was conducted in 2003. The questionnaires were designed for manual data entry using the US Census Bureau freeware CsPro. Fieldwork started in February 2003. Selected farms in 10 districts were visited 4 times during one year using an extensive set of questionnaires². The experience during the data entry was that the subject matter division had little control over the data entry progress including data quality and time use.

Unfortunately, the full scale Uganda Agriculture Census was postponed by the National Authorities. The project thus changed its goal to establish a system of annual agricultural surveys (PASS). At the same time it was decided to introduce scanning for keeping data entry fast, transparent, easy to organize and under the direct control of the project. Moreover, the introduction of scanning fitted well into the objectives for the project to improve methods and increase capacity for data collection of agriculture statistics.

8.2 The change from manual keying to scanning of data

A low-capacity table scanner and a scanning software license were supplied by SN for the cooperation project in 2003. This was the first use of scanning techniques in UBOS and a lot of discussion took place before it was agreed to substitute manual keying with scanning. Typical arguments against scanning were:

- We know what entry system we have, not what we will get
- The African red dust will destroy the scanner very fast

² PCA form 1-6

- Vulnerability to technical breakdowns - there is no local support at hand
- Bad quality from local printing companies expected
- Dirt and rough treatment of forms during the field work will hamper the scanning
- Bad handwriting by fieldworkers can not be interpreted

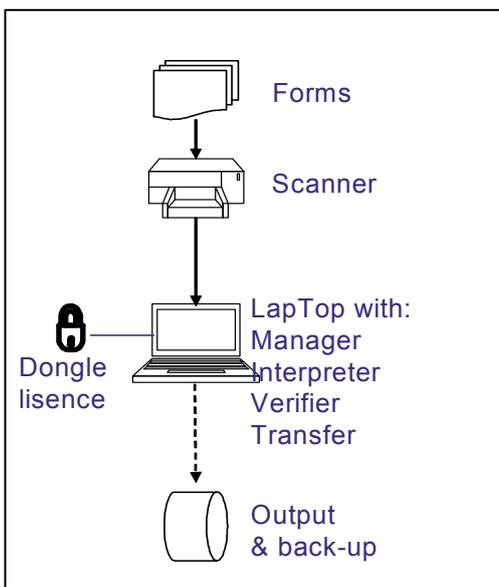
The management of the agriculture project also realized that there were few incentives for the local keying/IT staff to adopt the new technology. It was argued that it is bad policy to replace manual labour with technology. All in all these reactions indicated that it would be difficult to build sustainable technical capacity and "lasting ownership" to the method and instruments.

In spite of the somehow negative initial argumentation, scanning was chosen due to:

- Expected very fast entry and data processing with a small and easily organized staff -"we have to deliver results fast"
- The UBOS top management wanted to test and implement "state of the art technology".
- Manual data entry from the UBOS pilot agricultural census in 2003 took far more time and staff than expected (pre-entry checking, + 2 x data entry + validation)
- Testing of new technologies was an important part of the PASS project

After scanning was chosen, the PASS questionnaires were redesigned for OCR scanning and a simple single-user scanning solution was established.

Figure 2. The technical organization of the scanning introduced in UBOS 2003



In the end, the scanning for first round of PASS was done fairly efficiently and organized well with 4 staff working on scanning and logistics around the scanner. The aim was both to have the job done fast and also to build up capacity amongst a pool of UBOS staff.

An important guarantee for correct OCR scanning turned out to be the "mass verification routine" i.e. a routine for on-screen manual verification where pictures of all scanned numbers from the filling in of the forms are sorted in groups 0-9 (and/or A-Z) on the screen. With this module any misinterpreted figure can easily be identified and corrected on screen, provided that the operator is trained and dedicated.

Probably the most important lesson learned from the scanning of the PASS forms in 2004 was about incorrect filling in or completely missing of ID codes (county and household numbers/codes) received from the field work. Missing/wrong ID codes made it very difficult to link information from forms used in the first season to forms used in the second season for the same holding. Substantial work was used to do pre- and post-scanning data editing in order to make files ready for further use. A part of this work actually continued up to 2008.

Experiences from scanning in UBOS 2003-2005 is listed as follows (The Maputo Conference 2006):

- The table function in Microsoft Word was good enough for designing of scan-able questionnaires.
- Standard 80 grams paper can be used for scanning with good results.
- Some problems with the printing quality were registered when we used a local printing company. There is need for close follow-up during the printing/copying process. Modern copy-centre technique is preferred compared to traditional printing.
- The more auxiliary information that is pre-programmed for the scanner (look-up tables, valid ranges, mass verification etc), the higher score of automatic interpretation was achieved.
- The better hand writing and correct filling-ins from the field, the higher data entry efficiency - i.e. close supervision as well as training and motivation of field workers is urgent.
- The software used was sensitive to incorrect positioning of adjustment marks i.e. low quality copying of forms ad-hoc in the villages made scanning impossible.
- Leading zeros filled into numeric fields caused some unnecessary interpretation problems.
- More testing of the scanner and the programs should have been done before we started the fieldwork.
- Some technical start-up problems, due to lack of IT support.
- Dust problem was avoided by frequent cleaning and not least important by covering the scanner when not in use.

PASS output files from the scanning were fixed position ASCII formatted. These files were for some instances imported to the Microsoft Notebook software and edited there by the scanner operator. However, manual editing based on a simple tool such as Notebook is not recommendable. Also the fixed position file format is clearly very vulnerable to incidentally introduced "wrong position" errors. Unless direct import to SPSS is chosen as an option during the transfer process, a semicolon separated file would have been a more robust format. We also suffered from the use of several versions of scanning programs with varying variable formats.

Data collection and scanning for the annual PASS continued in 2004 and lasted up to 2006. After 2003 the scanner was operated by one person alone and questionnaires were scanned batch by batch as they arrived in UBOS throughout the year. The scanning officer clearly established "ownership" to the tools, excellent skills in organizing the inflow of forms in the office and good skills in practical and continued operation of the scanner. Unfortunately, it proved to be difficult to establish deeper technical skills or capacity for advanced local improvements of the scanning programs. Local initiatives and experimentations were difficult to develop both in the agriculture subject matter office, and in the UBOS IT support division. This may be some of the explanation for why scanning was not introduced to other UBOS divisions work at least up to year 2006.

Unfortunately, the quality and completeness of data received from the fieldwork of PASS remained fairly weak, and therefore, even if data capture by scanning was fast and accurate, the linking of data files based on household ID codes and other pre-scanning operations of the dataset remained very difficult.

Some of the questions in the PASS were very complicated and difficult to respond to. Further more the questionnaires should have combined OCR design with OMR design in order to increase the efficiency of scanning. Extensive training and field supervisor checking on the use of ID and other codes on the questionnaires should have been implemented and above all followed up by intensive supervision and field-controls.

It is noteworthy that the small scanner introduced to UBOS in 2003 was still operative in 2008 and in technically good condition. There were no technical breakdowns from 2003 to 2008, and thus no need for spare parts. So in spite of extensive use, no local professional technical support and the initial assumptions of dust- and moisture damages, the technical components of the scanning system proved to be fairly robust and sustainable.

9 Experience with scanning in Malawi 2005 - 2007

9.1 Background for the project

Institutional cooperation between the Malawi Ministry of Economic Planning and Development, the National Statistical office (NSO), the Economic Affairs Department of the Ministry of Finance and Statistics Norway was agreed upon in June 2003. The agreement comprised several modules with the overall aim to develop capacity of all the institutions.

The same single-user scanning solution as in Uganda was introduced to capture the data in 2005 Welfare Monitoring Survey (WMS). Malawi had used OMR software for data processing in 2002, so scanning was not new to the institution. However, the WMS required a more flexible scanning approach where both marks and hand written numbers should be captured.

At a conference in Maputo in 2006, NSO summed up the experiences from scanning the WMS 2005:

- More staff needed to be trained to use the software.
- Problems with ID coding (numbering of clusters) - some additional manual editing necessary.
- Inferior printing quality of questionnaires.
- Paper jams during scanning caused damages to some questionnaires.
- The WMS questionnaire contained too many sheets (it was printed single sided).
- White numbers on black background caused problems in the scanner.
- Answering categories on the form were not numbered.
- The "view" function of the scanner software was cumbersome.
- Server crash caused serious problems.
- More verification capacity (stations) needed.
- Need for expert available during first part of the scanning to see that the system works properly.

The bottom line of the experience was however that scanning and editing as a whole went according to the plan and that the institution, despite some problems, found themselves much better equipped to do the next survey.

9.2 Scanning the National Agricultural Survey of Malawi (NACAL)

The 2007 NACAL is funded by the Norwegian Government. It was agreed at an early stage in the planning process that all forms should be scanned and that SN should provide technical support on both scanning and data processing. The filling in of the NACAL forms requires a combination of OMR and OCR capacity. The distribution between typical OMR and OCR design varies considerably

between the 9 questionnaire modules. With SN to give technical assistance, and some equipment and capacity already at NSO, the E&H FORMS software normally used by SN was chosen also for this project.

The NACAL forms were received from the field over a period of 8-10 months (March-December 2007). The forms should be scanned and raw data files completed with little delay.

Box 3. NACAL forms 2007

Topic	# forms	#page/form	total pages
Household composition and characteristics version 1	10 000	19	190 000
Household composition and characteristics version 2	15 000	19	285 000
Land parcel	25 000	7	175 000
Plot details	75 000	10	750 000
Marketing (booklet)	25 000	5	125 000
Food security	25 000	10	250 000
WMS/Land tenure	30 000	20	600 000
Total number of pages	2 375 000

The total NACAL scanning job was estimated to 2 375 000 pages, or 1.2 mill. double sided A4 sheets.

During the planning process, several combinations of scanners, verify stations, network or not network based solutions were discussed. At the outset NSO staff was reluctant to accept Local Area Network (LAN) solutions. However, after a dialogue with users and the software provider and also considering the economical constraints, the NACAL system was set up around a high capacity scanner and computers for verifiers in a physical cabled mini-LAN. The LAN comprised 5 computers –the 3 verification stations, the controller PC and the server. An additional scanner served as a back-up.

Box 3. Scanning system hardware and software. NACAL 2007

1 x high capacity scanner (+ 1 back-up scanner) 3 x verify work stations (PC) 1 x server/database/core (PC) 1 x controller (PC) 1 x Complete basic license (manager, scan, interpret, verify, transfer) 3 x additional verifier licenses 1 x a server/database solution (max capacity 8 verify licenses)
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This system was tested in February 2007, but unstable power supply at project start implied that the system could only be run within regular working hours. When the power stability improved later in 2007, 2 scanning shifts per day made it possible to catch up with the large amount of forms coming in.

A virus attack in October 2007 seriously disturbed the scanning, with a complete stop for one week. Several scanning programs were lost and had to be re-programmed. Later it was discovered that the re-programming had introduced "positioning" errors in the fixed position ASCII output files. This made the post-scanning data cleaning very complicated. Moreover, it is likely that the "out-put" storage space in the scanning program between each export file activity was not properly emptied, causing a huge amount of duplicates that had to be identified later.

The SN mission report noted that:

- Too much focus is given to technological challenges, compared to organisational challenges
- Scanning can be more risky than manual punching because the potential scale of mistakes gets much bigger. Among the mistakes were use of different scanning programs, lost files and large number of duplicate cases.
- The scale of scanning operation is in it self a risk factor. Not only due to more work burden on key staff, but also because the risk of accidental change of scanning files increases over time
- The high risk of mistakes in the scanning process implies that the whole data processing chain must be reproducible and documented.
- When scanning is used, it is essential that the output file name is extracted into a string variable that is stored in the dataset.
- One copy of all output files from the scanner should be kept, even if seemingly empty files
- Must restrict access to the scanning system to avoid incompetent use and "flash discs" with viruses.
- Difficult file names on the out put files causes problems.
- With proper back-up routines the worst damage from viruses is not that virus destroys data, but that stress among the key staff generates programming and administrative mistakes.

9.3 About preparation for scanning of the Population and Housing Census in Malawi

The next population and housing census in Malawi is planned for June 2008 and preliminary results are requested available as early as August/September same year. A rather comprehensive set of questionnaires was pre tested during 2007.

OMR scanning will be used for the data capture, and a British contractor (DRS) is chosen both for printing the forms and for providing soft- and hard-ware.

10 Experience with scanning in Angola 2005-2008

10.1 Background for the project

A contract for cooperation between Statistics Norway (SN) and Instituto Nacional de Estatistica (INE) Angola was signed by the respective Government representatives in December 2001. The cooperation had several components with the overall objective to strengthen INE's capacity. The project was funded by NORAD.

10.2 The QUIBB experience

In 2005, scanning was introduced for piloting the "Questionnaire de Indicators Basicos de Bem-estar" (QUIBB). The QUIBB is a living condition survey to be conducted annually in Angola. SN provided technical assistance (TA) for redesigning the initial questionnaire to be better suited for the new OCR based scanning. The QUIBB 2005 questionnaire comprised 14 sheets (single sided A4 printing).

During an initial mission on scanning in 2005, a low-capacity table scanner and a full basic scanning software license were introduced by SN (same solution as in Uganda) (Mission report 1-13.8.2005). An intensive training program provided local capacity for programming and operating the scanner. As a pre-test, 500 questionnaires were scanned. In addition to detailed technical working instructions, the TA gave the following advices, based on experience from the pre-test:

- Ensure that several of the INE staff, preferably including staff from all subject matter departments, are involved in working with the scanning software.

- Allocate time for scanning staff to experiment and develop skills on their own.
- Arrange a follow-up course on how to put in controls and manage the more advanced options in the software.

A follow-up TA mission to INE on scanning was conducted in early 2006 (mission report 01-09.02.2006). The main tasks for this mission were to install and establish a server solution with a database/server, a high capacity scanner and 5 verification work-stations in a local LAN.

Unfortunately, the expectations concerning local capacity building from this mission was not possible to full fill due to sick-leave of INE core staff.

The main QUIBB survey was conducted during the spring 2006 and scanned in batches as soon as forms returned from the field. Unfortunately, INE staff did not build up sufficient capacity on the scanning software ahead of the main survey. Therefore it is clear that the scanning soft- and hardware could have been more efficiently used for the QUIBB. Some problems with the quality of the printed forms as well as misinterpretation due to bad handwriting are reported. For future surveys, INE will address the problems of bad handwriting better by including specific testing before enumerators are employed. INE is the only NSO in the actual period that reported specifically about problems with water/moisture damages of the received forms due to rainy season in some areas.

10.3 Preparation for the Labour Force Survey 2008

Due to high staff turnover, new LAN installation and also because of the limited training conducted during the previous mission, another SN follow-up mission to INE was conducted in 2008 (mission report 14-25.04.2008). The objective of this third mission were to do training of staff and reinstallation of the scanning software in order to enable INE to capture data by scanning of the National Labour Force Survey planned for June 2008.

During the mission, the installation procedures were thoroughly discussed, and several local IT experts should now be able to take care of the technicalities for future projects. In parallel 5-10 INE staff participated in a training course in the practical use of all the 5 modules of the E&H FORMS software. The same group also looked into initial post-scanning data checking based on a SPSS syntax file. Finally the mission supported some specialized INE staff in redesigning questionnaires for better scanning results. The overall impression is that INE department of IT now is seriously adopting the technology.

INE has per April 2008 1 E&H FORM version 5.2 full network license, 1 full single license and 5 verification licenses. They have 2 Fi 5750C medium capacity scanners and an operative network with a central server. The database system supporting the FORM software for the network is RDM Birdstep controlled by FLEXIm software.

11 Experience with scanning in Southern Sudan 2006-2008

11.1 Background for the project

In 2005, Statistics Norway was invited to support Southern Sudan to develop a statistical service. Based upon initial discussions in 2005 and early 2006, a program for cooperation between Southern Sudan Commission for Census, Surveys and Evaluation (SSCCSE) and SN in 2006 and 2007 was funded by the Ministry of Foreign Affairs of Norway. The program was based upon the priorities set out by the Comprehensive Peace Agreement (CPA) and upon the findings and recommendations from the international Joint Assessment Mission (JAM).

11.2 Scanning relevant hard- and software used by SN in Sudan

Data capture and capacity building in SSCCSE used a low capacity table scanner, with option for double sided scanning, linked to a lap top with a single user full scanning-software license. At the same time software for post-scanning data processing was introduced. The same equipment had already been proven robust in Uganda and Malawi and it had the technical capacity sufficient to meet needs for data capture foreseen for the 2006 and 2007 cooperation program. Furthermore, the equipment was regarded as a good introduction to OMR/OCR scanning techniques ahead of the population census, initially planned for November 2007. Finally this light equipment was regarded as suitable for transport between the SSCCSE central office, the data processing centre and if needed be also between the 10 State Statistical offices in Southern Sudan.

11.3 Human capacity building

The SSCCSE was established from scratch in 2005 and in most of 2006 there were very few employees. After agreeing to use scanning in the cooperation project, SSCCSE appointed one temporary employed officer for training in scanning. The officer, who was trained during 2006, proved to be very good and he took full ownership to the system. Unfortunately, early 2007 this officer left SSCCSE for a better paid job in a NGO. At that time the SSCCSE administration realized that they need to train more than one officer on scanning in order to be less vulnerable for turnover. Therefore two permanently employed SSCCSE officers were trained for scanning in 2007. These two officers proved to be stable and motivated and by the end of 2007, SSCCSE had full in-house human and technical capacity on the E&H FORMS scanning soft- and hardware. The same two officers have now a key role in the scanning and further processing of the Population and Housing Census in 2008. The scanning of the census is outsourced to a private company and will be done as 100 percent OMR.

11.4 The Household Budget Survey (HBS) and the Welfare Monitoring Survey (WMS)

Both questionnaires (WMS and HBS) were designed based on experience from similar surveys done by SN in Malawi, but edited to fit to the special conditions in Southern Sudan. The HBS and WMS questionnaires were developed in Microsoft Excel and Microsoft Word respectively. The two forms designed have similarities in the sense that they both consisted of 5-6 A4 sheets printed on two sides and stapled together. However, the WMF questionnaire was mainly designed as for OMR scanning principles, while the HBS was mainly designed for scanning and interpretation of numbers/codes filled in directly (OCR). Both questionnaires were distributed to a sample of 144 urban households in Juba town each quarter of 2007. This allowed the survey organizers to follow the progress in the interviewers understanding of what the scanner required in terms of printing and filling in of the forms.

During the first and second quarter the forms were printed/copied on a local printer in Juba. Especially the second quarter print-outs were of such a low quality that they were difficult to scan. The main reasons for the scanning problems were that the local printer-toner use was set to "draft modus" and also substantial inaccuracies and skewed adjustment marks distorted the forms produced on the low quality in-house copy-machines.

In addition to the questionnaire print problem, several of the enumerators had used a very hard pencil (we advised the enumerators to use blue/black pens or soft pencils for filling in). As a result many forms were rejected by the scanner and many of the scanned forms were difficult to interpret due to the weak writing from the pencil. In the end we had to manually key a substantial part of the HBS forms, and completely gave up capturing near 50 percent of the WMS forms from the second quarter fieldwork.

For the third and fourth quarter of 2007, we printed high quality forms in the SN Copy Centre in Norway and shipped them to SSCCSE. The scanning for second half of 2007 therefore went without any serious problems. Printing forms in Norway for use in Southern Sudan is regarded as a temporary and not sustainable solution. A private initiative state of the art printing service is planned established in Juba in 2008. This will solve the problem of the current missing local services for high quality printing of questionnaires for larger surveys.

Forms from the 4th round of WMS/HBS field work were received in the SSCCSE Data Processing Centre in Rumbek and scanned by OCR+OMR without any problems. The workload was approx two man-days for scanning and verification including sorting, de-stapling/stapling and physical storing of forms (300 A4 forms x 11 pages per form) (mission report 26.10-24.11.2007).

The log from the automatic interpretation of the 4th quarter scanning of WMS, mainly OMR design, is as follows:

- Interpretation time: 1.09 hours
- Number of forms: 191 (some households have more than 10 members and needs more than 1 form)
- Number of sheets: 955
- Share of characters automatically interpreted: 99.1%

For the HBS, the automatic interpretation rate was found between 96-98 percent of all characters and the final manual onscreen verification took 2-3 hours. During the manual verification, it turned out that most characters were already correctly interpreted by the software. In retrospective it would have been better if the security/accuracy level of the software automatic interpretation module was reduced from level 8 to level 7. This would have speeded up the verification process for the HBS without any serious reduction of the output quality.

11.5 Scanning of the Human Resource Assessment Questionnaire

SN conducted a fact finding mission in order to start up on a program for general human resources development (HRD) in Juba August 2007. In order to support this mission, a single sheet, double sided A4 format questionnaire concerning individual capacity was designed in Microsoft Word. A total of 56 centrally employed staff responded to the assessment of a few personal background characteristics, formal education, current skills and possible need for further training. The form was scanned and processed during the mission and the data file, as well as some first key results, was presented to the SSCCSE administration before the end of the mission (mission report 18.08-15.09.2007).

11.6 Scanning of the Village Service Form (Census 2008)

In preparation for the 5th Population and Housing Census in Sudan (PHC), the whole country was mapped and divided into enumeration areas (EA). Mapping teams, doing fieldwork in 2006 and 2007, visited all villages and did a quick count of the population. Coordinates for village centre points, schools, water boreholes etc. were be recorded by GPS and reported back in electronic format for central data processing and EA mapping in Khartoum (CBS) and in Rumbek (SSCCSE).

At an early stage, the Census Technical Working Group (TWG) agreed to utilize the mapping fieldwork to collect a few key variables on the availability of services in the villages. A single sheet (double sided A4 format) questionnaire developed in Microsoft Word was agreed for national use (TWG 03.05.2006). The agreed form was a result of a difficult process of compromising and it is not

optimally designed for scanning. The Village Service Survey (VS) form could obviously also have been better designed to capture more information about accessibility to services in the villages.

SN was invited to assist SSCCSE to capture and process the data collected on the VS form. The idea was at the same time also to build up SSCCSE staff capacity on scanning in general, since scanning was agreed to be used for data capture of the PHC. The Central Bureau of Statistics (CBS) in Khartoum decided to manually key in the data from the VS form, and was not interested in technical support on scanning from SN.

The mapping fieldwork in Southern Sudan started later than expected and also with far less field staff than initially planned. At an early stage, the VS forms were produced on local printers/copiers in Rumbek. Unfortunately it took as long as early August 2007 to have a professional company to print enough high quality VS forms and distribute the printed forms to the field. The main reasons for the late distribution of printed forms was partially due to confusion on who's responsibility it was to initiate printing. Further delays occurred because when the first batch of forms finally was received from the printing company, they were clearly of substandard quality and therefore refused by SSCCSE. Reprinting was required before excellent quality finally was delivered.

Due to late return of VS forms from the field work, scanning of the VS forms could not start before the SN follow-up mission in November 2007. At that time forms from 39 counties out of 79 counties total where more or less completely received in-house by SSCCSE.

Problems with many locally copied VS forms used in the field at an early stage of the project, forced the SSCCSE staff to develop scanning program(s) for data capturing of the 2-3 main formats received. By using these programs, a total of 886 VS forms were scanned by a single SSCCSE operator during 2 work days. The scanning was efficient as long as we scanned the professionally printed forms³. However, at that time we worked mainly with forms received from States finalized in May to July and thus with extensive use of non-scan-able locally copied versions of the form - and with mix of formats used even within each EA. This slowed us down to the extent that we decided to establish a parallel line for manual keying of the most difficult forms.

To ensure efficient manual data capture in addition to scanning for the VS form, an Excel based macro driven data entry application was developed and taken into practical use. Excel was used because this software is well known and installed in most computers in SSCCSE. This makes it possible to copy the application to many users without extra software installation and with a minimum of training.

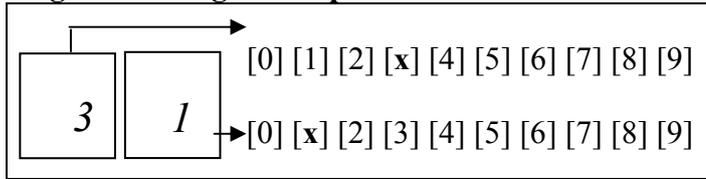
During the SN mission, a total of 792 forms were manually keyed with a keying speed of approx 180 forms per person-day. Keying speed should be increased by more training, further streamlining of the entry macro, better logistics for handling and storing the forms and by using a numeric key-board instead of the lap-top default. Data entry of the main bulk of VS forms will have to postponed to third quarter of 2008 in order first to capture and process the PHC results.

11.7 Scanning of the 5th Population and Housing Census in Sudan (PHC)

The PHC in Sudan will be scanned using OMR only. Two questionnaires are technically designed by a professional provider of hardware and software for scanning. The questionnaires are developed for use of dropout colour (red). There is an interesting design of OMR "bubbles" as illustrated in Figure 4.

³ 20,000 VS forms printed in Khartoum

Figure 4. Design of respondent fields for the Sudan Population Census Questionnaire



The boxes to the left (Figure 4) are the first to be filled in by the fieldworker during the interview in order to conduct the interview fast. Thereafter the interviewer will "tick off" the corresponding OMR marks so the information can be scanned. Due to the strict use of OMR, the information in the initial boxed can not be captured by the scanner. However, if necessary they can be used for keying from screen after scanning since a TIF file of the forms (a picture) are stored in the computer.

The census pilot revealed that many fieldworkers had problems with understanding how to filling in the forms tick-off boxes. As a consequence of this observation, the arrows that intuitively better should link the boxes and the "tick-off" parts were introduced. An extensive training program was conducted for the interviewers. The fieldwork for the PHC was done late April 2008, and scanning as well as further data processing of the key variables is planned to be finalized during third quarter 2008.

12 Conclusions and Recommendations

12.1 The scanning process

The understanding of "successful scanning" is a situation where the data from a filled-in questionnaire is close to 100 percent correctly copied to a digital data file of ASCII characters/numbers. Correction of data during the scanning process should be kept at a minimum. There are efficient and specialized software available for post-scanning data cleaning. Advanced data cleaning also needs specially trained subject matter staff that normally is not involved directly in the scanning process. The core scanning process using the E&H FORMS OCR software comprises 4 steps:

1. Scanning (physically feeding forms through a scanner)
2. Automatic interpretation (pictures of letters and numbers that are converted to ASCII characters)
3. Manual verification (operators on-screen verification of those characters that are not already interpreted in step 2)
4. Transfer (transfer of the final interpreted ASCII file to an output file for further processing)

All experience from the project period indicates that the time used for manual on-screen verification of "not interpretable" or "uncertain" characters/numbers is the bottleneck in the core scanning process.

Time used for manual verification can be reduced first and foremost by using the OMR concept where ever possible and otherwise by ensuring good quality of handwriting and filling-ins received from the field. Secondly, it is crucial to test out the programming for the scanning process thoroughly before the real job starts. The latter is done by optimizing the setting of valid range checks, accuracy level etc. in the software manager environment.

The most efficient organization for scanning of large amount of data is to establish a LAN solution, organize scanning and verification in multiple shifts and run the automatic interpretation procedure during the night. Virus protection and back-up routines should be emphasised. Uncontrolled use of

flash-disks and downloading from Internet may infect the system with viruses, and has caused serious set-backs.

Recent experience from Malawi indicates that the internal "output box" in the scanning software should be emptied completely each time the scanned raw data file exported/transferred to avoid unnecessary duplicates.

12.2 The total organization for scanning and the human resources

"It is not the scanning, but organizing the activity around the scanner that is the problem" is a statement repeatedly expressed by consultants. So in order to ensure successful scanning (as well as for all other methods for data capture), it is imperative to have thorough training and tight supervision of staff - both the staff directly involved with scanning and verification and the fieldworkers filling in the forms.

A well-planned system for logging of questionnaires received, scanned and finally stored is required to avoid duplicates and even more important to avoid missing out forms from the scanner.

For the PASS exercise in Uganda 2003 -2005, the farmers were visited 3-4 times during the year and the fieldworkers filled-in several questionnaires for each holding. We had severe problems with linking information from the different forms during the post scanning data processing. In retrospective it is clear that with more manual checking of the ID codes both in the field and also as forms were received at the scanning office, these problems could have been avoided. Recent missions (January, 2008) on post scanning data processing in Malawi seems to experience the same difficulties with linking forms from different files. More manual data checking before scanning especially on ID codes (State, County, Enumeration area and Household numbers) is needed.

The overall experience from the cooperation projects in Uganda, Malawi, Angola and Sudan 2003-2008 is that the scanning methods and tools work well. However, it proved to be a difficult and time consuming task to train enough staff, to maintain them and above all to have the cooperation partners to really take over the ownership and responsibility. All consultants involved in implementing scanning in the four NSOs have stressed the need for enough and well-trained staff. The NSO staff have repeatedly been encouraged to use time for "self training" without much response. The manual that comes along with the actual scanning software is really good and well suited for studies and experiments on own initiative. Unfortunately, it seems to be a general problem that hinders local staff to take own initiatives for learning the more advanced use and thereby take over the ownership to the method and tools in our cooperating institutions. This can to some extent probably be explained with strict top-down management and limited incentives for individual initiatives.

The NSO in Malawi and Angola have per 2008 after all come a long way on taking over the ownership and responsibility for the scanning. They have now a pool of well trained verifiers and scanner operators and also good IT support. However even these institutions remain vulnerable to staff turnover since there are still only few supervisors to the scanning system with special capacity for programming and really advanced use.

In Uganda and Sudan, they have currently very good scanning operators but it is still no really advanced user capacity in place. As a result they remain dependent and also really expect external support for some more time. Both institutions capacity for scanning is still vulnerable to staff turnover since very few people are actually trained. The situation in Sudan early 2008 is that the two IT staffs currently trained for scanning is advancing fast in the organization and they may turn out to be lost for practical scanning operations.

12.3 Strategy for implementation

First and foremost it is necessary to allocate enough time and resources by both the cooperating institutions to establish institutional understanding of the scanning process and its consequences for organization of the whole data processing activity, to ensure sustainability, motivation and local ownership. Statistics Norway can assist in setting up of the scanning system and give thorough training in practical scanning and questionnaire design, but should also have a realistic and agreed exit strategy. It should be made clear at an early stage that scanning is only a building block in a comprehensive holistic data capture and processing system. The outcome for the cooperating institution should be a transparent and easy to organize data capture system for sustainable and continued use yielding high quality statistics with short processing time.

12.4 Type of scanner

After thorough discussions and ensuring support from the NSO administration, SN brought in a small table scanner linked to a lap-top with a complete single user scanning software license. This flexible and open ended technical and organizational solution has proved to be a good approach for method testing and building up NSO capacity from scratch. After the first pre-test and training, the NSO in Malawi and Angola decided to expand the technical capacity on OCR scanning, while Uganda and Sudan until further decided to remain with the initial technical solution.

The type of scanner used at cooperation start-up has an automatic feeder mechanism for up to 50 pages per batch and a technical capacity of feeding 500 A4 double sided sheets per hour. This is enough for training and also for practical scanning of reasonable sized statistical surveys such as those conducted in Uganda and Southern Sudan during the project period. For the Agricultural Census in Malawi the NSO immediately replaced the initial small scanner with a high capacity machine (3 000 A4 sheets/hour) which they already had in-house. They also expanded the software with 2 more verification licenses - all linked to a server in a separate LAN. The NSO Angola build up even more technical capacity by introducing as much as 5 verification licenses combined with a high capacity scanner in their LAN. To ensure more flexibility for questionnaire design, it is recommendable to choose scanners that have the capacity for both A4 and A3 formats, and to use commercially available well known brands taking into consideration availability of service and spare parts.

12.5 Scanning software

There are several very good and relevant soft-wares for OCR in the market. The E&H FORMS scanning software that SN recommended to its cooperation partners has the capacity to interpret handwritten characters, numeric values, barcodes and a variety of symbols i.e. a typical OCR software. The same software can however also be used for interpreting marks such as "tick-of marks", "ring around marks" and "filled in bubbles" i.e. the OMR concept. The software capacity for both typical OCR and OMR gives the users some very important flexibility when it comes to questionnaire design.

12.6 Questionnaire design and printing

During the project period several questionnaires were designed in cooperation with the NSOs. Microsoft Excel and Word proved to be available by all the partners and also to be good enough as tools for designing questionnaires. Questionnaires should have precise printing in terms of exact positioning on the sheet and also in terms of continuous and sharp printing of symbols and boxes. Grey shades and "pollution" in the areas allocated for scanning is unfortunate. We recommend to produce final questionnaire manuscripts as pdf formatted files to avoid incidental lay-out disturbance during printing.

Questionnaires printed on a high quality office laser printer or similar normally are good enough for scanning. Default black box-outlines and black characters on white paper are recommended. Use of grey-shading unnecessarily increase the use of printing toner and can also lead to unfortunate reduced contrasts. Use of drop-out colours will normally increase the user friendliness of the forms, but it also increase the printing costs and it adds complexity to the total process since it requires special bulbs and sensors for the scanner. By combining typical OCR and OMR design, the questionnaire length can be reduced at the same time as complexity of design is kept on a reasonable level i.e. achieve user friendliness.

If external printing companies are used, it is very important that clear contracts are signed and that the NSO representative follows the printing process closely. In Malawi, Uganda and Sudan we used external printing companies and experienced problems with the printing quality delivered. A safe approach during start-up of projects turned out to be using the SN copy centre to print the forms in Norway and ship them by air to the actual country for the survey. However, printing in Norway is not a sustainable option, and local alternatives for printing should be developed.

Based on experience from the projects 2003-2008, the minimum paper quality is 80 grams bleached paper. Recycled paper and unbleached paper with reduced use of clay and glue was avoided since we feared dust and other damages. Due to expected very rough conditions during the fieldwork, we used 100 grams paper in Southern Sudan with good results. Use of envelopes for storing questionnaires/clusters of questionnaires gives protection during the fieldwork and also makes it easier to organize the sorting and storing of forms when received in the NSOs.

Sources

2008. SN mission report. Per Schønning and Tore Haugland to INE Angola.

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2006. SN mission report. Inger Helene Ruud 09.02.2006 to INE Angola

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Strictly Confidential Information

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PERMANENT AGRICULTURAL STATISTICS SURVEY (PASS)
PASS Form 2: Crop Plots Area and Production Forecast on Small and Medium Scale Holdings

1. Holding Geo-Reference

#	Item	(1) Name	(2) Code
1	District		
2	County		
3	S-County		
4	Parish		
5	EA		

2. Coordinates for the Holding

#	North / South	(1) N / S	(2) Decimal Degrees
1			
	East		(1) Decimal Degrees
2			

3. Holding Particulars

(1) Serial Number (2) Size Class of Holding (codes next page)

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4. Visit Particulars

(1) Agric. Year (2) Agric. Season (3) Visit Year (4) Visit Month (5) Visit Day (6) Result of interview

--	--	--	--	--	--

(codes next page)

5. Name of Holder

#	(1) First Name	(2) Last Name
1		

6. Crop /Tree Production on the Holding

Is crop, including trees/forest, grown on the Holding during this Agricultural Season?
1= Yes, 2= No If Yes, go to 7. If No, end interview

--

7. Crop Production Forecast Characteristics

What crops are grown on the Holding this Agricultural Season by number of plots and stand. How much is expected to be produced in the Season?

#	Crop Type Code	Number of plots by stand		Expected Production / Harvest this Season		
		Pure	Mixed	Unit of Quantity Code	Number of Units	Condition / State Code
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1						
2						
3						
4						
5						
6						
7						

Crop type (Col.2) and Unit of Quantity (Col. 5) see next page.
Condition/State (Col. 7), see Manual.

7. Continued

#	Crop Type Code	Number of plots by stand		Expected Production / Harvest this Season		
		Pure	Mixed	Unit of Quantity Code	Number of Units	Condition / State Code
(1)	(2)	(3)	(4)	(5)	(6)	(7)
8						
9						
10						
11						
12						
13						
14						

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8. Crop Plots Measured by GPS Characteristics

Plot #	Plot Area measured by GPS. Hectare with 3 decimals (Ha)	Crop Stand Code	Crop 1 (Primary/Dominant)			Crop 2 (Secondary)			Crop 3 (Third)			Crop 4 (Fourth)		
			Crop Type Code	Crop 1 Cover Percent	Crop produce this Season 1= Yes 2= No	Crop Type Code	Crop 2 Cover Percent	Crop produce this Season 1= Yes 2= No	Crop Type Code	Crop 3 Cover Percent	Crop produce this Season 1= Yes 2= No	Crop Type Code	Crop 4 Cover Percent	Crop produce this Season 1= Yes 2= No
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Codes for Crop Stand (Col. 3): 1 = Pure Stand, 2= Mixed or Associated Stand . For Crop Type Codes (Col. 4,7,10) – See below

Codes for Units of Quantity. (Table 7 Col. 3)

1=Kilogram (kg)	9=Tin (20 l)	17=Small bunch (10 kg)
2=Liter (l)	10=Tin (5 l)	18=Medium bunch (20 kg)
3=Cubic meter (m3)	11=Blueband (2 kg)	19=Large bunch (30 kg)
4=Piece	12=Plastic basin (20 l)	20=Extr. large bunch (40 kg)
5=Sack (120 kg)	13=Basket (50 kg)	21=Small bundle (10 kg)
6=Sack (100 kg)	14=Basket (20 kg)	22=Medium bundle (20 kg)
7=Sack (80 kg)	15=Basket (10 kg)	23=Large bundle (30 kg)
8=Sack (50 kg)	16=Basket (5 kg)	

Size class of holding (Table 3)

1=Small
2=Medium

Result of interview (Table 4)

1=Interview completed
2=No respondent available
3=Refusal

Codes for Crop Type (Table 7 Col.2, Table 8, Col. 4-7-10-13)

111=Wheat	330=Sunflower	530=Tobacco, all types	743=Banana roasting type	850=Curry
112=Barley	340=Simsim	531=Tobacco, flue-cured	744=Banana sweet type	860=Oil palm
120=Rice	410=Cabbage	532=Tobacco, fire-cured	750=Mango	870=Vanilla
130=Maize	420=Tomatoes	610=Irish potatoes	755=Jack fruit	880=Black wattle
141=Finger millet	430=Carrots	620=Sweet potatoes	760=Avocado	910=Pine/Cyprus
142=Bullrush millet	440=Onions	630=Cassava	765=Moringa	915=Eucalyptus
150=Sorghum	450=Pumpkins	640=Yam	770=Ficus(Mutuba)-bark	920=Mahogany
210=Beans	460=Dodo	650=Cocoyam	771=Ficus(Mutuba)-wood	925=Teak
220=Peas, all types	470=Eggplants	710=Oranges	775=Neem	930=Bamboo
221=Field peas	480=Cauliflower	715=Pawpaw	811=Coffee Arabica	985=Bush
222=Cow peas	470=Eggplants	720=Pineapples	812=Coffee Robusta Clonal	990=Other trees n.e.s
223=Pigeon peas	480=Cauliflower	725=Passion fruits	813=Coffee Robusta Nganda	
224=Chick peas	510=Sugarcane	740=Banana all types	820= Cocoa	
310=Groundnuts	520=Cotton	741=Banana food type	830=Tea	
320=Soya beans		742=Banana beer type	840=Ginger	

Supervisors' Name: Supervisors' Signature: Date:

Enumerators' Name: Enumerators' Signature: Date:

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+ HOUSEHOLD BUDGET SURVEY
Southern Sudan

Southern Sudan Commission for Census, Statistics and Evaluation (SSCCSE)



A. Household identification and interview particulars

Region	Code
Household serial number	

Region	Code
Town	

Region	Code
Survey round number	

Region	Code
Enumerator identification number	
Region	Code
Number of household members	

Is the head of the household the same person as the respondent?

1 Yes
2 No

Please, indicate start and end date and time for the interview

Day	Month	Year	Interview started time hh . mm:
Day	Month	Year	Interview ended time hh . mm:

Instructions

Any changes in number of Household members since first visit must be recorded.

How to filling in the questionnaire:

Read out each commodity for the respondent as follows:

"Over the past one week (7 days), did you or others in your household consume any <item>?"

1) If the respondent answers "no", fill in code "2" for "no" in column W02, leave the rest of the line open/blank and continue to next line/item and repeat the questioning.

2) If the respondent answers "yes" continue to ask questions and fill in information about purchase and consumption (W03-W15) before you continue to next line/item.

Do not fill ticks/strokes/zeros in un-used fields. This will disturb the scanner.

About units of measure:

The units of measure used may vary from commodity to commodity. The enumerator should fill in the information specified and coded either as "number of pieces" or as SI units such as kilogram (kg), gram (g), and liter (l) and deciliters (dl). There is no option for decimals in the form. DO NOT FILL INN VALUES WITH DECIMALS. Instead use a smaller unit of measure for example: 0.5kg should be coded as 500g.

A simple conversion table from commonly used units of measure to SI units is provided at the left side of the form. This serves for guidance for the enumerator during the interview. Local probing and discussion with the respondent will be necessary to determine the more accurate conversion to SI units.

Item code	Tick off Yes or No for all items	Purchases										Consumption							
		2. How much of <item> was purchased?										3. How much of the <item> purchased <item> was consumed?		4. How much of <item> was consumed from own production?		5. How much of <item> was consumed from own stock?		6. How much of <item> was consumed from gifts and other sources?	
		2a. Quantity (number of units)	2b. Amount of money total spent	Money Unit	2c. Where was the <item> purchased?	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15	
0100 Cereals, grains, cereal products																			
0101	Maize (flour)																		
0102	Maize (grain)																		
0103	Maize (in the cob)																		
0104	Rice																		
0105	Millet (grain)																		
0106	Sorghum (flour)																		
0107	Sorghum (grain)																		
0108	Wheat flour																		
0109	Bread																		
0110	Buns																		
0111	Biscuits																		
0112	Spaghetti																		
0113	Macaroni																		
0114	Breakfast cereals																		
0115	Infant feeding cereals																		

Quantity units:
Codes to be used:
1 = piece
2 = gram (g)
3 = kilogram (kg)
4 = deciliter (dl)
5 = liter (l)

Other quantity units:
6 = Cup (8 dl)
7 = Glass (2 dl)
8 = Glass (1 dl)
9 = Tee Spoon
10 = Bottle (5 dl)
11 = Big heap
12 = Small heap
13 = Bundle big
14 = Bundle small
15 = 90 kg bag/sack
16 = 50 kg bag/sack
17 = Basket big (10 l)
18 = Basket small (5 l)
19 = Plastic basin (10 l)
20 = Jerry can (20 l)
21 = Bunch big (30kg)
22 = Bunch med. (20kg)
23 = Bunch small (10kg)

Place of purchase codes (W07)
1 = city market
2 = street vendor
3 = local shop
4 = market/roadside out of town
5 = Own import
6 = Home residence
7 = Restaurant/bar

Item code	Tick off Yes or No for all items	Purchases					Consumption								
		2. How much of <item> was purchased?					3. How much of the purchased <item> was consumed?	4. How much of <item> was consumed from own production?	5. How much of <item> was consumed from own stock?	6. How much of <item> was consumed from gifts and other sources?					
		2a. Quantity (number of units)	2b. Amount of money total spent	2c. Where was the <item> purchased?	Money Unit	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)					
W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15	
1. Over the past one week (7 days), did you or others in your household consume any <item>? Include food both eaten communally in the household and that eaten separately by individual household members															
0200 Roots and tubers, plantain															
Cassava tubers	0201	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Cassava flour	0202	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Sweet potato	0203	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Irish potato	0204	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Yams	0205	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Cooking banana	0206	<input type="checkbox"/> Yes <input type="checkbox"/> No													
0300 Vegetables															
Onion	0301	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Cabbage	0302	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Tomato	0303	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Cucumber	0304	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Pumpkin	0305	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Carrot	0306	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Green leafy vegetables	0307	<input type="checkbox"/> Yes <input type="checkbox"/> No													
Okra	0308	<input type="checkbox"/> Yes <input type="checkbox"/> No													

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Quantity units:
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 4 = deciliter (dl)
 5 = liter (l)

Other quantity units:
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 7 = Glass (2 dl)
 8 = Glass (1 dl)
 9 = Tee Spoon
 10 = Bottle (5 dl)
 11 = Big heap
 12 = Small heap
 13 = Bundle big
 14 = Bundle small
 15 = 90 kg bag/sack
 16 = 50 kg bag/sack
 17 = Basket big (10 l)
 18 = Basket small (5 l)
 19 = Plastic basin (10 l)
 20 = Jerry can (20 l)
 21 = Bunch big (30kg)
 22 = Bunch med. (20kg)
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+

Place of purchase codes (W07)
 1 = city market
 2 = street vendor
 3 = local shop
 4 = market/roadside out of town
 5 = Own import
 6 = Home residence
 7 = Restaurant/bar

+

+

+ 1. Over the past one week (7 days), did you or others in your household consume any <item>? <small>Include food both eaten communally in the household and that eaten separately by individual household members</small>	Item code	Tick off Yes or No for all items	Purchases					Consumption								
			2. How much of <item> was purchased?					3. How much of the purchased <item> was consumed?		4. How much of <item> was consumed from own production?		5. How much of <item> was consumed from own stock?		6. How much of <item> was consumed from gifts and other sources?		
			2a. Quantity (number of units)	2b. Amount of money total spent	Money Unit 1=S.P(New) 2=SD 3=K.Shs 4=U.Shs 5=USD	2c. Where was the <item> purchased? (see codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)
W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15		
0400 Pulses																
Beans	0401	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Pigeon peas	0402	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Cow peas	0403	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Groundnuts	0404	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Groundnut flour	0405	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Soya bean flour	0406	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Tinned pulses	0407	<input type="checkbox"/> Yes <input type="checkbox"/> No														
0500 Fruits																
Mango	0501	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Banana (sweet type)	0502	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Oranges	0503	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Pineapple	0504	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Papaya	0505	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Avocado	0506	<input type="checkbox"/> Yes <input type="checkbox"/> No														
Apples	0507	<input type="checkbox"/> Yes <input type="checkbox"/> No														

Quantity units:
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5 = liter (l)

Other quantity units:
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11 = Big heap
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14 = Bundle small
15 = 90 kg bag/sack
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21 = Bunch big (30kg)
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Place of purchase codes (W07)
1 = city market
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4 = market/roadside out of town
5 = Own import
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7 = Restaurant/bar

+	1. Over the past one week (7 days), did you or others in your household consume any <item>? Include food both eaten communally in the household and that eaten separately by individual household members	Item code	Tick off Yes or No for all items	Purchases										Consumption						
				2. How much of <item> was purchased?				3. How much of the purchased <item> was consumed?			4. How much of <item> was consumed from own production?			5. How much of <item> was consumed from own stock?			6. How much of <item> was consumed from gifts and other sources?			
				2a. Quantity (number of units)	2b. Amount of money total spent (see unit codes at right)	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD	2c. Where was the <item> purchased? (see codes at right)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)	Quantity (number of units)	Quantity unit codes (see unit codes at right)		
W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15						
0600 Meat, fish and animal products																				
	Eggs	0601	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Dried fish	0602	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Fresh fish	0603	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Beef	0604	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Goat/sheep meat	0605	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Pork meat	0606	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Chicken	0607	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Other poultry	0608	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Small animal (rabbit, mice etc)	0609	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Insects	0610	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Tinned meat	0611	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Tinned fish	0612	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
0700 Cooked foods from vendors																				
	Maize boiled/roasted	0701	<input type="checkbox"/> Yes <input type="checkbox"/> No																	
	Cassava boiled	0702	<input type="checkbox"/> Yes <input type="checkbox"/> No																	

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Other quantity units:
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Place of purchase codes (W07)
1 = city market
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4 = market/roadside out of town
5 = Own import
6 = Home residence
7 = Restaurant/bar

+ 1. Over the past one week (7 days), did you or others in your household consume any <item>? Include food both eaten communally in the household and that eaten separately by individual household members	Purchases					Consumption							
	Item code	Tick off Yes or No for all items	2. How much of <item> was purchased?			3. How much of the purchased <item> was consumed?		4. How much of <item> was consumed from own production?		5. How much of <item> was consumed from		6. How much of <item> was consumed from gifts and other sources?	
			W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13
	W01	W02	2a. Quantity (number of units)	Quantity unit codes (see unit codes at right)	2b. Amount of money total spent	Money Unit 1=S.P(New) 2=SD 3=K.Shs 4=U.Shs 5=USD	2c. Where was the <item> purchased? (see codes at right)	Quantity unit codes (number of units)	Quantity unit codes (see unit codes at right)	Quantity unit codes (number of units)	Quantity unit codes (see unit codes at right)	Quantity unit codes (number of units)	Quantity unit codes (see unit codes at right)
0700 Cooked food from vendors continued													
Eggs boiled	0703	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Chicken	0704	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Meat	0705	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Fish	0706	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Doughnut	0707	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Meat dishes eaten at restaurant	0708	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Fish dishes eaten at restaurant	0709	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Samosa	0710	<input type="checkbox"/> Yes <input type="checkbox"/> No											
0800 Milk and milk													
Fresh milk	0801	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Powdered milk	0802	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Butter	0803	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Yoghurt	0804	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Soured milk	0805	<input type="checkbox"/> Yes <input type="checkbox"/> No											
Cheese	0806	<input type="checkbox"/> Yes <input type="checkbox"/> No											

Quantity units:
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4 = deciliter (dl)
5 = liter (l)

Other quantity units:
6 = Cup (8 dl)
7 = Glass (2 dl)
8 = Glass (1 dl)
9 = Tee Spoon
10 = Bottle (5 dl)
11 = Big heap
12 = Small heap
13 = Bundle big
14 = Bundle small
15 = 90 kg bag/sack
16 = 50 kg bag/sack
17 = Basket big (10 l)
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19 = Plastic basin (10 l)
20 = Jerry can (20 l)
21 = Bunch big (30kg)
22 = Bunch med. (20kg)
23 = Bunch small (10kg)

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Place of purchase codes (W07)

1 = city market
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+

+

Item code	Tick off Yes or No for all items	Purchases					Consumption								
		2. How much of <item> was purchased?					3. How much of the purchased <item> was consumed?		4. How much of <item> was consumed from own production?		5. How much of <item> was consumed from own stock?		6. How much of <item> was consumed from gifts and other sources?		
		2a. Quantity (number of units)	2b. Amount of money total spent	Money Unit 1=S.P(New) 2=SD 3=K.Shs 4=U.Shs 5=USD	2c. Where was the <item> purchased? (see codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	
W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15	
1. Over the past one week (7 days), did you or others in your household consume any <item>? <small>Include food both eaten communally in the household and that eaten separately by individual household members</small>															
0900 Sugar, Fats and Oil															
Sugar	<input type="checkbox"/> Yes <input type="checkbox"/> No	0901													
Sugarcane	<input type="checkbox"/> Yes <input type="checkbox"/> No	0902													
Cooking oil	<input type="checkbox"/> Yes <input type="checkbox"/> No	0903													
1000 Beverages products															
Tea leaves	<input type="checkbox"/> Yes <input type="checkbox"/> No	1001													
Tea bags	<input type="checkbox"/> Yes <input type="checkbox"/> No	1002													
Coffee (beans)	<input type="checkbox"/> Yes <input type="checkbox"/> No	1003													
Coffee (instant)	<input type="checkbox"/> Yes <input type="checkbox"/> No	1004													
Fruit juice	<input type="checkbox"/> Yes <input type="checkbox"/> No	1005													
Bottled water	<input type="checkbox"/> Yes <input type="checkbox"/> No	1006													
Soft drinks (Coca, Fanta, etc)	<input type="checkbox"/> Yes <input type="checkbox"/> No	1007													
Traditional beer	<input type="checkbox"/> Yes <input type="checkbox"/> No	1008													
Canned beer	<input type="checkbox"/> Yes <input type="checkbox"/> No	1009													
Bottled beer	<input type="checkbox"/> Yes <input type="checkbox"/> No	1010													
Liquor	<input type="checkbox"/> Yes <input type="checkbox"/> No	1011													

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Quantity units:
Codes to be used:
1 = piece
2 = gram (g)
3 = kilogram (kg)
4 = deciliter (dl)
5 = liter (l)

Other quantity units:
6 = Cup (8 dl)
7 = Glass (2 dl)
8 = Glass (1 dl)
9 = Tee Spoon
10 = Bottle (5 dl)
11 = Big heap
12 = Small heap
13 = Bundle big
14 = Bundle small
15 = 90 kg bag/sack
16 = 50 kg bag/sack
17 = Basket big (10 l)
18 = Basket small (5 l)
19 = Plastic basin (10 l)
20 = Jerry can (20 l)
21 = Bunch big (30kg)
22 = Bunch med. (20kg)
23 = Bunch small (10kg)

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Place of purchase codes (W07)
1 = city market
2 = street vendor
3 = local shop
4 = market/roadside out of town
5 = Own import
6 = Home residence
7 = Restaurant/bar

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Item code	Tick off Yes or No for all items	Purchases					Consumption																			
		2. How much of <item> was purchased?					3. How much of the purchased <item> was consumed?					4. How much of <item> was consumed from own production?					5. How much of <item> was consumed from own stock?					6. How much of <item> was consumed from gifts and other sources?				
		2a. Quantity (number of units)	2b. Amount of money total spent	Money Unit 1=S.P(New) 2=SD 3=K.Shs 4=U.Shs 5=USD	2c. Where was the <item> purchased? (see codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)	Quantity unit codes (see unit codes at right)							
W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15												
1. Over the past one week (7 days), did you or others in your household consume any <item>? Include food both eaten communally in the household and that eaten separately by individual household members																										
1100 Spices & Miscellaneous																										
Salt	1101	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Cinnamon	1102	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Pepper (black)	1103	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Chili	1104	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Yeast	1105	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Baking powder	1106	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Tomato sauce	1107	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Tomato paste	1108	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Hot sauce (Chili)	1109	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Jam	1110	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Jelly	1111	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Honey	1112	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Candy	1113	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
Chocolate	1114	<input type="checkbox"/> Yes <input type="checkbox"/> No																								
	1115	<input type="checkbox"/> Yes <input type="checkbox"/> No																								

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 19 = Plastic basin (10 l)
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Place of purchase codes (W07)
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+ 1. Over the past one week (7 days), did you or others in your household consume any <item>? Include food both eaten communally in the household and that eaten separately by individual household members	Purchases										Consumption						
	Item code	Tick off Yes or No for all items	2. How much of <item> was purchased?					3. How much of the purchased <item> was consumed?		4. How much of <item> was consumed from own production?		5. How much of <item> was consumed from own stock?		6. How much of <item> was consumed from gifts and other sources?			
			W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14	W15
1200 Purchase of non-food items over past one week																	
Charcoal	1201	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Fuel wood	1202	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Paraffin or kerosene	1203	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Cigarettes	1204	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Tobacco	1205	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Matches	1206	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Newspaper	1207	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Magazine	1208	<input type="checkbox"/> Yes <input type="checkbox"/> No															
Public transport - bus fare, taxi fare	1209	<input type="checkbox"/> Yes <input type="checkbox"/> No															

Quantity units:
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Place of purchase codes (W07)
1 = city market
2 = street vendor
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4 = market/roadside out of town
5 = Own import
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1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?		1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?				
			Amount of money total spent	Money Unit 1=S,P (New) 2=SD 3=K,Shs 4=U,Shs 5=USD				Amount of money total spent	Money Unit 1=S,P (New) 2=SD 3=K,Shs 4=U,Shs 5=USD			
+	W01	W02	W03	W04	+	W01	W02	W03	W04			
Bar soap (body)	1301	<input type="checkbox"/> Yes <input type="checkbox"/> No			Motor vehicle service, repair or parts	1317	<input type="checkbox"/> Yes <input type="checkbox"/> No		Girls blouse/shirt	1413	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Bar soap (clothes)	1302	<input type="checkbox"/> Yes <input type="checkbox"/> No			Bicycle service, repair or parts	1318	<input type="checkbox"/> Yes <input type="checkbox"/> No		Girls dress/skirt	1414	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Clothes soap (powder)	1303	<input type="checkbox"/> Yes <input type="checkbox"/> No			Repairs & maintenance to dwelling	1319	<input type="checkbox"/> Yes <input type="checkbox"/> No		Girls's undergarments	1415	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Tooth paste	1304	<input type="checkbox"/> Yes <input type="checkbox"/> No			Repairs to household and personal items	1320	<input type="checkbox"/> Yes <input type="checkbox"/> No		Girls's other clothing	1416	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Toilet paper	1305	<input type="checkbox"/> Yes <input type="checkbox"/> No			Infant clothing	1401	<input type="checkbox"/> Yes <input type="checkbox"/> No		Lady's blouse/shirt	1417	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Glycerin, Vaseline, skin creams	1306	<input type="checkbox"/> Yes <input type="checkbox"/> No			Baby nappies/diapers	1402	<input type="checkbox"/> Yes <input type="checkbox"/> No		Lady's dress/skirt	1418	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Cosmetics	1307	<input type="checkbox"/> Yes <input type="checkbox"/> No			Boy's trousers	1403	<input type="checkbox"/> Yes <input type="checkbox"/> No		Lady's undergarments	1419	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Razorblades	1308	<input type="checkbox"/> Yes <input type="checkbox"/> No			Boy's shirt	1404	<input type="checkbox"/> Yes <input type="checkbox"/> No		Lady's other clothing	1420	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Shampoo	1309	<input type="checkbox"/> Yes <input type="checkbox"/> No			Boy's jacket	1405	<input type="checkbox"/> Yes <input type="checkbox"/> No		Boy's shoes	1421	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Other hair products	1310	<input type="checkbox"/> Yes <input type="checkbox"/> No			Boy's undergarment	1406	<input type="checkbox"/> Yes <input type="checkbox"/> No		Men's shoes	1422	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Household cleaning products	1311	<input type="checkbox"/> Yes <input type="checkbox"/> No			Boy's other clothing	1407	<input type="checkbox"/> Yes <input type="checkbox"/> No		Girls's shoes	1423	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Light bulbs	1312	<input type="checkbox"/> Yes <input type="checkbox"/> No			Men's trousers	1408	<input type="checkbox"/> Yes <input type="checkbox"/> No		Lady's shoes	1424	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Postage stamps or other postage fees	1313	<input type="checkbox"/> Yes <input type="checkbox"/> No			Men's shirts	1409	<input type="checkbox"/> Yes <input type="checkbox"/> No		Cloth	1425	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Donation (to church, beggar etc)	1314	<input type="checkbox"/> Yes <input type="checkbox"/> No			Men's jackets	1410	<input type="checkbox"/> Yes <input type="checkbox"/> No		Tread	1426	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Petroleum	1315	<input type="checkbox"/> Yes <input type="checkbox"/> No			Men's undergarments	1411	<input type="checkbox"/> Yes <input type="checkbox"/> No		Other sewing materials	1427	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Diesel	1316	<input type="checkbox"/> Yes <input type="checkbox"/> No			Men's other clothing	1412	<input type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/> Yes <input type="checkbox"/> No	

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1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?		1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?		1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?	
			Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD				Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD				Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD
	W01	W02	W03	W04		W01	W02	W03	W04		W01	W02	W03	W04
+					+					+				
Laundry	1428	<input type="checkbox"/> Yes <input type="checkbox"/> No			DVD (film)	1508	<input type="checkbox"/> Yes <input type="checkbox"/> No			Camera	1524	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Dry cleaning	1429	<input type="checkbox"/> Yes <input type="checkbox"/> No			Tickets for sports/entertainment	1509	<input type="checkbox"/> Yes <input type="checkbox"/> No			Building items - cement,	1525	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Tailoring fees	1430	<input type="checkbox"/> Yes <input type="checkbox"/> No			House decorations	1510	<input type="checkbox"/> Yes <input type="checkbox"/> No			Building item – bricks	1526	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Bowls	1431	<input type="checkbox"/> Yes <input type="checkbox"/> No			Night lodging in rest house/hotels	1511	<input type="checkbox"/> Yes <input type="checkbox"/> No			Building items - timber	1527	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Glasses	1432	<input type="checkbox"/> Yes <input type="checkbox"/> No			Carpet	1512	<input type="checkbox"/> Yes <input type="checkbox"/> No			Building items - iron sheets	1528	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Plates	1433	<input type="checkbox"/> Yes <input type="checkbox"/> No			Rugs	1513	<input type="checkbox"/> Yes <input type="checkbox"/> No			Building items - tools	1529	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Cooking pots	1434	<input type="checkbox"/> Yes <input type="checkbox"/> No			Drapes	1514	<input type="checkbox"/> Yes <input type="checkbox"/> No			Wood poles, bamboo	1530	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Stilling spoons	1435	<input type="checkbox"/> Yes <input type="checkbox"/> No			Curtains	1515	<input type="checkbox"/> Yes <input type="checkbox"/> No			Grass for roof thatching	1531	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Brooms/brushes for cleaning	1436	<input type="checkbox"/> Yes <input type="checkbox"/> No			Linen -towels	1516	<input type="checkbox"/> Yes <input type="checkbox"/> No			Council rates	1532	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Torch/Flash light	1501	<input type="checkbox"/> Yes <input type="checkbox"/> No			Linen – sheets	1517	<input type="checkbox"/> Yes <input type="checkbox"/> No			Insurances	1533	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Umbrella	1502	<input type="checkbox"/> Yes <input type="checkbox"/> No			Linen - blankets	1518	<input type="checkbox"/> Yes <input type="checkbox"/> No			Fines or legal fees	1534	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Paraffin lamp	1503	<input type="checkbox"/> Yes <input type="checkbox"/> No			Mattress	1519	<input type="checkbox"/> Yes <input type="checkbox"/> No			Marriage ceremony costs	1535	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Stationary items (not for schools)	1504	<input type="checkbox"/> Yes <input type="checkbox"/> No			Mosquito net	1520	<input type="checkbox"/> Yes <input type="checkbox"/> No			Drugs 1: Chroloquine	1601	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Books (not for schools)	1505	<input type="checkbox"/> Yes <input type="checkbox"/> No			Sport & hobby equipment	1521	<input type="checkbox"/> Yes <input type="checkbox"/> No			Drugs 2: Seprtrine	1602	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Music cassette	1506	<input type="checkbox"/> Yes <input type="checkbox"/> No			Film	1522	<input type="checkbox"/> Yes <input type="checkbox"/> No			Drugs 3: Mabendazole	1603	<input type="checkbox"/> Yes <input type="checkbox"/> No		
CD (music)	1507	<input type="checkbox"/> Yes <input type="checkbox"/> No			Film processing	1523	<input type="checkbox"/> Yes <input type="checkbox"/> No			Drugs 4: Panadol	1604	<input type="checkbox"/> Yes <input type="checkbox"/> No		

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1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?		1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?		1. Did you or others in your household purchase any <item> during last month?	Item code	Tick off Yes or No for all items	2. How much did you pay in total?	
			Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD				Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD				Amount of money total spent	Money Unit 1=S.P (New) 2=SD 3=K.Shs 4=U.Shs 5=USD
	W01	W02	W03	W04		W01	W02	W03	W04		W01	W02	W03	W04
+					+					+				
Professional clinic fee	1605	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Blood test	1606	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Maternity delivery fee	1607	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Other health expenditures	1608	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
School fees, Pre – primary day	1701	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
School fees, primary day	1702	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
School fees, primary board	1703	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
School fees, secondary day	1704	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
School fees secondary board	1705	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Exercise book(s)	1706	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Text book(s)	1707	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Uniform	1708	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
Other expenditures for education	1709	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No		

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SSCCSE Staff Human Resource Development

Assessment of available capacity and needs for additional training

SECTION A: ID and general personal characteristics

Item	
Surname(s) / Family name(s)	
First name	
Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female
Age group (in completed years)	<input type="checkbox"/> -19 <input type="checkbox"/> 20-24 <input type="checkbox"/> 25-29 <input type="checkbox"/> 30-34 <input type="checkbox"/> 35-39 <input type="checkbox"/> 40-44 <input type="checkbox"/> 45-49 <input type="checkbox"/> 50+
Highest level of formal education completed (single response)	<input type="checkbox"/> Primary 8 <input type="checkbox"/> Secondary 5 <input type="checkbox"/> Master degree <input type="checkbox"/> Junior 3 <input type="checkbox"/> Secondary 6 <input type="checkbox"/> PhD degree <input type="checkbox"/> Junior 4 <input type="checkbox"/> Post sec. diploma <input type="checkbox"/> Other specify <input type="checkbox"/> Secondary 3 <input type="checkbox"/> University first degree <input type="checkbox"/> Secondary 4 <input type="checkbox"/> Post graduate diploma
	If highest level of education is secondary 6 or above, please specify within which main subject matter area did you specialize (single response) <input type="checkbox"/> Stat./demograph <input type="checkbox"/> Public adm <input type="checkbox"/> Polit science <input type="checkbox"/> Economics <input type="checkbox"/> Comptr.science <input type="checkbox"/> Math <input type="checkbox"/> Business adm. <input type="checkbox"/> Other specify:
Currently working <i>mainly</i> in which SSCCSE Division? (single response)	<input type="checkbox"/> Finance & Administration <input type="checkbox"/> Monitoring & Evaluation <input type="checkbox"/> Social statistics <input type="checkbox"/> Economic statistics <input type="checkbox"/> Census and Services <input type="checkbox"/> GIS <input type="checkbox"/> IT <input type="checkbox"/> State Statistics office - Specify state:
Current <i>main</i> position/function within the SSCCSE division. (single response)	<input type="checkbox"/> Director, deputy director <input type="checkbox"/> Subject matter officer, IT officer, other technical/statistical officer etc + <input type="checkbox"/> Administrative staff, accountant, secretaries etc <input type="checkbox"/> Interviewer/Fieldworker

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Section B. Need for training on short and medium term

Describe your current **own skills** and your **own needs for further training given your current area of work** for each of the listed soft wares and subject matter theories etc on a scale from 1 to 6 (1=low knowledge/low need for training, 6=high competence/high need for training)

code	topic	Is this topic relevant for your current area of work? If no, skip to next line If yes, check the rest of this line	Current own skills (tick only one box)						Own need for more training (tick only one box)						If high own need for training (priority 5-6) specify further on topics for training (in writing/key words)
			low skill ----> high skill						low priority---->high priority						
Soft ware															
01	Word	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
02	Power Point	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
03	Excel	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
04	Access	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
05	CsPro	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
06	SPSS	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
07	ArcGIS.	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	
08	Software specify:	No ↓ Yes →	1	2	3	4	5	6	1	2	3	4	5	6	

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Section B. Continued

code	topic	Is this topic relevant for your current area of work? <u>If no, skip to next line</u> <u>If yes, check the rest of this line</u>	Current own skills	Own need for more training	If high need for training (priority 5-6) specify further on topics for training (in writing/key words)
			low skill -----> high skill	low priority---->high priority	
Subject matter					
09	Statistical theory	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
10	Sampling theory	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
11	Demography	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
12	Economic statistics	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
13	Social statistics	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
14	Accounting & Budgeting	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
15	Management & Planning	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
16	IT (technical)	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
17	Survey planning	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
18	Questionnaire & Manual design	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
19	Data entry	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
20	Data cleaning	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
21	Data base/data storage	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
22	Data tabulation	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
23	Report writing & dissemination	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
24	Web site dissemination	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
25	Advanced data analysis	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
26	Formal English Language	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
27	Formal Arabic language	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
28	Other specify:	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
29	Other specify:	No <input type="checkbox"/> ↓ Yes <input type="checkbox"/> →	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	

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Section C. Resource persons for training courses

Provided that internal training courses will be arranged, please list codes (see section B) for topics that you find that you could contribute as a lecturer alone or together with a team with the purpose to train SSCCSE colleagues and possibly also invited external staff

topic	Code from B	Comments, ideas, for further discussion, training course design etc.

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ATENÇÃO: Instrumento de Notação do Sítsema Estatístico Nacional de RESPOSTA OBRIGATÓRIA registrado no INE sob o n.º ____, aálido até Dezembro de 2008. A confidencialidade dos dados é garantida nos termos do Art.9º da Lei n.º 15/96, de 27 de Setembro.

A. INFORMAÇÃO SOBRE A ENTREVISTA

Número de Referência

Q1	Nome do Chefe do agregado familiar	
Q2	Província	
Q3	Município	
Q4	Communa	
Q5	Bairro/Aldeia	
Q6	Área	1 Urbana <input type="checkbox"/> 2 Rural <input type="checkbox"/>

A1 ÁE

A2 Agre. Familiar

A3 Inquiridor

A4 Data
Dia Més Ano

A5 Tempo
Hora Min

A6 Inquirido
Nº do membro

A7 Sequência
Nº do questionário

Total number of forms used: Of which this is number:

<input type="text"/>									
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IMPORTANTE

Crie um Número de Referência combinando o Número da ÁE, Número do Agregado Familiar e o Número do Questionário. AGORA, escreve este número no canto superior direito de todas as páginas.

A8 Número de membros no Agregado

A9 Resultado

1 Entrevista completa

2 Entrevista incompleta

3 Entrevista recusada

4 Ausência

5 Habitação vaga/destruída

Comentários:

A10 Supervisor

A11 Revisor

A12 Scaneador ou Digitador

A13 Fim da entrevista
Dia Més

<input type="text"/>				
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Nome do Inquiridor:

Data:/...../.....

Nome do Supervisor:

Data:/...../.....

Nome do Revisor:

Data:/...../.....



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Nome do Scaneador/Digitador: Instituto Nacional de Estatística	Data:/...../.....
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Número de Referência

NÚMERO DO MEMBRO

ESCREVE OS NOMES DE TODOS OS MEMBROS DO AGREGADO FAMILIAR, COMEÇANDO PELO CHEFE

If more than 10 members in the family fill in correct family member number above as follows:

1	1	1	2	up to	2	0
---	---	---	---	-------	---	---

1	2	3	4	5	6	7	8	9	0

B. DEMOGRÁFIA**B1 O [NOME] é do sexo masculino ou feminino?**

1 Masculino	<input type="checkbox"/>									
2 Feminino	<input type="checkbox"/>									

B2 Quantos anos completou o (NOME) no seu último aniversário?

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B3 Qual é o estado civil do (NOME)? Para pessoas que têm 12 anos e mais de idade

1 Solteiro(a)	<input type="checkbox"/>									
2 Casado/União de facto	<input type="checkbox"/>									
3 Divorciado(a)	<input type="checkbox"/>									
4 Separado(a)	<input type="checkbox"/>									
5 Viúvo(a)	<input type="checkbox"/>									

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B4 Qual é a relação do (NOME) com o chefe do agregado?

1 Chefe	<input type="checkbox"/>									
2 Cônjuge	<input type="checkbox"/>									
3 Filho(a)	<input type="checkbox"/>									
4 Pai/Mãe	<input type="checkbox"/>									
5 Outros parentes	<input type="checkbox"/>									
6 Sem parentesco	<input type="checkbox"/>									

B5 O (NOME) nasceu nesta província?

1 Sim	<input type="checkbox"/>									
2 Não	<input type="checkbox"/>									
3 Não sabe	<input type="checkbox"/>									

B6 Há quanto tempo o (NOME) vive nesta província?

1 Menos de 5 anos	<input type="checkbox"/>									
2 5-10 anos	<input type="checkbox"/>									
3 11-20 anos	<input type="checkbox"/>									
4 Mais de 20 anos	<input type="checkbox"/>									

NÚMERO DO MEMBRO

1 2 3 4 5 6 7 8 9 10

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Número de Referência

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C. EDUCAÇÃO E FORMAÇÃO PROFISSIONAL

NÚMERO DO MEMBRO		1	2	3	4	5	6	7	8	9	10
PARA TODAS PESSOAS DE 15 ANOS E MAIS DE IDADE											
C1	O (NOME) sabe ler e escrever?										
	1 Sim	<input type="checkbox"/>									
	2 Não	<input type="checkbox"/>									
C2	O (NOME) alguma vez frequentou a escola? (Para todas as pessoas de 5 anos e mais de idade)										
	1 Sim	<input type="checkbox"/>									
	2 Não	<input type="checkbox"/>									
C3	Qual é a classe de ensino mais alta que o (NOME) completou? (Para todas as pessoas de 5 anos e mais de idade)										
	Code list (MANUAL)	<input type="text"/>									
C4	O (Nome) fez algum curso de formação profissional ou de artes e ofícios? (Para todas as pessoas de 10 anos e mais idade)										
	1 Sim	<input type="checkbox"/>									
	2 Não (Se não passe para pessoa seguinte)	<input type="checkbox"/>									
C5	Qual é a formação profissional que (O Nome) recebeu? (Pode marcar mais do que uma resposta)										
	1 Construção civil	<input type="checkbox"/>									
	2 Mecânica	<input type="checkbox"/>									
	3 Electricidade	<input type="checkbox"/>									
	4 Canalização	<input type="checkbox"/>									
	5 Bate-chapa/Pintura	<input type="checkbox"/>									
	6 Culinária/Decoração/Pastelaria	<input type="checkbox"/>									
	7 Carpintaria/Artesanato	<input type="checkbox"/>									
	8 Serralharia/Fundição	<input type="checkbox"/>									
	9 Corte e costura	<input type="checkbox"/>									
	10 Frio	<input type="checkbox"/>									
	11 Informática	<input type="checkbox"/>									
	12 Contabilidade	<input type="checkbox"/>									
	13 Pesca	<input type="checkbox"/>									
	14 Outros	<input type="checkbox"/>									
C6	Onde o (Nome) fez a sua formação profissional?										
	1 Centros do INEFOP	<input type="checkbox"/>									
	2 Igreja	<input type="checkbox"/>									
	3 ONG	<input type="checkbox"/>									
	4 Centros Privados	<input type="checkbox"/>									
	5 Centros Estatais	<input type="checkbox"/>									
	6 Através de família/Amigo	<input type="checkbox"/>									
NÚMERO DO MEMBRO		1	2	3	4	5	6	7	8	9	10

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Número de Referência

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NÚMERO DO MEMBRO**1****2****3****4****5****6****7****8****9****10****D9 Quanto tempo o (NOME) esteve no seu último emprego?**

1 Menos de 1ano

2 1 a 3 anos

3 Mais de 3 anos

D10 Porquê o (NOME) deixou o seu último emprego?

1 Foi despedido

2 Terminou o contrato

3 A empresa fechou

4 Demitiu-se

5 Abandonou

+

D11 Qual é a actividade principal onde (NOME) exerceu o seu último emprego?

Descreve a actividade no seu último emprego.

1	6
2	7
3	8
4	9
5	10

Codificado pelo revisor de acordo o código da **CAE** em 3 dígitos.

D11b For office use only

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D12 Qual foi a ocupação do (NOME) no seu último emprego?

Descreve a ocupação no seu último emprego.

1	6
2	7
3	8
4	9
5	10

Codificado pelo revisor de acordo o código da **CNP** em 3 dígitos.

D12b For office use only

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D13 Porquê o (NOME) procurou emprego pela primeira vez?

1 Terminou os estudos

2 Terminou o serviço militar obrigatório

3 Quer trabalhar

4 Sustentar a família

5 Ajudar nas despesas de casa

6 Outro

NÚMERO DO MEMBRO**1****2****3****4****5****6****7****8****9****10**

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Número de Referência

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NÚMERO DO MEMBRO

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D14 Quais são os esforços que o (NOME) fez para procurar emprego nos últimos 30 dias?
(Pode marcar mais do que uma resposta)

1 Consultou o Centro de emprego	<input type="checkbox"/>									
2 Através de anúncios nos Jornornais	<input type="checkbox"/>									
3 Através de Rádios/Tv	<input type="checkbox"/>									
4 Participou em algum concurso	<input type="checkbox"/>									
5 Através de amigos ou parentes	<input type="checkbox"/>									
6 Directamente de uma Unidade empregadora	<input type="checkbox"/>									
7 Criando o seu próprio emprego	<input type="checkbox"/>									

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D15 Porque é que o (NOME) não procurou emprego nos últimos 30 dias?

1 Aguarda ser chamado	<input type="checkbox"/>									
2 Muito velho/novo	<input type="checkbox"/>									
3 Não tem instrução suficiente	<input type="checkbox"/>									
4 Tem problemas de saúde	<input type="checkbox"/>									
5 Não sabe como procurar	<input type="checkbox"/>									
6 Não vale a pena procurar	<input type="checkbox"/>									
7 Está a receber formação	<input type="checkbox"/>									
8 Não há empregos dispon. na zona	<input type="checkbox"/>									
9 Razões pessoais	<input type="checkbox"/>									
10 Não começou a fazer dilig.	<input type="checkbox"/>									

D16 Há quanto tempo o (NOME) está a procura de emprego?

1 Menos de 1mês	<input type="checkbox"/>									
2 Entre 1 - 3 meses	<input type="checkbox"/>									
3 Entre 4 - 6 meses	<input type="checkbox"/>									
4 Entre 7 - 12 meses	<input type="checkbox"/>									
5 Mais de 12 meses	<input type="checkbox"/>									

D17 Qual é a actividade principal onde o (NOME) exerce o seu emprego principal?

Descreve a actividade no seu emprego principal.

1	6
2	7
3	8
4	9
5	10

Codificado pelo revisor de acordo o código da CAE em 3 dígitos.

D17b For office use only

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D18 Qual é a ocupação do (NOME) no seu emprego principal?

Descreve a ocupação no seu emprego principal

1	6
2	7
3	8
4	9
5	10

Codificado pelo revisor de acordo o código da CNP em 3 dígitos.

D18b For office use only

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NÚMERO DO MEMBRO

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NÚMERO DO MEMBRO

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D19 Para quem o (NOME) trabalha no seu emprego principal?

D21 ←	1 Conta própria sem trabalhadores	<input type="checkbox"/>									
	2 Conta própria com trabalhadores	<input type="checkbox"/>									
	3 Governo	<input type="checkbox"/>									
	4 Sector público	<input type="checkbox"/>									
	5 Sector privado	<input type="checkbox"/>									
	6 Sector cooperativo	<input type="checkbox"/>									
	7 ONG e outras associações	<input type="checkbox"/>									
	8 Trabal. familiar sem remuner.	<input type="checkbox"/>									

D20 Qual é a categoria ocupacional do (NOME) no seu emprego principal?

1 Direcção e Chefia	<input type="checkbox"/>										
2 Técnico superior	<input type="checkbox"/>										
3 Técnico/especialistas	<input type="checkbox"/>										
4 Técnico médio	<input type="checkbox"/>										
5 Administrativo	<input type="checkbox"/>										
6 Pessoal auxiliar	<input type="checkbox"/>										
7 Operário qualificado	<input type="checkbox"/>										
8 Operário não qualificado	<input type="checkbox"/>										
9 Categoria Militar	<input type="checkbox"/>										
10 Não sabe	<input type="checkbox"/>										

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D21 O (NOME) é trabalhador? (Passe para D23)

1 Permanente	<input type="checkbox"/>										
2 Sazonal	<input type="checkbox"/>										
3 Ocasional	<input type="checkbox"/>										

D22 Qual é o número de trabalhadores no emprego principal do (NOME)? (Não responde trabalhador por conta própria sem trabalhador)

1 Menos de 5	<input type="checkbox"/>										
2 5 -10	<input type="checkbox"/>										
3 11-20	<input type="checkbox"/>										
4 21-50	<input type="checkbox"/>										
5 51-100	<input type="checkbox"/>										
6 Mais do que 100	<input type="checkbox"/>										
7 Não sabe	<input type="checkbox"/>										

D23 Quantos dias o (NOME) trabalhou nos últimos 7 dias do mês passado no seu emprego principal?

1 Nenhum	<input type="checkbox"/>										
2 Um dia	<input type="checkbox"/>										
3 Dois dias	<input type="checkbox"/>										
4 Três dias	<input type="checkbox"/>										
5 Quatro dias	<input type="checkbox"/>										
6 Cinco dias	<input type="checkbox"/>										
7 Seis dias	<input type="checkbox"/>										
8 Sete dias	<input type="checkbox"/>										
9 Não sabe	<input type="checkbox"/>										

NÚMERO DO MEMBRO

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Número de Referência

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NÚMERO DO MEMBRO	1	2	3	4	5	6	7	8	9	10
D24 Quantas horas o (NOME) trabalhou efectivamente nos últimos 7 dias do mês passado no seu emprego principal?										
1 Nenhuma	<input type="checkbox"/>									
2 Menos de 8 horas	<input type="checkbox"/>									
3 8h - 16h	<input type="checkbox"/>									
4 17h - 25h	<input type="checkbox"/>									
5 26h - 34h	<input type="checkbox"/>									
6 35h - 43h	<input type="checkbox"/>									
7 44h - 52h	<input type="checkbox"/>									
8 53h - 61h	<input type="checkbox"/>									
9 Mais de 61h	<input type="checkbox"/>									
10 Não sabe	<input type="checkbox"/>									
D25 Quantas horas o (NOME) trabalha habitualmente no seu emprego principal? (Se não trabalhou menos horas do que habitualmente trabalha passe para D28)										
1 Nenhuma	<input type="checkbox"/>									
2 Menos de 8 horas	<input type="checkbox"/>									
3 8h - 16h	<input type="checkbox"/>									
4 17h - 25h	<input type="checkbox"/>									
5 26h - 34h	<input type="checkbox"/>									
6 35h - 43h	<input type="checkbox"/>									
7 44h - 52h	<input type="checkbox"/>									
8 53h - 61h	<input type="checkbox"/>									
9 Mais de 61h	<input type="checkbox"/>									
10 Não sabe	<input type="checkbox"/>									
D26 Porque é que o (NOME) trabalhou menos horas nos últimos 7 dias no seu emprego principal?										
1 Mau tempo	<input type="checkbox"/>									
2 Suspensão tempor.do contrato.	<input type="checkbox"/>									
3 Conflito de trabalho	<input type="checkbox"/>									
4 Ensino ou formação	<input type="checkbox"/>									
5 Acidente de trab/doença profissional	<input type="checkbox"/>									
6 Doença	<input type="checkbox"/>									
7 Licença de maternidade./patern.	<input type="checkbox"/>									
8 Férias/feriado	<input type="checkbox"/>									
9 Actividade irregular	<input type="checkbox"/>									
10 Falta de material, Capital,avaria deeq.	<input type="checkbox"/>									
11 Falta insumos agricolas e outros,	<input type="checkbox"/>									
D27 Há quanto tempo o (NOME) está a trabalhar no seu emprego principal?										
1 Menos de 1 ano	<input type="checkbox"/>									
2 2 a 3 anos	<input type="checkbox"/>									
3 Mais de 3 anos	<input type="checkbox"/>									
D28 Qual é a sua fonte de rendimento na sua ocupação principal durante o mês passado? (Não responde trabalhador familiar sem remuneração)										
1 Salario, vencimento	<input type="checkbox"/>									
2 Reforma ou pensão	<input type="checkbox"/>									
3 Lucros, dividendos, juros	<input type="checkbox"/>									
4 Rendas	<input type="checkbox"/>									
5 Rendimentos do trabalho em especie	<input type="checkbox"/>									
NÚMERO DO MEMBRO	1	2	3	4	5	6	7	8	9	10

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NÚMERO DO MEMBRO

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D29 O (NOME) é pago por

(Não responde trabalhador por conta própria sem ou com trabalhador. Familiar sem remuneração)

1 Hora	<input type="checkbox"/>									
2 Dia	<input type="checkbox"/>									
3 Semana	<input type="checkbox"/>									
4 Mês	<input type="checkbox"/>									
5 Período irregular	<input type="checkbox"/>									

D30 Como o (NOME) é pago? Em

(Não responde trabalhador por conta própria s/c trabalhador s/ remuneração)

1 Dinheiro	<input type="checkbox"/>									
2 Espécie	<input type="checkbox"/>									
3 Dinheiro/Espécie	<input type="checkbox"/>									

+

D31 O (NOME) foi assalariado na actividade principal nos últimos 7 dias?

(Se Não/Não sabe, passe para D34)

1 Sim	<input type="checkbox"/>									
2 Não	<input type="checkbox"/>									
3 Não sabe	<input type="checkbox"/>									

D34 ←

D34 ←

D32 Qual é o montante líquido do seu ganho salarial no seu emprego principal durante o mês?

1 Nenhum	<input type="checkbox"/>									
2 Menos de 3.999	<input type="checkbox"/>									
3 Kz 4.000 - Kz14.999	<input type="checkbox"/>									
4 Kz 15.000 -Kz 25.999	<input type="checkbox"/>									
5 Kz26.000 - Kz 36.999	<input type="checkbox"/>									
6 Kz 37.000 - Kz 47.999	<input type="checkbox"/>									
7 Kz 48.000 - Kz 58.999	<input type="checkbox"/>									
8 Kz 59.000 - Kz 69.999	<input type="checkbox"/>									
9 Kz 70.000 - Kz 80.999	<input type="checkbox"/>									
10 Kz 81.000 e mais	<input type="checkbox"/>									

D33 O (NOME) trabalha por conta própria fora da agricultura na actividade principal nos últimos 7 dias? (Se Não/Não sabe, passe para D39)

1 Sim	<input type="checkbox"/>									
2 Não	<input type="checkbox"/>									
3 Não sabe	<input type="checkbox"/>									

D39 ←

D39 ←

D34 Que valor monetário o (NOME) obteve no emprego principal (fora da agricultura) na última semana/mês?

1 Menos de 3.999	<input type="checkbox"/>									
2 Kz 4.000 - Kz14.999	<input type="checkbox"/>									
3 Kz 15.000 -Kz 25.999	<input type="checkbox"/>									
4 Kz26.000 - Kz 36.999	<input type="checkbox"/>									
5 Kz 37.000 - Kz 47.999	<input type="checkbox"/>									
6 Kz 48.000 - Kz 58.999	<input type="checkbox"/>									
7 Kz 59.000 - Kz 69.999	<input type="checkbox"/>									
8 Kz 70.000 - Kz 80.999	<input type="checkbox"/>									
9 Kz 81.000 e mais	<input type="checkbox"/>									

D35 O (NOME) tem contrato de trabalho? (Se Não/Não sabe, passe para D39)

1 Sim	<input type="checkbox"/>									
2 Não	<input type="checkbox"/>									
3 Não sabe	<input type="checkbox"/>									

D39 ←

D39 ←

NÚMERO DO MEMBRO

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Número de Referência

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NÚMERO DO MEMBRO

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D36 Que tipo de contrato o (NOME) tem?

1 Permanente

2 Temporário

D37 O (NOME) está inscrito na segurança social?

1 Sim

2 Não

3 Não sabe

D38 O (NOME) teve mais do que um emprego nos últimos 7 dias do mês passado?

(Se Não/Não sabe, passe para pessoa seguinte)

1 Sim

2 Não

3 Não sabe

D39 Qual é a actividade principal onde (NOME) exerce o seu emprego secundário?

Descreve a actividade no seu emprego secundário

1	6
2	7
3	8
4	9
5	10

A ser codificado pelo revisor de acordo o código da CAE em 3 dígitos

D39b For office use only

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D40 Qual é a ocupação do (NOME) no seu emprego secundário?

Descreve a ocupação no seu emprego secundário

1	6
2	7
3	8
4	9
5	10

A ser codificado pelo revisor de acordo o código da CNP em 3 dígitos.

D40b For office use only

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D41 Quantos dias o (NOME) trabalhou nos últimos 7 dias do mês passado no seu emprego secundário?

1 Nenhum

2 Um dia

3 Dois dias

4 Três dias

5 Quatro dias

6 Cinco dias

7 Seis dias

8 Sete dias

9 Não sabe

NÚMERO DO MEMBRO

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Número de Referência

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NÚMERO DO MEMBRO	1	2	3	4	5	6	7	8	9	10
D42 Quantas horas o (NOME) trabalhou efectivamente nos últimos 7 dias do mês passado no seu emprego secundário?										
1 Nenhuma	<input type="checkbox"/>									
2 Menos de 8 horas	<input type="checkbox"/>									
3 8h - 16h	<input type="checkbox"/>									
4 17h - 25h	<input type="checkbox"/>									
5 26h - 34h	<input type="checkbox"/>									
6 35h - 43h	<input type="checkbox"/>									
7 44h - 52h	<input type="checkbox"/>									
8 53h - 61h	<input type="checkbox"/>									
9 Mais de 61h	<input type="checkbox"/>									
10 Não sabe	<input type="checkbox"/>									
D43 Para quem o (NOME) trabalha no seu emprego secundário?										
1 Conta própria sem trabalhadores	<input type="checkbox"/>									
2 Conta própria com trabalhadores	<input type="checkbox"/>									
3 Governo	<input type="checkbox"/>									
4 Sector público	<input type="checkbox"/>									
5 Sector privado	<input type="checkbox"/>									
6 Sector cooperativo	<input type="checkbox"/>									
7 ONG e outra associações	<input type="checkbox"/>									
8 Trabal. familiar sem remuner.	<input type="checkbox"/>									
9 Pessoa/residência privada	<input type="checkbox"/>									
D44 O (NOME) é trabalhador?										
1 Permanente	<input type="checkbox"/>									
2 Sazonal	<input type="checkbox"/>									
3 Ocasional	<input type="checkbox"/>									
D45 Qual é a categoria ocupacional do (NOME) no seu emprego secundário? (Não responde trabalhador por conta própria sem ou com trabalhador. Familiar sem remuneração)										
1 Direcção e Chefia	<input type="checkbox"/>									
2 Técnico superior	<input type="checkbox"/>									
3 Técnico/especialistas	<input type="checkbox"/>									
4 Técnico médio	<input type="checkbox"/>									
5 Administrativo	<input type="checkbox"/>									
6 Pessoal auxiliar	<input type="checkbox"/>									
7 Operário qualificado	<input type="checkbox"/>									
8 Operário não qualificado	<input type="checkbox"/>									
9 Categoria Militar	<input type="checkbox"/>									
10 Não sabe	<input type="checkbox"/>									
D46 Qual é o número de trabalhadores no seu emprego secundário do (NOME)? (Não responde trabalhador por conta própria sem ou com trabalhador.)										
1 Menos de 5	<input type="checkbox"/>									
2 5 -10	<input type="checkbox"/>									
3 11-20	<input type="checkbox"/>									
4 21-50	<input type="checkbox"/>									
5 51-100	<input type="checkbox"/>									
6 Mais do que 100	<input type="checkbox"/>									
7 Não sabe	<input type="checkbox"/>									
NÚMERO DO MEMBRO	1	2	3	4	5	6	7	8	9	10

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NÚMERO DO MEMBRO

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D47 O (NOME) foi assalariado no seu emprego secundário nos últimos 7 dias?
(Se Não/Não sabe passe para D51)

	1 Sim	<input type="checkbox"/>									
D51 ←	2 Não	<input type="checkbox"/>									
D51 ←	3 Não sabe	<input type="checkbox"/>									

D48 Qual é o montante líquido do seu ganho salarial no seu emprego secundário durante o mês?

1 Nenhum	<input type="checkbox"/>									
2 Menos de 3.999	<input type="checkbox"/>									
3 Kz 4.000 - Kz14.999	<input type="checkbox"/>									
4 Kz 15.000 -Kz 25.999	<input type="checkbox"/>									
5 Kz26.000 - Kz 36.999	<input type="checkbox"/>									
6 Kz 37.000 - Kz 47.999	<input type="checkbox"/>									
7 Kz 48.000 - Kz 58.999	<input type="checkbox"/>									
8 Kz 59.000 - Kz 69.999	<input type="checkbox"/>									
9 Kz 70.000 - Kz 80.999	<input type="checkbox"/>									
10 Kz 81.000 e mais	<input type="checkbox"/>									

D49 O (NOME) trabalha por conta própria fora da agricultura no seu emprego secundário
(Se Não/Não sabe passe para D53)

	1 Sim	<input type="checkbox"/>								
D53 ←	2 Não	<input type="checkbox"/>								
D53 ←	3 Não sabe	<input type="checkbox"/>								

D50 Que valor monetário o (NOME) obteve no seu emprego secundário (fora da agricultura) na última semana/mês?

1 Menos de 3.999	<input type="checkbox"/>									
2 Kz 4.000 - Kz14.999	<input type="checkbox"/>									
3 Kz 15.000 -Kz 25.999	<input type="checkbox"/>									
4 Kz26.000 - Kz 36.999	<input type="checkbox"/>									
5 Kz 37.000 - Kz 47.999	<input type="checkbox"/>									
6 Kz 48.000 - Kz 58.999	<input type="checkbox"/>									
7 Kz 59.000 - Kz 69.999	<input type="checkbox"/>									
8 Kz 70.000 - Kz 80.999	<input type="checkbox"/>									
9 Kz 81.000 e mais	<input type="checkbox"/>									

D51 O (NOME) esteve a procurar mais outro emprego nos últimos 7 dias do mês passado?
(Se Não/Não sabe passe para pessoa seguinte)

1 Sim	<input type="checkbox"/>									
2 Não	<input type="checkbox"/>									
3 Não sabe	<input type="checkbox"/>									

D52 Porque motivo está a procura de mais outro emprego?

1 Trabalho a tempo parcial	<input type="checkbox"/>									
2 Salário baixo	<input type="checkbox"/>									
3 Está cansado do mesmo trabalho	<input type="checkbox"/>									
4 Utiliza pouco os seus conhecimentos	<input type="checkbox"/>									
5 Más condições de trabalho	<input type="checkbox"/>									
6 Outra situação	<input type="checkbox"/>									

NÚMERO DO MEMBRO

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per, 14. March 2006

To: NORAD
From: Statistics Norway, Development Cooperation
Copy: Division for Development Cooperation

15. Data processing based on scanning

Experience with the use of optical character reading (OCR) in an African context

Rationale

Statistics Norway has practical experience with use of OCR scanners in twinning projects with several national statistical bureaus in Africa. In Uganda and Malawi, a small scanner combined with a single user scanning software license was used to improve the efficiency of the data entry for surveys of limited size in 2004 to 2006. In Angola a larger system of two scanners and several work stations was recently set up with Norwegian assistance and this project will be followed up during 2006.

Statistics Norway is now involved in the planning process and preparatory work for the Sudan Population Census scheduled for 2007. It is already agreed to test out both manual keying and data capture by scanning during the piloting of this census. The pilot phase will be finalized within the end of year 2006.

Output

The experience from the use of scanners from the above mentioned should be made available for future projects. The objective should be to identify advantages and disadvantages of the scanning methods, to sum up the experience with the organisation of the work when scanning is introduced, and to give recommendations for how to optimise the use of scanners in twinning projects with African national statistical bureaus for the future.

The study will be conducted as a deskwork from Norway linking up with the different project responsible staff per e-mail/telephone. The results will be published in the Statistics Norway Document series.

Budget

The budget is based upon the standard rate in the agreement with NORAD, currently NOK 780 per hour and NOK 31 000 per staff week of 40 hours.

No of units	Unit rate	Unit	Amount in NOK
4	31 000	NOK per staff week	124 000