

Mobile Data Collection Tool for National ASGM Overview

User Guide

Working Draft

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Chemicals and Waste Management Programme*

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Cover photo: Juha Ronkainen/UNITAR

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1 Introduction

1.1 Scope and Purpose

Collecting field data is often necessary to prepare the national Artisanal and Small-scale Gold Mining (ASGM) sector overview. The United Nations Institute for Training and Research (UNITAR) has developed a mobile data collection tool to accompany the two methodologies developed by the Artisanal Gold Council (baseline estimates) and UNITAR (socio-economic research methodology). The development of this tool has been funded by UN Environment Global Mercury Partnership, as a part of the National Action Plan (NAP) Global Component.

The tool is a tailor-made electronic form to be used with KoBo Toolbox. The Kobo Toolbox is a free data collection solution available for Android mobile devices. It has been developed by the Harvard Humanitarian Initiative with support from UN OCHA.

The tool has three main functions:

1. Combine location data with basic site-specific information to build a map
2. Contextualize and manage the pictures taken at the mining site
3. Manage data collection from distance and share the progress with key stakeholders

The aim of this manual is to give the reader tailored instructions how to use the tool for the national ASGM overview, and not all aspects of KoBo Toolbox are covered. Readers are encouraged to look at support pages at <http://support.kobotoolbox.org/> for further instructions. All feedback to develop the tool further is welcome¹.

1.2 Methodological Aspects

When preparing the national ASGM sector overview, countries are relying on two available methodologies²:

- Baseline Estimates for the Artisanal and Small-scale Gold Mining Sector - A Toolkit and Guide by The Artisanal Gold Council (AGC), Draft version, 2017
- Generic methodology for the socio-economic ASGM study, United Nations Institute for Training and Research (UNITAR), Draft version, 2017

These two methodologies combined provide a comprehensive approach to generate nuanced understanding of the ASGM sector in a given country.

Both methodologies have their own paper forms and ways to process the data. The tool provides a way to combine location data with key characteristics of the studied mining sites, thus enriching the data analysis and reporting.

¹Please send your questions and feedback to UNITAR (cwm@unitar.org).

² In addition to the methodologies mentioned, there is a document 'WHO guidance on addressing health aspects in the context of developing National Action Plans under the Minamata Convention on Mercury, Draft version, March 2017', but it is not yet publicly available at the time of this writing.

The tool contains three different sections:

1. Name and contact details
2. General Site Characteristics
3. Detailed data collection
 - a. Extraction (digging)
 - b. Processing (Crushing, milling, sluicing, amalgamation)
 - c. Cyanide Leaching
 - d. Health and Socio-economic Assessment
 - e. Environmental Impact Assessment

Sections 1, 2 and 3(a, b, c) lend directly from the methodology developed by the Artisanal Gold Council, whereas the section on Health and Socio-economic assessment is based on UNITAR's Generic methodology for the socio-economic ASGM study as well as the draft guidance by WHO³.

Section 3(e) on environmental impact assessment has been added to remind the research team that key information on overall environmental impact should be included in the National ASGM Overview⁴.

ASGM, as mining in general, can have manifold environmental impacts, including on^{5,6,7}:

- Population (e.g. impact on standard of living, impact on livelihood)
- Flora and fauna (e.g. deforestation)
- Land, water and air (e.g. soil contamination)
- Landscape (e.g. land degradation)
- Climate (e.g. CO₂ emissions)

A thorough environmental impact assessment would require more than observation and an interview-based survey. However, as established by Obiri S, Mattah PAD, Mattah MM, et al., people living in the mining area have remarkably accurate understanding of the pollution of their environment.⁸ Therefore, interviewing people on aspects such as water quality and

³ Ibid.

⁴Section 4.2, UN Environment: Developing a National Action Plan to Reduce, and Where Feasible, Eliminate Mercury Use in Artisanal and Small Scale Gold Mining Working Draft August 17, 2015. Available at https://wedocs.unep.org/bitstream/handle/20.500.11822/11371/National_Action_Plan_draft_guidance_v12.pdf?sequence=1&isAllowed=y, accessed 17 November 2017.

⁵ Environmental Law Alliance Worldwide (ELAW): Guidebook for Evaluating Mining Project EIAs, 2010. Available at <https://www.elaw.org/files/mining-eia-guidebook/Full-Guidebook.pdf>, accessed 16 November 2017.

⁶ Ministry of Employment and Economy: Environmental Impact Assessment Procedure for Mining Projects in Finland, 2015. Available at http://en.gtk.fi/export/sites/en/mineral_resources/EIA_guidelines_for_mining_projects_in_Finland_2015.pdf, accessed 16 November 2017.

⁷ Mozhgon Rajae, Allison K. Yee, Rachel N. Long, Elisha P. Renne, Thomas G. Robins, Niladri Basu, Pulmonary function and respiratory health of rural farmers and artisanal and small scale gold miners in Ghana, In Environmental Research, Volume 158, 2017, Pages 522-530, ISSN 0013-9351. Available at <http://www.sciencedirect.com/science/article/pii/S0013935117302463>, accessed 16 November 2017.

⁸ Obiri S, Mattah PAD, Mattah MM, et al. Assessing the Environmental and Socio-Economic Impacts of Artisanal Gold Mining on the Livelihoods of Communities in the Tarkwa Nsuaem Municipality in Ghana. Basu N, Keane S,

deforestation are valuable leads to better understand the environmental impact of mining in the focus area. Subsequently, this information can be enriched by other methods such as satellite analysis on deforestation.^{9,10}

1.3 Process Overview

Using the tool is intended to be simple. The typical sequence for utilizing the tool contains seven steps:

1. Sign-up for a free server
2. Upload the tailored form into your own server
3. Configure your Android data collection device
4. Collect the data
5. Manage data collection
6. Make a Map and Download the data

2 Sign-up for a Free Server

2.1 Choosing Your Server

One of the best things about the tool is that it is entirely free. The first thing you need to do is to sign up for a free server account at <http://www.kobotoolbox.org/>. There are two secure and free server options available:

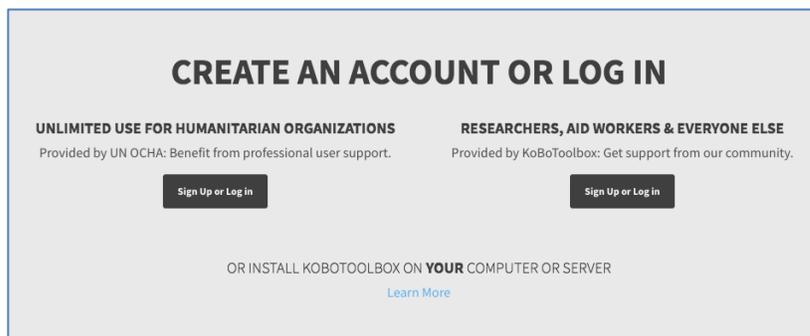


Figure 1: Sign-up for a free server

Moher PB, eds. *International Journal of Environmental Research and Public Health*. 2016;13(2):160. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4772180/>, accessed 16 November 2017.

⁹ UNITAR-UNOSAT: Satellite Mapping of Artisanal and Small Scale Gold Mining in Central Kalimantan, Indonesia, UN Environment 2017. Available at http://unosat-maps.web.cern.ch/unosat-maps/ID/OT20151123IDN/UNOSAT_Central_Kalimantan_Report_Feb2016o.pdf, accessed 17 November 2017.

¹⁰ Kenneth J Davis: Satellite Image Time Lapse of Artisanal Mining in Peru, Blog post, 12 March 2014. Available at <https://geovisualist.com/2014/03/12/satellite-image-time-lapse-of-artisanal-mining-in-peru/>, accessed 17 November 2017.

The first one, provided by UN OCHA, is a dedicated server for humanitarian organizations. The server provided by KoBoToolbox is hosted by the Harvard Humanitarian Initiative¹¹, and that is the one you should use. There is an option of hosting your own server, however this requires specific IT skills on server configuration and maintenance.

2.2 Data Protection

As in all data collection, ensuring data protection is of paramount importance, and needs to be guaranteed at every step of the data process, including data collection, storage and sharing. Therefore, do ensure adequate anonymization, use a secure server and clearly define data sharing protocols.

3 Upload the Form Onto Your Server

3.1 Upload the form

The tool is essentially a tailor-made form, which can be distributed in Microsoft Excel (xls) format. If you don't have the form in xls format yet, you must download and save it to your own computer.¹² Once logged in to the server, just click the button 'new' in the left-hand corner of the screen, choose 'upload' and select the xlsx file from the location you have saved it. Do not edit the xls file directly.

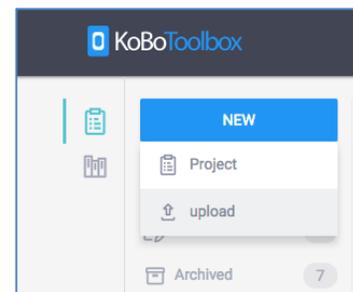


Figure 2: Upload the form

3.2 Deploying the form

You should now see a view as below and the only thing to do is to 'deploy' the form. By deploying the form, you make it available for data collection using mobile devices. You can view the form by clicking the 'eye' icon as seen below.

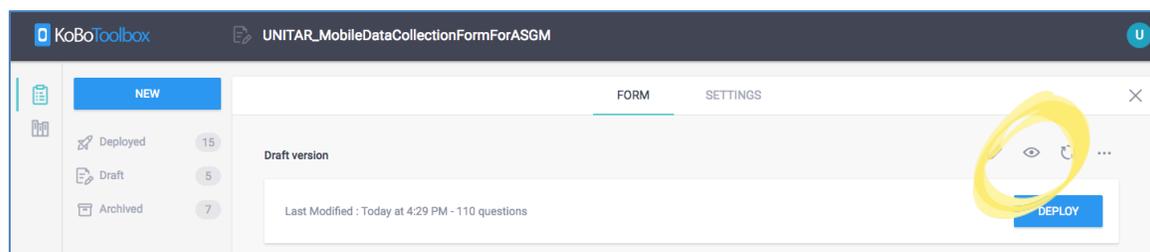


Figure 3: Deploy the form

¹¹ Find out more at <https://hhi.harvard.edu/about>.

¹² The form and this guidance document are available for download at <http://bit.ly/ASGMDataCollection>.

4 Configure Your Android Data Collection Device

4.1 What do you need?

You only need a relatively new smartphone or a tablet using the Android operating system 2.1 or more recent¹³. It is advisable to steer away from the cheapest devices, which may pose problems in the field due to short battery life and limited memory, as well as from the most expensive ones, which constitute an unnecessary budget increase for your data collection and may pose a risk to data collectors carrying them in contexts where expensive mobile devices are attracting attention. You only need a mid-range device with GPS, Wi-Fi and camera functionalities with a power bank¹⁴. You do not want to run out of battery in the middle of your field visit, so it is also important to invest in a power bank to accompany the mobile device. Having a device with a mobile internet connection is an advantage, as you can then send your data for validation on a daily basis.



Figure 4: Mid-range mobile device with a power bank

¹³ Android version 2.1 'Éclair' was released in January 2010.

¹⁴ E.g. a Power bank with capacity of 6000mAh

4.2 Install the Data Collection Application

The compatible application to be used for data collection is the ODK Collect application which can be freely downloaded from the Android Market¹⁵.

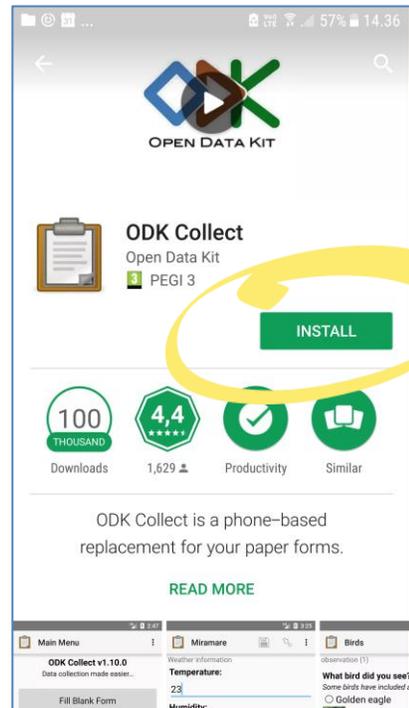
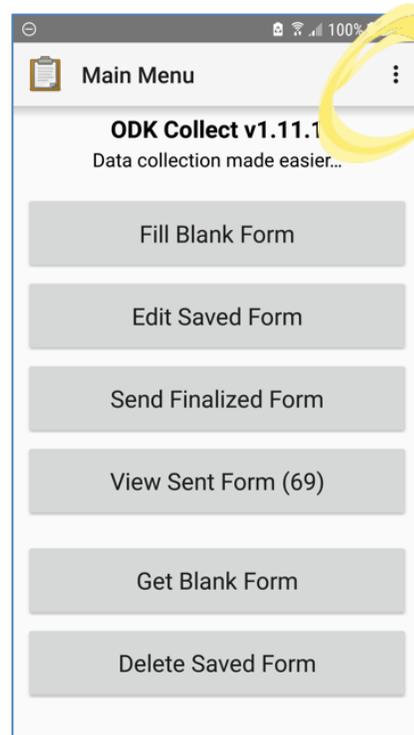


Figure 5: Install ODK Collect

4.3 Install the form onto your mobile device

Once you have installed the ODK Collect application, downloading the tool onto your mobile device is easy:

1. Open the ODK Collect Application
2. Click  and choose 'General Settings'
3. Click 'Server'
4. Enter the server URL and your username and password
5. Return to home screen and open 'Get Blank Form', then download 'MobileDataCollectionFormForASGMOOverview'
6. Return home screen and open 'Fill Blank Form'
7. Choose the form and start collecting data



¹⁵ As it currently stands (November 2017) the Kobo Collect application lacks one key functionality and thus cannot be recommended. ODK Collect provides an option to choose the image quality to be uploaded, which is necessary in areas lacking good internet coverage.

5 Collect Data

5.1 Necessary Device Settings

Before starting data collection, you should ensure that the device is using the right settings. For this, open the General settings in KoBo by clicking the symbol of three dots in the right-hand corner and selecting 'General Settings' as done in previous Step already. Select 'Form management' and you should see the view as in Figure 7.

There are two¹⁶ important settings you should check:

1. Keep the 'Auto send' option 'Off' as you might like to go back to some of your forms before uploading them to the server¹⁷.
2. Choose the most suitable photo file size for your purposes from XX. You have three options
 - a. Medium (2048px)
 - b. Small (1024px)
3.
 - a. Very small (640px).

Make your choice depending on your network conditions. By default, photos are uploaded in their native resolution, however this may cause problems in contexts with weak network connection. Option 'Small (1024px)' should work fine in most cases even in the rural areas.

5.2 Using the device on the field¹⁸

You are now all set for the data collection. We recommend you to fill-out the form at each mining site you are visiting. By 'mining site', we mean an extraction site or processing site as it has been defined in Baseline Estimates for the Artisanal and Small-scale Gold Mining Sector - A Toolkit and Guide by The Artisanal Gold Council (AGC).

5.3 Navigating in the form

Using the form is simple: You can move forward and backward in the form by swiping the screen to left or right with your finger. A few questions are mandatory, such as

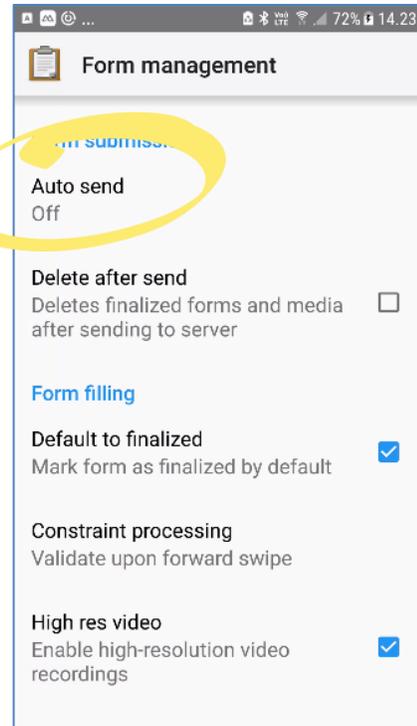


Figure 7: Form management

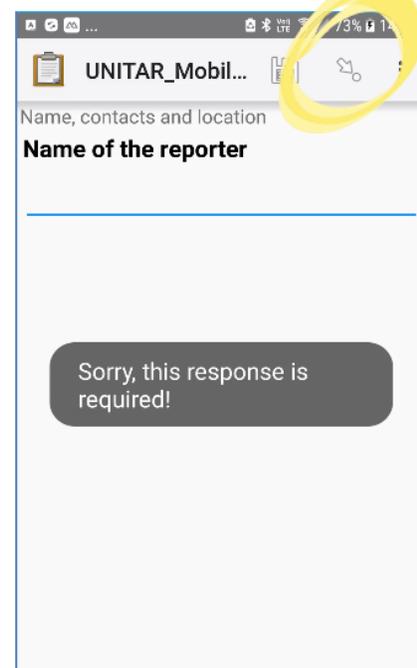


Figure 8: Giving your name is mandatory

¹⁶ If short in space, select option 'Delete after send' as well.

¹⁷ You can edit saved forms by clicking 'Edit Saved Forms' at the home screen.

¹⁸ It is generally advisable to carry a few paper copies of the form along with you when collecting data, in case something happens to your electronic device. You can find the form at the end of this document.

your name, preventing you from proceeding until you have answered those questions. You can also move rapidly around the form by clicking the 'arrow' button, as shown in the Figure 8.

The tool contains three different sections:

1. Name and contact details
2. General Site Characteristics
3. Detailed data collection
 - a. Extraction (digging)
 - b. Processing (Crushing, milling, sluicing, amalgamation, etc.)
 - c. Cyanide Leaching
 - d. Environmental Impact Assessment
 - e. Health and Socio-economic Assessment

Note that locating yourself using GPS might take some minutes, as your device is trying to capture signals from satellites. During that time the accuracy begins to approach 6m, but you may stop the process any time by clicking 'Save GeoPoint' when the desired accuracy has been acquired. In ideal conditions, the accuracy can be up to 6 metres

Also note that GPS doesn't work indoors, so find an open spot at the center of the mining site where you record your location.

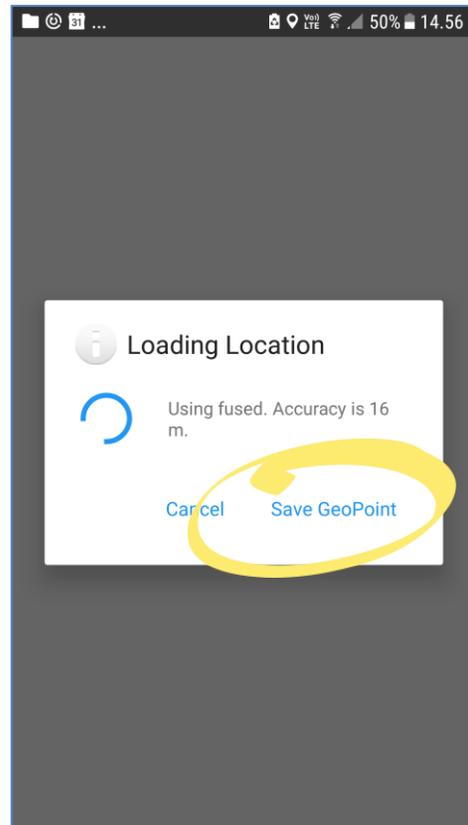


Figure 9: Using GPS

5.4 Upload the collected data

To upload your data, you only need to open 'Send Finalized Form', select the form or forms you have been working on and click 'Send Selected'. Please note that this requires an Internet connection.

You can edit your saved forms using the option 'Edit Saved Forms', before uploading them, in case you want to change something. To enable others (e.g. project manager) to see the collected data and to minimize the risk of data loss if something should happen to your mobile device, you should try to send your collected data at the end of each day.

6 Manage Data Collection

6.1 View the data

When logged in to the server, the user must select the form they are interested in. In case you are using KoBoToolbox for the first time, you should now have only one deployed form

available, namely 'MobileDataCollectionFormForASGMOOverview'. When you select 'DATA' you will be given different options to view your data:

- Reports (Quick glance analysis of the data)
- Table
- Gallery (Photos)
- Map (Locations of the mining sites on a map)
- Downloads (You can download your data in various formats, including Excel. We speak more about this in Step 7.)

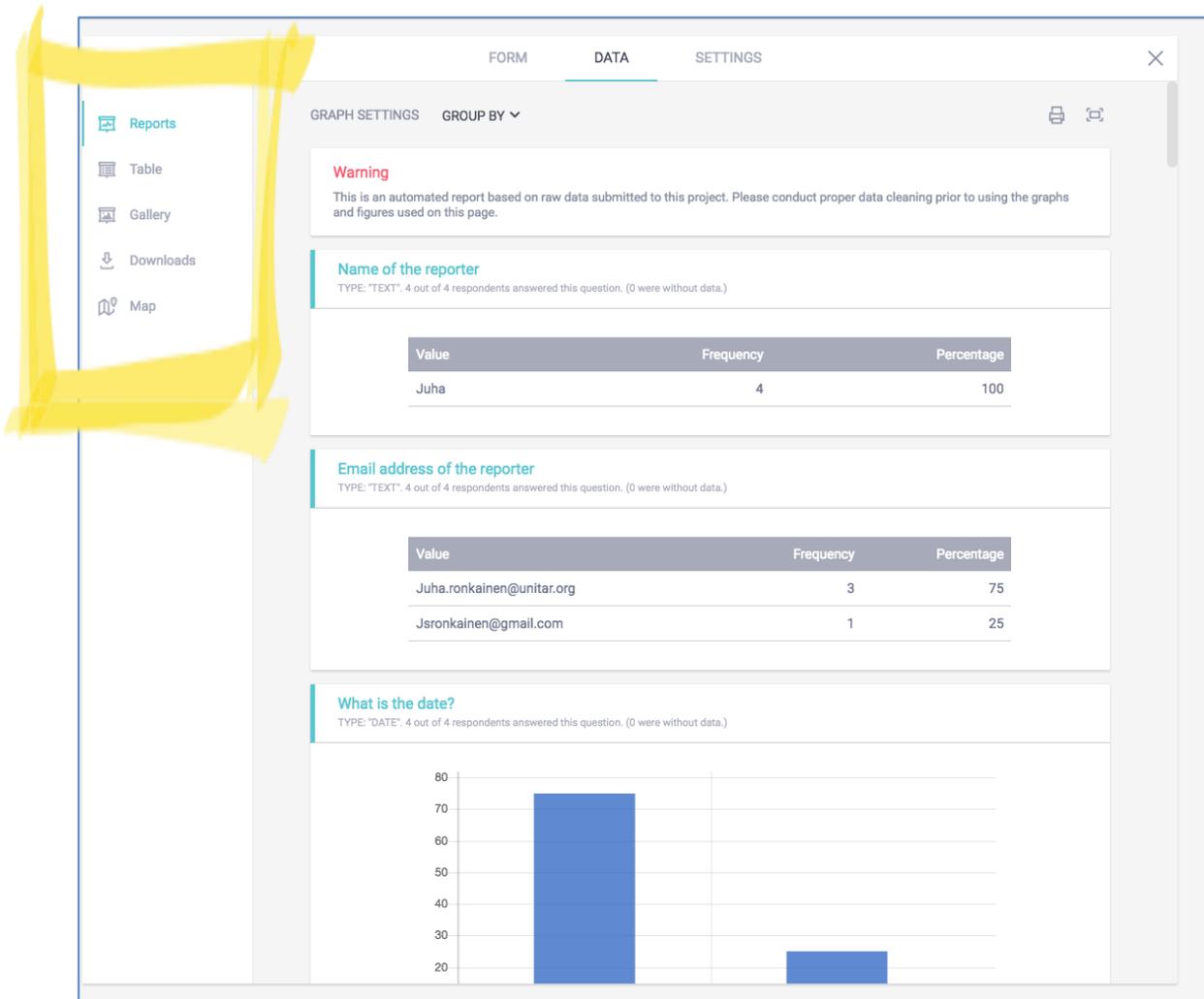


Figure 10: Use 'DATA' view to manage data collection

6.2 Add additional data using the browser

You may also want to add mining sites to the database without actually visiting the sites based on literature reviews or data available by the government officials. This can be also done at the KoBo server as you can see below.

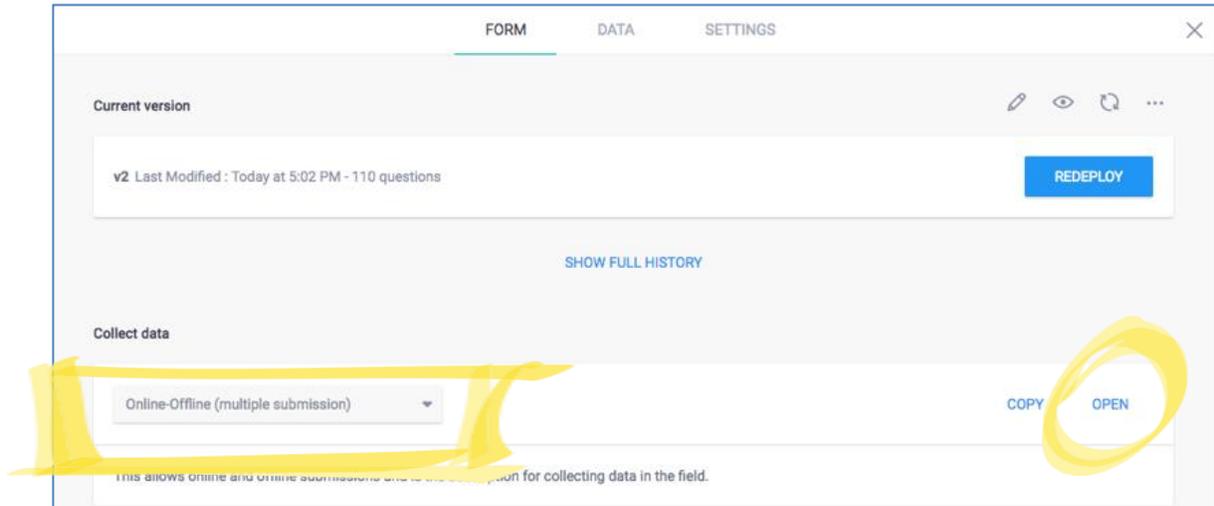


Figure 11: Add data using browser

6.3 Add missing information of gold production and mercury usage

As gold production and mercury use are calculated using the detailed field forms provided as a part of the methodology for baseline estimates, you can add that information later to the database using either the 'Table' or 'Map' view¹⁹: Just open the data (Table) or click the data point (Map), and the form will be opened as illustrated in Figure 13. Click 'Edit Submission Data' and you are free to edit all submitted data or add new information. Just remember to submit the form once you are done to make these changes permanent.

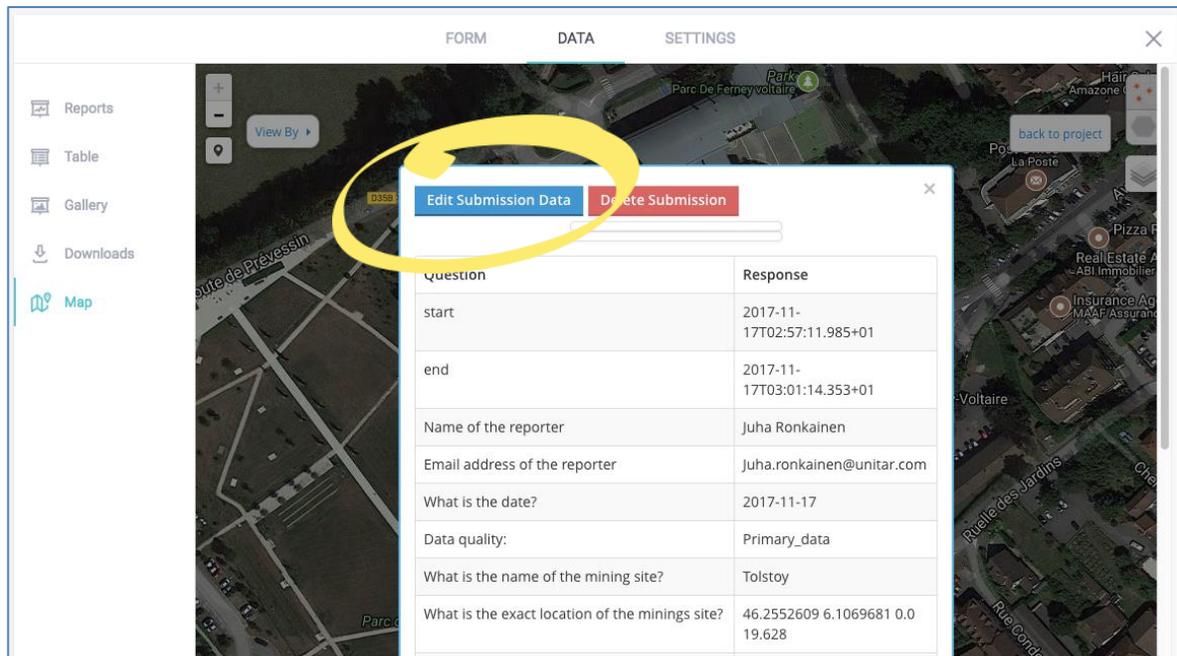
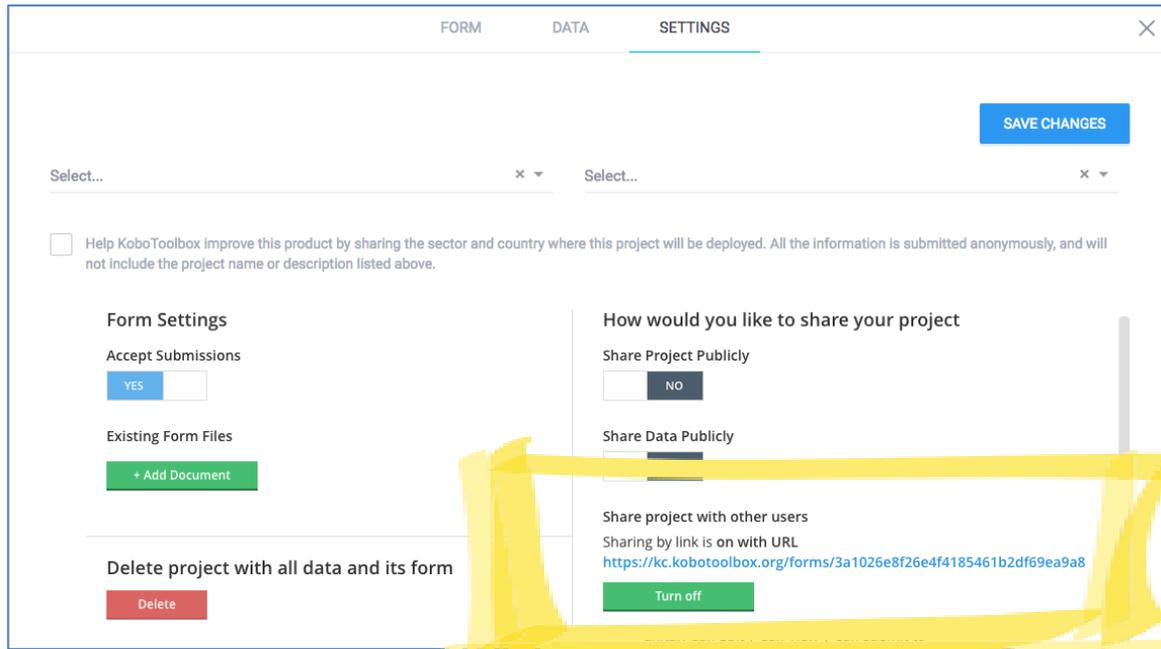


Figure 13: Click 'Edit Submission Data' to add missing information or to edit submitted data.

¹⁹ For example, you can add the data on gold production and mercury use once you are back in your office.

6.4 Share the data

The data collected is available only for authorized person. The server uses a security certificate to ensure all the data sent to the server are private. Sharing the data with the project steering committee or with key stakeholders can be done easily at the form settings by turning on the 'Sharing by link' option, as shown below.



The screenshot shows the 'SETTINGS' tab of the KoboToolbox interface. At the top, there are tabs for 'FORM', 'DATA', and 'SETTINGS'. A 'SAVE CHANGES' button is in the top right. Below the tabs, there are two 'Select...' dropdown menus. A checkbox is checked, with the text: 'Help KoboToolbox improve this product by sharing the sector and country where this project will be deployed. All the information is submitted anonymously, and will not include the project name or description listed above.' Under 'Form Settings', 'Accept Submissions' is set to 'YES' and 'Existing Form Files' has a '+ Add Document' button. A 'Delete project with all data and its form' section has a 'Delete' button. The 'How would you like to share your project' section has 'Share Project Publicly' set to 'NO' and 'Share Data Publicly' set to 'NO'. The 'Share project with other users' section shows 'Sharing by link is on with URL' and a green 'Turn off' button. A yellow highlight is drawn around the 'Turn off' button and the URL.

Figure14: Turn on 'Sharing by link" to share your data

By enabling sharing by link, you can simply share the blue link to anyone to give them access to your data. Please note that users receiving the link can only view and comment on the data. They do not have permission to alter the data or the project settings, nor can they submit new data.

7 Make a Map and Download the Data

7.1 Make a Map

Even though KoBoToolbox server does not offer sophisticated tools for analysis, a simple map can easily be generated. In addition to only showing the locations of the mining sites you can illustrate some of the key characteristics by opening 'View By'. For example, you can illustrate where certain 'worst practices' are present or where operations are licensed as seen below. Suitable background map can also be chosen. The prepared map can be saved simply by taking a screen shot.



Figure15: Example data: Licensed Gold mines in Geneva, Switzerland and Frankfurt, Germany

7.2 Download the Data

To analyze the gathered information with other tools, such as MS Excel, SPSS, or QGIS, you can download the data and pictures by selecting 'Data', 'Downloads' and then selecting the needed data format. Data can be downloaded in typical xls format and pictures can be downloaded compressed in a zip format.

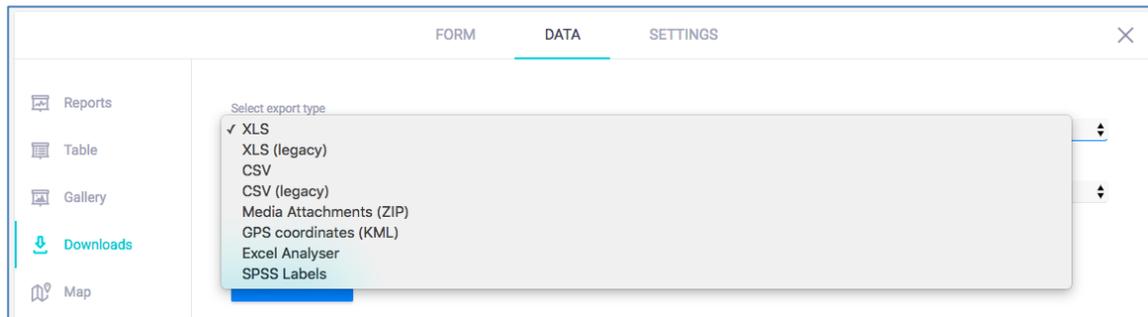


Figure 16: Available formats to download the data

To download the data in a format suitable for tools such as MS Excel, you should select export type 'xls' and then select Value and header format as 'XML values and headers'. This makes the downloaded data much cleaner to use.

Downloading pictures is a straight forward, as typical operating systems being used automatically know how to open compressed ZIP folders. Please note that the excel file makes references to the pictures using the unique file names of the pictures.²⁰

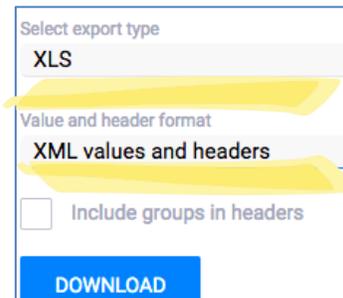


Figure 17: Choose the correct header format

8 Further Considerations: Geospatial analysis

There are multiple reasons why it is important to conduct further spatial analysis on where gold mining takes place in a country. In its simplest form, you might like to know whether mining activities are taking place in protected areas, or if there are lakes or rivers nearby. Additionally, it is illustrative to see where is the nearest school or a health care center, as it tells us about the general living conditions of miners and their families. The extent to which this kind of data is available and accessible to the public depends on the country and context.

There are plenty of ways to conduct geospatial analysis, and two different approaches are briefly introduced here: MapX is a service developed jointly by UN Environment, the World Bank and GRID-Geneva, whose mission is to 'support the sustainable use of natural resources

²⁰ To link the pictures at the KoBo Toolbox server to your Excel file, you can follow instructions available at the KoBo Toolbox support forum: <http://support.kobotoolbox.org/customer/portal/questions/16294267-photo-collection>, accessed 17 November 2017.

by increasing access to the best available geospatial information, technology and monitoring tools.’ You can access MapX at <https://www.mapx.org/>. Whether the analysis is done by yourself or by hiring a GIS analyst, there are plenty of tools available such as ArcGIS (paid) and QGIS (free), to name a few.

9 Making Your Own Form

Finally, it is highly possible that depending on your context you might consider customizing the standard form provided.²¹ Therefore, the form has been licensed under the Creative Commons Attribution 4.0 International License. This license lets you remix, tweak, and build upon the provided form even for commercial purposes, as long as you credit UNITAR and UN Environment and license your new form under the identical terms. For customizing the form, follow instructions outlined in the KoBo Toolbox user portal.²² We would also highly appreciate, if you would send us a copy of the new form you created for our reference and learning.²³

²¹ Detailed instructions on how to build or edit a form can be found at <http://support.kobotoolbox.org/customer/en/portal/topics/690866-creating-forms/articles>, accessed 17 November 2017

²² To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

²³ Please send your copy at cwm@unitar.org



Mobile Data Collection Tool For ASGM Overview (23112017)

Acknowledgements

The United Nations Institute for Training and Research (UNITAR) has developed a mobile data collection tool to accompany the two methodologies developed by the Artisanal Gold Council (baseline estimates) and UNITAR (socio-economic research methodology). The development of this tool has been funded by UN Environment Global Mercury Partnership, as a part of the National Action Plan (NAP) Global Component.

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Produced by UN Environment Global Mercury Partnership Acknowledgements The tool was developed for UN Environment by Juha Ronkainen, United Nations Institute for Training and Research – UNITAR.

Name, contacts

Name of the reporter

Email address of the reporter

What is the date?

yyyy-mm-dd

Please begin by giving some mandatory details.

Data quality:

- Quality primary data based on interviews and observations conducted during the site visit
- Quality secondary data based on a scientific study or trusted report
- Uncertain and incomplete scoping data

General Site Characteristics

When collecting data, respect the principle of ANONYMITY of information obtained from people who are interviewed on the sites: Never write down names and ask permission if you are taking pictures where people can be recognised. Be sensitive and respectful.

The following group of questions are about general characteristics of the mining site

What is the name of the mining site?

What is the exact location of the mining site?

GPS coordinates can only be collected when outside.

latitude (x,y °)

longitude (x,y °)

altitude (m)

accuracy (m)

What is the region?

What is the closest community called?

Contact details for the mining site?

How are miners organized?

- Individuals
- Small informal groups
- Cooperative
- Company
- Other

Please explain:

Is the operation licensed?

- Yes
- No

How many days the mining site is active per year?

General description of the mining site:

» Population and Baseline Estimates

The following three questions can be filled on site based on interviews, but the reported figures must be corrected based on the research on baseline estimates.

What is the estimated work force in the mining site?

How many kilograms of 24 karat gold is produced annually?

Do they use mercury?

Yes

No

How many kilograms of mercury is consumed annually?

Detailed data collection

At this mining site, data was collected on the following aspects (Select all that apply.)

- Extraction (digging)
- Processing (crushing, milling, amalgamation etc.)
- Cyanide Leaching
- Environmental Impact Assessment
- Socio-economic and health Assessment

» Extraction

The following group of questions is about extraction

What is the ore extraction method? (You can select more than one.)

- Open pit
- Shaft

What is the type of ore in the mining site? (You can select more than one.)

- Soft rock
- Hard rock

Is extraction a separated activity with a separate working groups?

- Yes
- No

Take or add a photo of the extraction method

If possible, try to characterise the host ore. E.g. Fine grains or flakes in alluvial deposits. Grains or microscopic particles embedded in rock minerals.

If possible, take a picture of the ore being extracted

General notes on extraction

» Processing

The following group of questions are about processing

Based on the information given earlier, at this site same teams work on extraction and processing. This means, that you don't need to answer certain questions on group sizes anymore.

Select the processing steps used at the mining site:

- Crushing
- Milling
- Sluicing
- Panning
- Mercury amalgamation
- Direct Smelting
- Cyanide leaching

If possible, take a photo of crushing

If possible, take a photo of milling

If possible, take a photo of sluicing

If possible, take a picture of amalgam burning

If possible, take a picture of direct smelting

Select the applicable statement for the processing system:

- Ore is concentrated using sluices etc. before mercury amalgamation is done (concentrate amalgamation).
- 100% of ore is brought into contact with mercury without concentrating it first (whole ore amalgamation).

Do they burn the amalgam in residential area?

Yes

No

Are retorts used?

Yes

No

What happens to the tailings?

They are treated and managed properly

They are released to water or land

They are further treated with cyanide (see additional questions)

General comments on processing

» Cyanide Leaching

The following questions are about cyanide leaching in sediment, ore or tailings to which mercury has been added in this mining site.

Do they first remove the mercury before applying cyanide in sediment, ore or tailings?

Yes

No

What happens to the tailings?

They are stored, treated and managed properly

They are released to water or land

If possible, take a picture of the cyanide leaching site or process

General comments on cyanide leaching

» Environmental Impact Assessment

The following questions are about environmental impact. Questions on tailings management, and mercury and cyanide usage have been asked elsewhere in this form, but they should be taken into account when environmental impact is assessed.

» » Group

How have living conditions in the vicinity changed due to the mining activity?

- Deteriorated
- Unchanged
- Improved

Please explain

How have the color and smell of water bodies changed due to mining activity?

- Deteriorated
- Unchanged
- Improved

How is the drinking water quality?

- Bad
- Fair
- Good

Are there large water bodies such as rivers or lakes close to the mining site?

- Yes
- No

How has the amount of forests around the mining site changed due to mining activity?

- Decreased (deforestation)
- Unchanged
- Increased

» » Farmland

How has the amount of farmland around the mining site changed due to the mining activity?

- Decreased
- Unchanged
- Increased

Please explain

How would you describe the possible land degradation or land disturbance due to the mining activity?

- Land is seriously degraded and disturbed
- Some marks of land degradation can be seen, but nothing major
- Land seems to be intact due to the mining activity

Take a picture to illustrate the condition of the land.

General comments on environmental impact

» Socio-economic and Health Assessment

The following questions are about the socio-economic and health related information collected during the site visit. The first set of questions is about socio-economic questions.

What motivates miners to mine gold?

- Poverty (there are no other possibilities)
- Neutral available choice (They earn pretty much the same as other community members)
- Wealth (They earn significantly more than other community members)

After observing and interviewing miners, the majority of them seem to be

- Living in absolute poverty (e.g. not enough food)
- Living in relative poverty (when compared to the general population)
- Doing fine

To what extent does ASGM contributes to economic development in the community?

- barely
- a little bit
- a lot
- It is the main driver of the local economy.

Are there children (<17) working at the mining site?

- Yes
- No

Based on observation, what is the percentage of children of the total workforce in the mining site?

In which gold mining activities do children typically engage

- Extraction
- Crushing
- Milling
- Sluicing
- Panning
- Mercury amalgamation
- Direct Smelting
- Cyanide leaching
- Other services

Is there a school in the mining community?

- Yes
- No

Are there women working at the mining site?

- Yes
- No

Based on observation, what is the percentage of women of the total workforce in the mining site?

In which gold mining activities do women typically engage

- Extraction
- Crushing
- Milling
- Sluicing
- Panning
- Mercury amalgamation
- Direct Smelting
- Cyanide leaching
- Other services

Are there women in child bearing age working at the mining site?

- Yes
- No

Are pregnant women allowed to participate in gold mining?

- Yes
- No

Indicate to what extent does the ASGM community have access to basic services?

- Access to information about gold and mercury prices and trade;
- Access to basic training (on mining techniques, safety, administration, hygiene, etc.);
- Access to alternatives to mercury;
- Access to credit;

What other socio-economic aspects are of relevance on this mine-site?

The following questions are about the health-related information collected.

Do miners have access to health care? (Distance, cost etc.)

- Yes
- No

What (if any) obvious occupational health risks are observed at the mining site besides mercury use?

What are the major health concerns (if any) among miners at the mining site?
