Raising awareness of mobile data collection with OpenDataKit and Kobo Toolbox

Terre des hommes, Training 2 days





Training objectives

- Understand what mobile data collection (MDC) is and its advantages and disadvantages
- Have a first level of understanding of the entire chain of mobile data collection from design to analysis
- Be familiar with the different MDC solutions recommended for use by Tdh





CartONG - What?

- Non-profit NGO specializing in mapping and information management services for humanitarian organizations (H2H)
- Based in France
- Created in 2006











CartONG - Who?

- The Headquarters in Chambéry
- But teams often in the field with our partners
- Multidisciplinary salaried team and volunteer team







CartONG - With whom?



















Humanitarian OpenStreetMap



























CartONG - operating modes

- From "Humanitarian to Humanitarian" interventions funded directly for our partners
- Donor-funded research projects, for example on the use of drones in the humanitarian field (ECHO / SDF)
- Volunteer projects for small associations, such as:
 - Missing card projects
 - Mapping of all AIDS-related initiatives in Madagascar
- For more information: https://humanitarian-nomad.org/,
 http://cnls.cartong.org/,
 http://www.missingmaps.org/







MISSING MAPS

Mapping and GIS (1/2)

- Assist organizations in their long-term GIS strategy
- Help to collect information, create links between organizations
- Implement long-term office and webmapping solutions





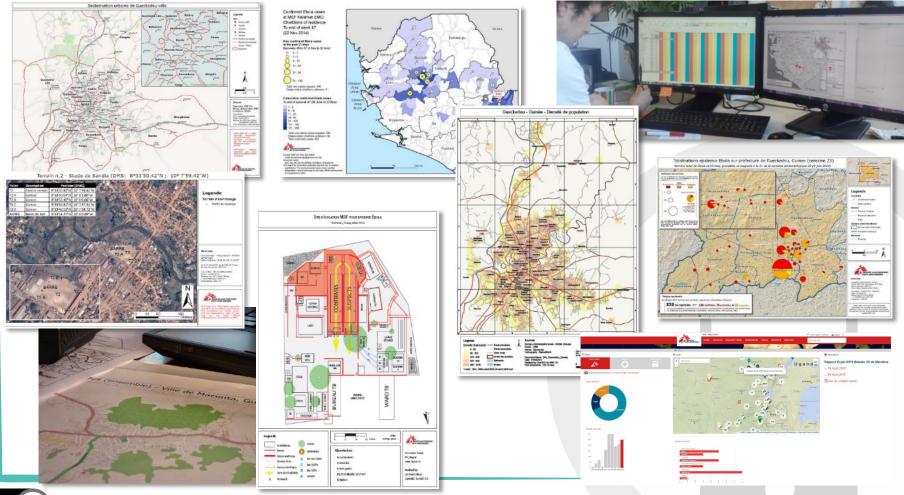






Mapping and GIS (2/2)

• And we also make cards! Ex: 1000 for MSF in 2014/15







Information Management and MDC

- Develops and uses MDC since 2009
- Various training courses provided to many partners (UNHCR, UNICEF, Solidarités, REACH, Caritas, Terre des hommes, Bioforce, SOS Faim etc.)
- Large scale deployment, e.g. SENS (several dozen deployments)
- Build MI capacity overall, focus on training and development of sustainable projects
- Regular benchmarking of solutions for shared with the community if poss blog.cartong.org)

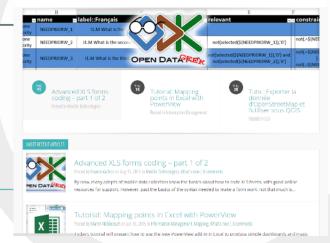




Capacity building (1/2)

- Some examples since 2006:
 - Inter- and intra-NGO training sessions
 - CartoBlog: technical blog to share best practices and tips
- Open to collaborations, our projects are always based on the requirements of a partner (INGO, local community...)
- http://www.cartong.org capacity-building









Capacity building (2/2)

- GeOnG, the largest (independent) international conference on humanitarian GIS
 - Organized every 2 years in Chambéry,
 France (70 organizations present in 2016)
 - Its objective: capacity building, exchanges between NGOs, international organizations, academics and the private sector on current practices and future challenges









CartONG/Terre des Hommes

- Collaboration since 2013 started with a delegation (BFA) and is now transversal to CA and the field
- **Memorandum of Understanding** since 2015
- **①** Type of activities:
 - Tools and implementation of the methodology
 - Capacity building (training, documentation, etc.)
 - Training/Tutorials
 - Strategic support
 - Support for technical recruitment
 - Studies (needs analysis, benchmarks, etc.)
 - Hotline (mobile.data@tdh.ch)
 - Tool customizations....





Focus on Mobile Data Collection

- Number of delegations using the MDC:
 - In 2013: 1
 - Early 2017: 12 (+ regional training planned in 2017)
- Number of people at Headquarters familiar with the MDC
 - In 2015: 3
 - Early 2017: 25
- Themes: EHA, Protection, JJ (juvenile justice, Health
- Example Iraq (1 year):
 - 38 surveys deployed
 - 11881 submissions











Training planning

- ① Day 1:
 - Understand the interest of the MDC
 - Know different uses of MDC by Tdh
 - Know how to set up a simple survey (from collection to analysis)
- ① Day 2:
 - Know how to adapt an existing survey frame in Excel for a new context



Data collection and surveys: definitions and examples





Exercise

- What is data collection?
- What is an investigation?





What is data collection?

- Data collection is the act of obtaining and compiling information from different sources
- A survey is the methodical search for precise information.





What are the types of data collection?

Qualitative

- Observation: based on the careful monitoring of people's facts and practices, without the will to change them, using an appropriate procedure
- Individual interview: goal-oriented conversation
- Focus Group: a formally constituted and structured group to understand the ideas, beliefs, practices and behaviours of the community being studied, and to provide a valid estimate of the population's opinion of the project.
- Socio-cultural diagnosis: the analysis of the factors that influence a given situation and in particular the health of populations
- Quantitative: quantify and measure a phenomenon through the use of questionnaires and statistical processing of the information collected
- Of course, a mix of methods can (and must!) be used!





Exercise

- Can you list for me some examples you realize in your projects of:
 - Data collection
 - Investigations





Examples of survey types

- Baseline survey
- Market survey
- Survey Knowledge Practical Skills
- Socio-economic survey
- Post-distribution surveys
- Post-harvest survey
- Nutritional survey
- Water point attendance survey
- Satisfaction survey
- Etc.





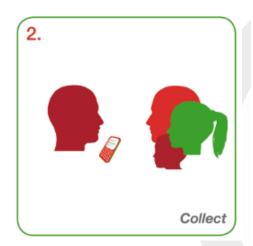
Mobile data collection: introduction and principles





A major step forward

- Mobile technology is a major advance in the field of Information Management (IM)
- It is now possible, in real time or almost in real time:









What is Mobile Data Collection (MDC)?

- MDC: use of telephones (mainly Smartphones or tablets) for data collection instead of paper forms
- Wide range of solutions depending on the operating system, requirements (SMS, export formats, online / offline, cloud storage, paid or free...)
- Tested by CartONG since 2009, widely used since 2010



Exercise

• Examples of MDC use in Terre des hommes commonly?





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Examples of use in Terre des hommes (slide of 01/2017)

Burkina Faso (since 2013)

- Biannual food security assessment in selected areas
- Follow-up of children from 0 to 5 years old

Philippines (2014/2015)

Monitoring of shelter construction

Guinea (since summer 2015)

- Monitoring medical knowledge and practices related to healthy Ebola
- Assessment of EHA needs in different schools/health facilities

Mali (since summer 2015)

 Evaluation of community health associations

Iraq (since spring 2016)

- Market assessments (access to resources)
- PDI location and site information
- Post-monitoring of Hygiene/Winter/BNA/Cash distribution

Ukraine (since spring 2016)

Household / livelihood surveys

- Communication video produced this year:
- www.cartong.org/news/video-communication-terredes-hommes-mobile-data-collection-success-stories





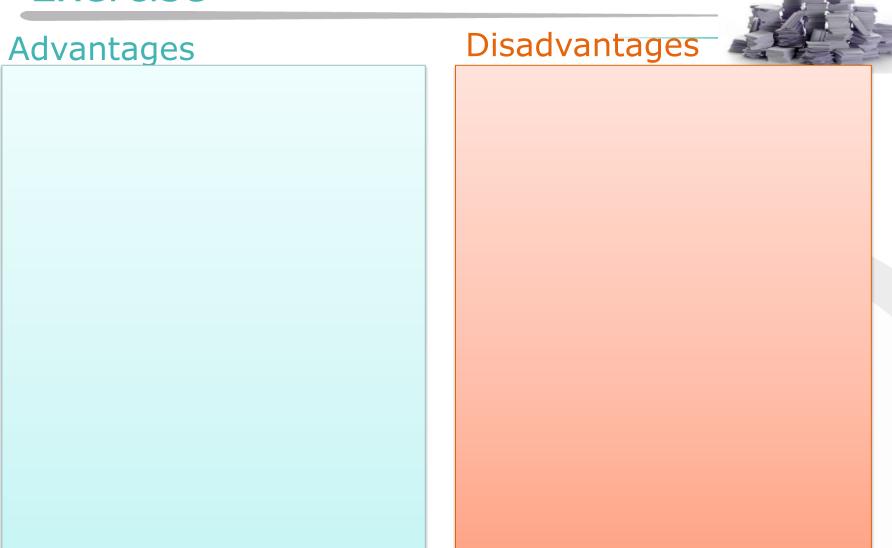
Exercise

Organize yourself into 3 groups and list all the advantages and disadvantages you see in Mobile Data Collection (compared to paper data collections)





Exercise







Advantages

- Better data quality (input checks, skip patterns, calculations etc.)
- Faster data entry (no double entry)
- Results ready for analysis as soon as the Internet is available (3G wifi)
- Cheaper if used frequently
- A tool for images, GPS, videos, barcodes, signatures, etc. -multilanguage possible
- Investigators go lighter in the field







Disadvantages

















- Requires longer training and more IT skills in the project
- Longer preparation of the survey
- The survey is not as visual as it can be on paper
- Fragile and expensive technology at first glance
- Dependency on electricity
- May be a security issue if not properly managed
- Not suitable for qualitative surveys
- Can be intimidating to some / create a distance from the interviewee / not appropriate in some contexts



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The steps of the MDC









The steps of an MDC













The ODK Collect application



Getting started with the ODK application

• Open the "ODK Collect" application





Exercise

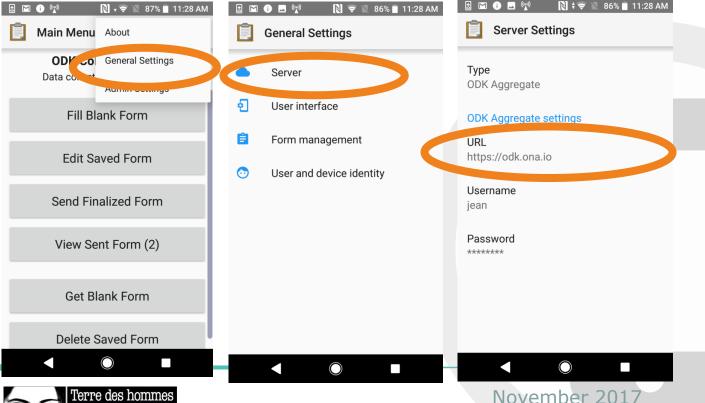
Open the "getting to know you" form, fill it out, finalize the form (check the box on the last screen) and save the submission





Connect your phone to Kobo Toolbox

- You must connect to the right website in order to:
 - To be able to access blank forms
 - Be able to send completed form submissions to the right place

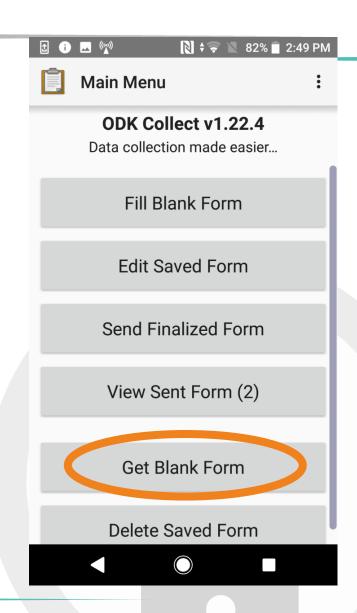




Download a new form

To download a blank form:

- Make sure you have wifi enabled (ON)
- Click on « Get blank form".
- Select the form(s) you are interested in and click on "download selection".

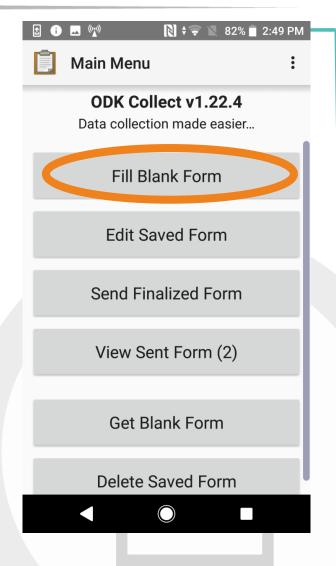






ODK: Main menu

The enumerators will mainly use the "Fill blank form" button where they can select the necessary blank form

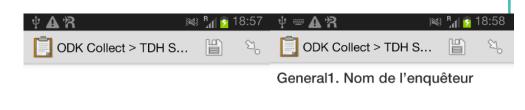






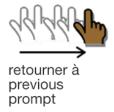
ODK: Navigation through the questionnaire

When you get screen, you are beginning of the survey



You must "slide"
your finger on the screen
to switch from one
question to another.

Vous êtes au début de TDH SECU ALIM BFA Menage v1. Faites glisser votre doigt sur l'écran pour avancer ou reculer.



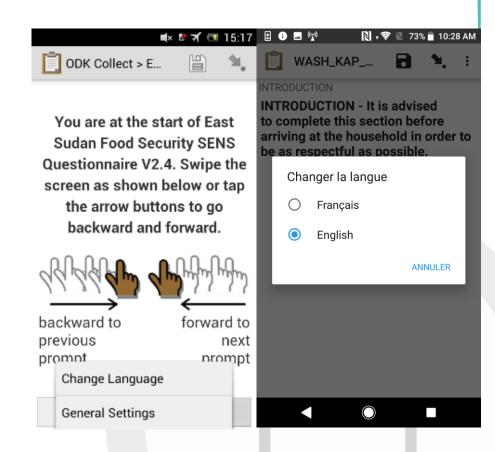






ODK: Change the language

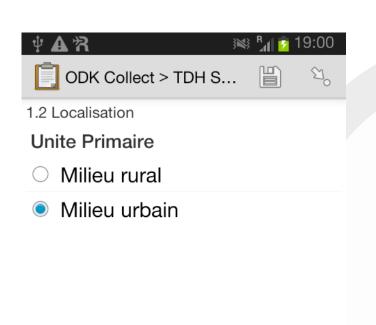
To change the language of a questionnaire, once in the questionnaire, click on the button (bottom button on the phone) and choose "change language".





ODK: Select an option

- This is an example of a single-choice question from a list of options.
- A circle (radio button) indicates only one possible choice.

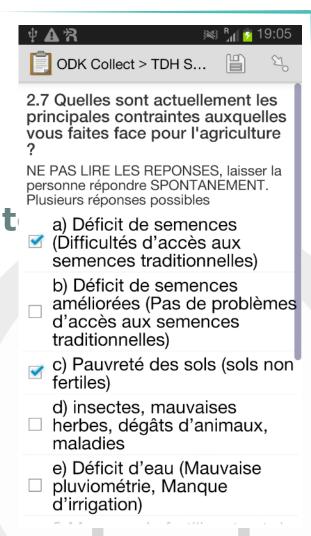






ODK: Select several options

Here are checkboxes (squares) to tick. One or more answers be given.





ODK: Enter numbers/text

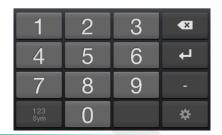
Example:

- When an interviewer must fill in these types of fields.
- The interviewer can use the keyboard or touch screen.
- Some fields can only be filled in with numbers or letters.
 Sometimes the values are checked.











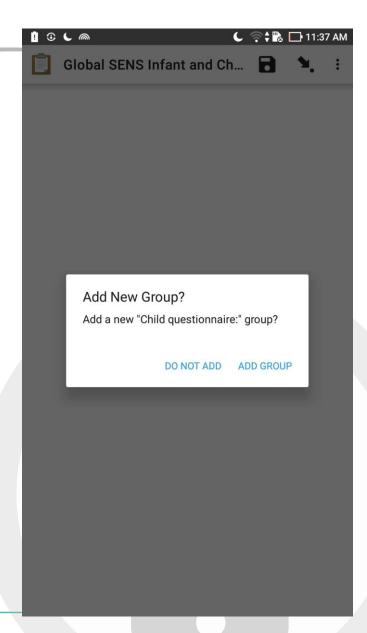


ODK: Add a group

Example:

Add a group if there is more than one child whose actions will be taken

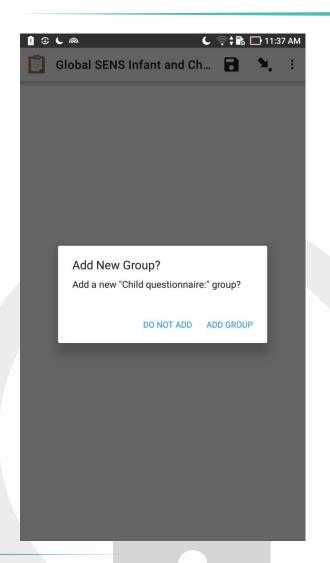
How can I remove one too many added groups?





ODK: Delete one too many groups

If you add one too many groups, you can go back and choose « do not add ».





ODK: Save GPS coordinates (1/2)

- Pull the top of the screen down. This will bring up a different menu one of the icons will be for the GPS.
- Make sure that the GPS icon activated (touch to activate/deactivate) "Position".
- May look slightly different on your phone

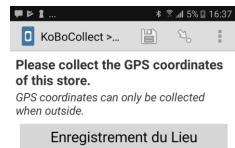






ODK: Save GPS coordinates (2/2)

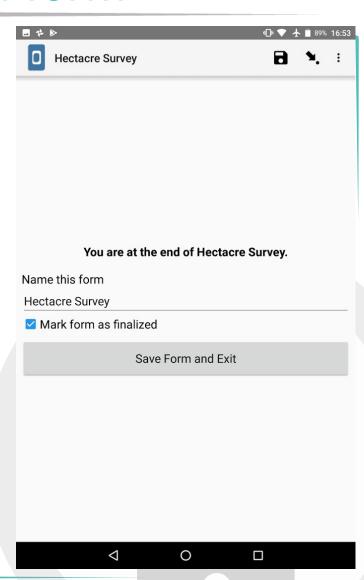
- Wait until sufficient accuracy is achieved (10m suggested to be adapted to the context)
- Take the check-in outside, not inside.
- Launch the GPS test application once a day.
- Turn off the GPS when you don't need it it consumes a lot of battery power!





ODK: Save and finalize a form

- Click on "Mark the form as finalized"
 - This indicates to Kobo that the form is ready to be sent to the server
 - Warning: the form can no longer be modified if it is finalized
- Click on "Save form and Exit".

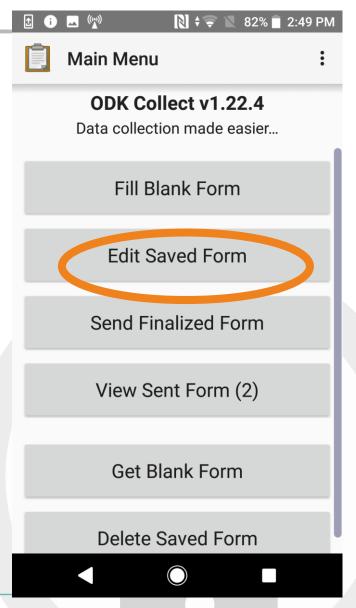






ODK: Reviewing data

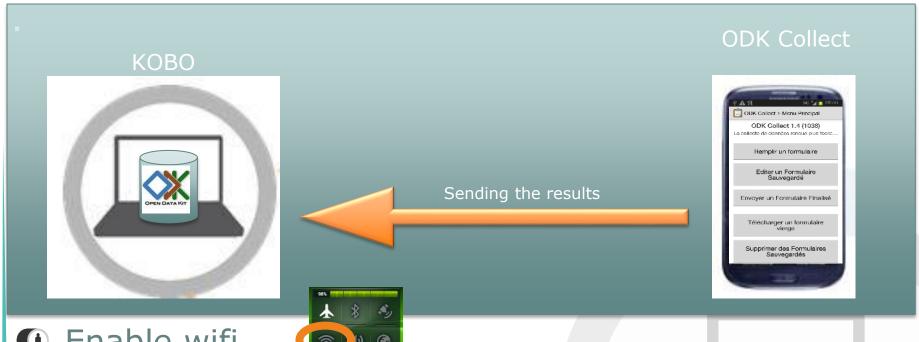
You can review completed (but not finalized) forms to revalidate your data by going to the "Edit Saved Form" section from the main ODK screen.







ODK: Send results to the server



- Enable wifi
- Make sure you have "marked the form as finalized" (last page) and saved it
- Go to "Sending a finalized form", select it and send it





Introduction to OpenDataKit (ODK)

- Open source solution for Android:
 - Very widely used
 - Basis for many systems
 - Powerful and flexible
 - Secure storage on your own possible servers







The OpenDataKit ecosystem

- ODK is one of the most widely used solutions in MDC
- It is ultimately a suite of solutions, running under Android and based on OpenRosa
- Many applications are designed from this Platform: free or paid, private sector or research, completely autonomous from ODK tools or sharing certain aspects
- Ouring this training, we will focus on: ODK Collect and KoBo Toolkit
- To compare them: http://humanitariannomad.org/













The main MDC tools

① Different tools are used in humanitarian aid for the MDC based more or less on ODK, here are the most frequent ones:

Tool	Summary of the report
■ KoBoToolbox	Open source and free tool for humanitarian and development actors. Suitable for simple surveys, without very sensitive data, sometimes a little unstable
ONA ONN	Paid tool similar to Kobo, easy to set up, with some additional visualization features
SurveyCTO	Quite advanced paying tool in terms of functionalities for simple (and related) surveys, with a complete offline solution and good management of sensitive data (a little more complex to set up, however)
CommCare HQ	Open source and paid tool adapted to health case tracking (including SMS component), but more complex to implement





Android Smartphone Settings





Introduction to Smartphones (1/2)

ON/ OFF

You can put the phone in plane mode by using this button)







Introduction to Smartphones (2/2)

STATUS BAR:
WIFI/Network/aircraft
mode/USB connection

Here you can see the status of your phone. When you are in aircraft mode, a small aircraft will appear in the status bar. It is also the status bar that tells you how much battery you have left.

ODK Collect:
This is the application we will use for data collection



Parameters:
Change the phone
settings (Wifi, USB
debug mode) here.

Applications:
This button allows you to access other applications on the phone





Exercise

1. In your opinion, what are the different Smartphone settings that have an impact on the battery?

1. Why do you think it is important to have the date and time set correctly on Smartphones?



Battery management and other settings

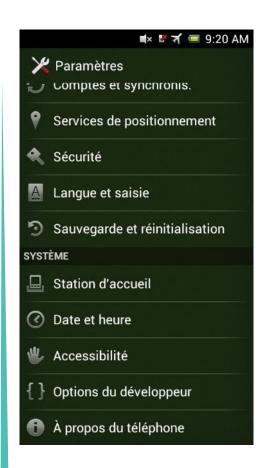
- To keep battery....
 - Aircraft mode
 - WIFI OFF
 - GPS off when not in use
 - The brightness of the phone should be low
 - Set the standby mode to standby
 - Make sure that no application rotates in the background
 - Recharge the battery if necessary
- In case of difficult circumstances:
 - Plan a second battery
 - Provide a portable charger
 - Plan chargers in cars

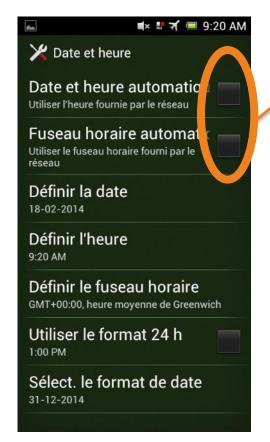






Battery management and other settings





If the automatic settings are not correct, deselect "automatic" and adjust the date manually

First set the time zone, then set the date and time



Exercise

- 1. Set the date to today's date and time.
- 1. Make sure your phone is in Airplane Mode, wifi is off and the phone's brightness is set to reduced
- 2. What happens if you accidentally delete the ODK application from the Home screen?





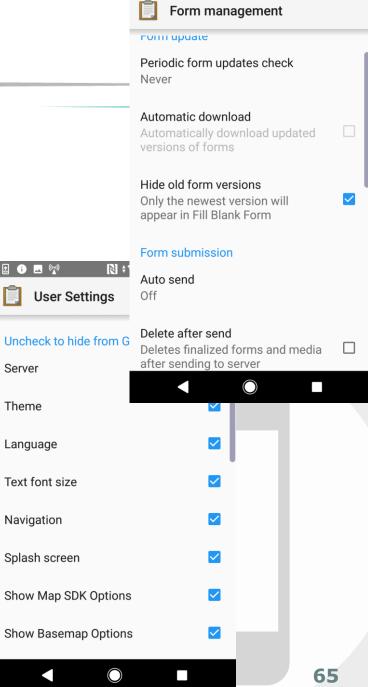
The ODK Collect application - Settings





ODK: General settings

- "Automatic sending" uncheck it if you want to check all the data before sending it to the server
- "Navigation" you can choose to add the buttons or use the finge slide (recommended to have both)
- "Default final version" If checked, it means that the enumerator does not need to check this himself when completing the questionnaire (it will depend on the SOPs)

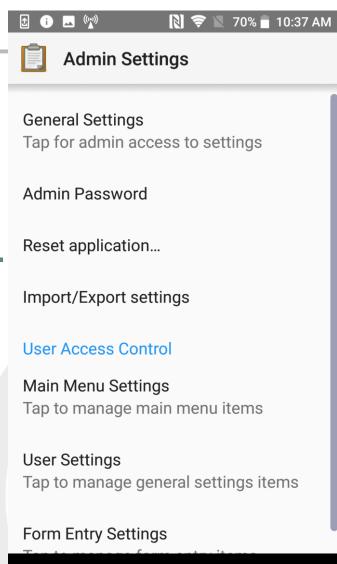






ODK: Advanced settings

- You can choose to hide some buttons from the main menu to avoid errors in handling the enumerators (such as deleting a blank form or a submitted form).
- Password to restrict access to this menu (but make sure that this password is known to the concerned parties in order to avoid downloading the ODK Collect application again!

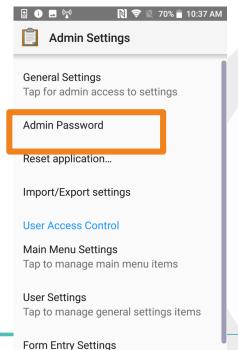


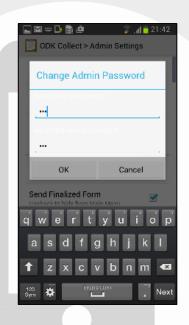




Security in ODK - Admin settings

- Make the URL password invisible in the general settings through the admin settings
- Set up an admin password to restrict access to admin settings (general settings always visible)
- Warning: do not do this on these phones, otherwise we will have to reinstall the application









Other interesting applications include

- Depending on your needs, you can also install the following applications:
 - GPS test+: allows you to improve/accelerate the recording of GPS points
 - Barcode Scanner: for a survey that requires barcode scanning
- These can be installed from the Play Store (they are free) or by means of a USB key



How to increase the speed of your GPS

Some applications optimize GPS operation (e. g. GPS Test)











Initial phone checks

- Before starting a survey, always check the following points on each phone:
 - Date and time
 - Sleep mode of the phone in an appropriate timing
 - GPS functional (use GPS plus)
 - Barcode application installed if necessary
 - On ODK Collect:
 - Version
 - Server address
 - Blank forms and past entries deleted
 - If you have a problem with the GPS, remember to "fix" it by having the wifi on once during the location search - you will then no longer need wifi or 3G the next time

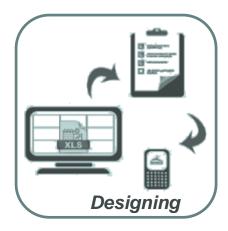




First overview of Kobo Toolbox



The phases of an MDC













Kobo: Create your account

- On your computer, go to: kobo.humanitarianresponse.info/
- Select "create an account
- Fill in the necessary information and validate your account from your email address
 - It takes a few minutes.
 - Be careful not to inadvertently double-click on the validation link
 - If you do not find the email, check that it is not classified as spam/junk mail







Exercise: Evaluation in Education

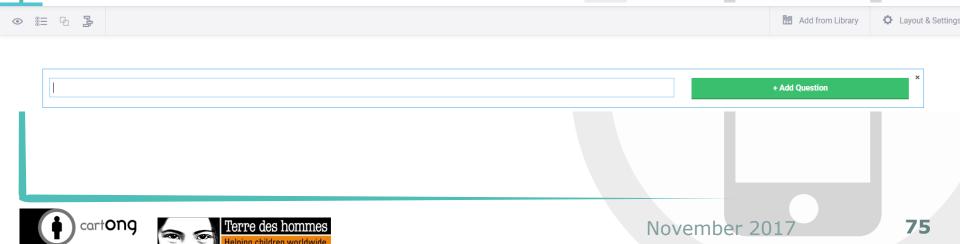
- Create a new form containing the following questions:
 - Date of the survey
 - Investigator's name
 - GPS Points
 - Displaced schoolchildren:
 - Please provide the number of displaced girls in this school?
 - Please provide the number of displaced boys in this school?
 - Are schoolchildren or teachers at risk when they are in school or on their way to school?
 - If so, what are the risks?



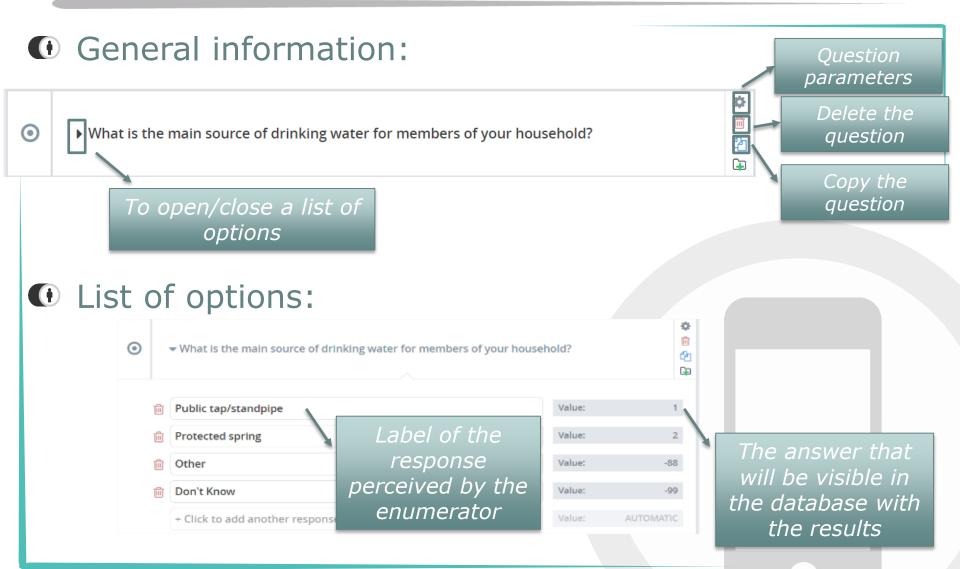


Create a form with Kobo Toolbox

- Click on "New" "Create a form".
- Fill in the information (name of the form etc.) "Create project"
- Create each necessary question:
- 1. Question type: click on "+" to choose the question type
 - 2. Define possible response options if necessary



Question parameters (1/3)

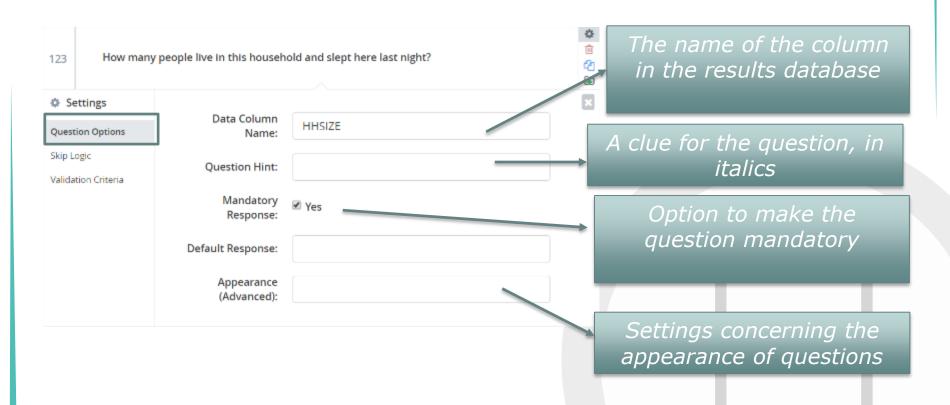






Question parameters (2/3)

General options of the question:



Question parameters (3/3)

Parameters for question conditionality:



This question will only appear if the answer to the previous question is "Other".

• Criteria for validating a question:

123	How many	people live in this household and slept here last night?	© (2) (2)
Settings			×
Question Options		This question will be valid only if the following conditions apply This question's response has to be > 0	
5kip Logic			Û
Validation Criteria			
		+ Add another condition	
		Error Message: The value cannot be null or inferior to 0	

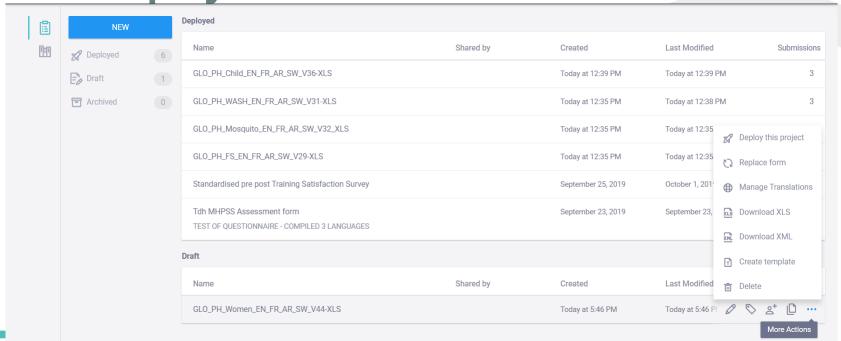
The answer to this question will be refused (with an associated error message) if this number is below 0.





And then what?

- Remember to save your form regularly! Otherwise, you have to start over...
- Once you are happy with the preview, you can:
 - Exit the form and click "deploy the form as a new project".

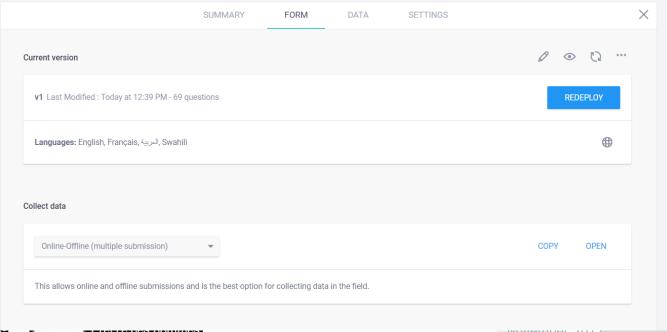






First test your form on your browser

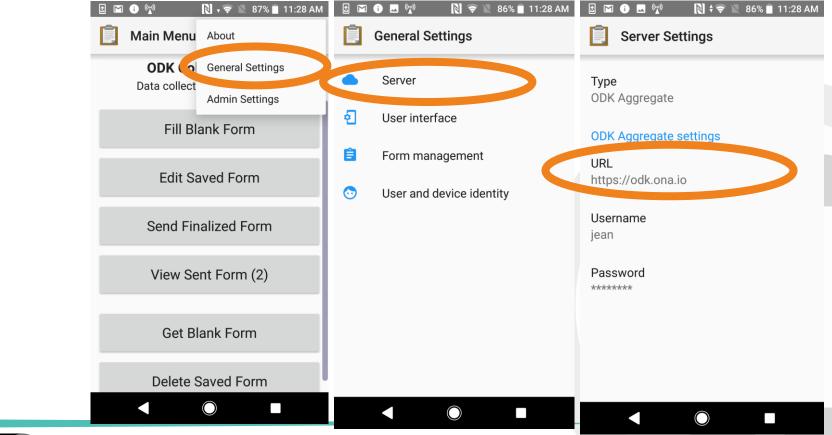
- Select a project and check that you are in the "form" tab
- Under « Collect data », select "Online-only (multiple submissions)" or "Online-offline (multiple submissions)".
- Click on "open", enter the data in the form and click on "submit".
- Wait until the submission is completed and return to your project page where you will see that your submission will appear!
- Take a look at the different possible visualizations in the "data" tab





Connect your phone to Kobo Toolbox

You must update your Kobo address on your smartphone in order to be able to download the new form and send data to the Kobo server







Test the form on your Smartphone!

Now you can download the blank form you created and test it on your smartphone!





Entering on a computer (connected) & features

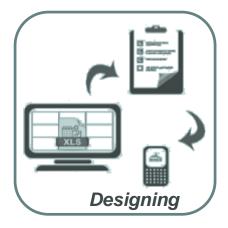
You also have the option of completing the survey on the computer if necessary (sometimes, if the data entry cannot be done in the field by telephone directly)

▲ https://ee.kob	otoobexorg/v/PVXP
	* Q1a- Parmi les maladies suivantes, quelle est la 1e que vous craignez le plus pour
	vous et votre entourage ? required
Ľ,	Les maladies métaboliques, telles que le diabète
L/	Les maladies cardio-vasculaires
	○ Les cancers
	Les maladies mentales telles que la dépression (alcoolisme, toxicomanie)
	Les maladies neurologiques telles qu'Alzheimer
	Les maladies infectieuses chroniques ou saisonnières (hépatites, Sida)
	Les maladies infectieuses contractées à l'hôpital
	O Autres
	O Aucune
	*Q1b- Parmi les maladies suivantes, quelle est la 2e que vous craignez le plus pour vous et votre entourage ?
	Les maladies cardio-vasculaires
	○ Les cancers
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The phases of an MDC









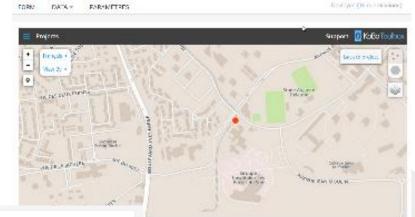


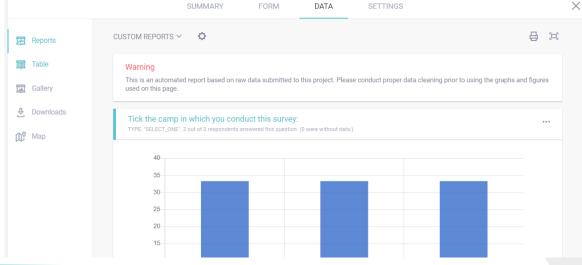


Viewing your data

• You can view your data in different ways:

- Table
- Graphics integrated
- Card
- Photo library....



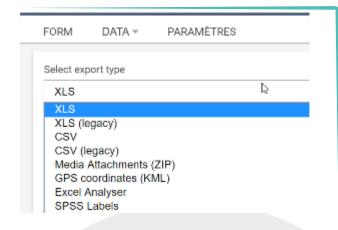






Downloading data

- They can also be downloaded in many formats for use in Excel, Google Earth, SPSS or other analysis tools, the Excel Analyser offered by OCHA (see associated documentation)
- There are also solutions to be able to set up a direct interface with your Kobo data in external tools (Table, Power BI, Qlik or other dashboards developed by you) through the Kobo API

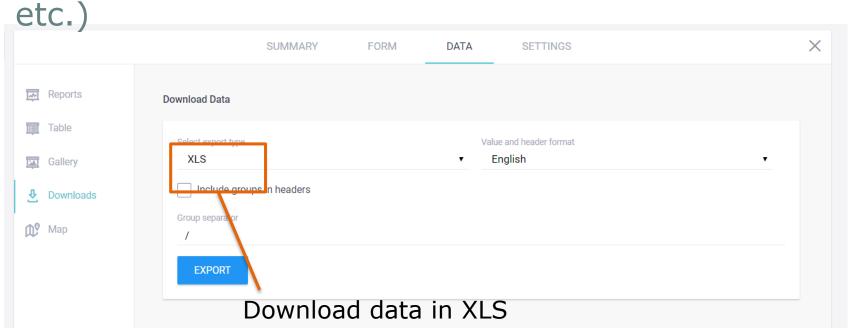






CSV/XLS export

• Analyze in Excel or other solution (SPSS, Access,





Kobo: Export a questionnaire composed of groups

- Example: Questionnaire for all beneficiaries in a household
- Result in XLS:

