WASH and NTDs decision matrix instructions

To be used in conjunction with Supplementary tool: WASH and NTDs decision matrix.

Terminology and abbreviations

IU	implementation unit – refers to the administrative level to which MDA is currently delivered (typically administrative level 2 – e.g. district or commune)
KK	Kato-Katz
NNN	Neglected Tropical Disease NGO Network
NTD	neglected tropical disease
ODF	open defecation free
Region	one administrative level above the IU (typically administrative level 1)
STH	soil-transmitted helminthiases
UF	urine filtration
VBA	Visual Basic for Applications
WASH	water, sanitation and hygiene

Introduction

These instructions will guide an individual through the set up, data entry and use of the workbook.

The purpose of the matrix is to act as a data collection and visualization aid for IU-level information on NTD endemicity and access to WASH services.

The matrix displays NTD and WASH data in a summarized form to help prioritize allocation of resources to high-risk/need districts.

It is recommended that one workbook be created for each region, with a maximum of 25 IUs per workbook. Regions can be split if there are more than 25 IUs in one region or combined if there are multiple regions with a small number of IUs. However, for good data management practice, this splitting or combining of regions should be made clear in the file names e.g. *Regions_A to C* or *Regions_1 and 2*.

Section 1: Readying the workbook – enabling macro

When the WASH decision matrix is first opened it should contain three visible sheets: "*Instructions*", "*Setting up WASH criteria*" and "*Regional Overview*". After reading through the "*Instructions*" sheet thoroughly, and before proceeding on to further stages, two actions must be completed with the pop-up security warnings to ensure the macro-enabled workbook will function.

1. **Yellow banner pop-up:** in the "Macros have been disabled" banner, click the "Enable Content" button. This banner will be found at the top of the workbook when the workbook is opened.
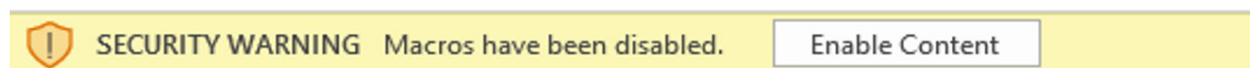
2. **Grey window pop-up:** In the "Do you want to make this file a Trusted Document?" window, click the "Yes" button. This window box will appear after content has been enabled through the yellow banner in point 1.
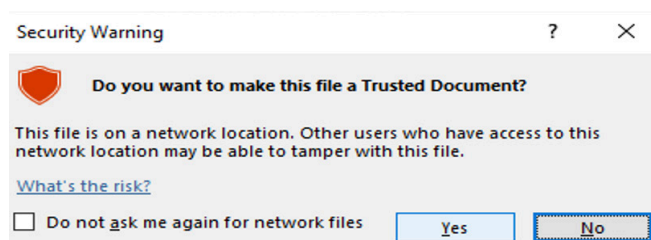
Section 2: Filling in the Setting Criteria & Thresholds worksheet

After enabling the workbook, the next stage is to set the criteria and thresholds as per the chosen country's requirements. This includes filling in the two tables on the "Setting Criteria & Thresholds" sheet: 1) Criteria definitions for prevalence of NTDs; and 2) Criteria definitions for WASH. Throughout this sheet, red text indicates where the text should be altered and edited.

The dimensions (size) of the two tables are set specifically to match a code within the Microsoft Visual Basic for Applications (VBA) using the cell references. If the dimensions of these tables need to be altered, e.g. to add WASH indicators or NTDs, follow the steps outlined in the Annex (below). ***Note:*** This type of amendment requires intermediate knowledge of Microsoft Excel VBA and advanced knowledge of Microsoft Excel; thus it is recommended to keep to the generalized template if possible.

Step 1: Setting criteria definitions for prevalence of NTDs

The prevalence for NTDs table (Table 1) is provided pre-filled with the WHO definitions; it is therefore unlikely that these thresholds will need to be altered. These NTDs have been chosen as the standard due to their strong association with WASH: trachoma[1], schistosomiasis[2] and STH[3].

If required, further NTDs can be defined in the Criteria definitions for prevalence of NTDs using the rows "Other 1" and "Other 2", e.g. lymphatic filariasis or onchocerciasis. However, please define the NTD in the cells provided where the text is red, as changing this red text will automatically change the names of other associated cells which refer to "Other 1" and "Other 2" within the current and other sheets in the workbook.

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[1] Trachoma control: a guide for programme managers (2006) (https://apps.who.int/iris/handle/10665/43405).
[2] WHO guideline on control and elimination of human schistosomiasis (2022) (https://www.who.int/publications/i/item/9789240041608).
[3] Preventive chemotherapy to control soil-transmitted helminth infections in at-risk population groups (2017) (http://apps.who.int/iris/bitstream/handle/10665/258983/9789241550116-eng.pdf).

Table 1. **Criteria definitions for prevalence of NTDs**

Disease	Criteria definitions for prevalence of NTDs			
	Very high	**High**	**Moderate**	**Low**
Trachoma (TF in 1–9-year-olds)	≥ 30%	10–29.9%	5–9.9%	< 5%
Schistosomiasis (all data for SCH using Kato-Katz or urine filtration (KK/UF) techniques	NA	≥ 50%	≥ 10–50%	< 10%
STH (all data for STH using KK/UF)	NA	≥ 50%	≥ 20–50%	< 20%
Other 1				
Other 2				

Please define "Other 1" here: | Other 1 |

Please define "Other 2" here: | Other 2 |

Step 2: **Criteria definitions for WASH**

Within the criteria definitions for WASH table (Table 2), the various indicators and their thresholds should be edited to reflect the country-specific definitions. This includes replacing all red text with each indicator and modifying the percentages to reflect the thresholds for each indicator, used to define the Low, Moderate and High categories.

The chosen indicator and the corresponding thresholds for the chosen country would be primarily dependent on data availability and its ability to be regularly measured. Once data sources have been chosen, some analysis might be necessary to align the raw source data into the format necessary for the chosen indicator and threshold.

The table has been pre-structured and pre-filled to provide an example for WASH indicators. As the table indicates, it is recommended to have one indicator for school and household for each section – water, sanitation, and hygiene. "Sanitation" includes an additional indicator for ODF status.

Table 2. **Criteria definitions for WASH**

Criteria definitions for WASH						
Sanitation						
ODF Status		**School**		**Household (HH)**		
Low	< X% of subdistricts free from open defecation (ODF)	Low	< X% of schools have XXXX	Low	< X% of households have XXXX	
Moderate	>= X% of subdistricts free from ODF	Moderate	X% - X% of schools have XXXX	Moderate	X% - X% of households have XXXX	
High	All subdistricts verified free from ODF	High	> X% of schools have XXXX	High	> X% of households have XXXX	

Hygiene					
		School		**Household (HH)**	
	Low	< X% of schools have XXXX	Low	< X% of households have XXXX	
	Moderate	X% - X% of schools have XXXX	Moderate	X% - X% of households have XXXX	
	High	> X% of schools have XXXX	High	> X% of households have XXXX	

Water					
		School		**Household (HH)**	
	Low	< X% of schools have XXXX	Low	< X% of households have XXXX	
	Moderate	X% - X% of schools have XXXX	Moderate	X% - X% of households have XXXX	
	High	> X% of schools have XXXX	High	> X% of households have XXXX	

Section 3: Set up of Regional Overview and creating IU forms

Once the criteria and thresholds have been set and input into the "Setting Criteria & Thresholds" sheet, several steps are required for the set-up of the Regional Overview sheet and the IU forms:

1. Replace the red text with the name of the Region into cell C7.

Region Name:	Please enter Region name here.

Please enter district names in the light blue cells below	
IU Name	Trachoma

2. Enter the names of all the IUs in the Region into the light blue cells of column B, under the column header "IU Name".

3. Click the grey "Create Sheets" button. This will reveal a small pop-up window.

4. In the small pop-up window, select the cell range for the IU names. See example below where Districts 1 to 10 have been highlighted, therefore within the pop-up these cells have been selected as "$B$12:$B$21". The cell range can either be written into the text box or the cells can be directly selected, and the cell range will automatically be recorded in the text box of the pop-up.

5. Click "OK". An IU form will then be automatically created for each of the IUs selected. This may take some time, particularly if there are many IUs in this region. Please allow time for the process to be completed.

Section 4: Data entry into the IU forms

Each IU form should be filled with the corresponding NTD and WASH information for that IU. In this instance, the cells in grey require data entry (if/when data are available).

1. Use the drop-down boxes in cells C5 and C6 to identify the sources for the NTD and WASH data for that IU.

IU Name:	District 1
Data Source NTD:	
Data Source WASH:	

2. Where data are available for that IU, fill in cells C12:C21 of the "Prevalence" column with the % prevalence of the corresponding NTDs. Once completed, use the "Criteria definition for NTDs prevalence" table to identify the corresponding threshold, and use the drop-down box to fill-in cells D12:D21 with the corresponding High, Moderate or Low category.

NTD Prevalence & Criteria		
Disease	Prevalence	Category
Trachoma	X%	
Schistosomiasis	X%	
STH	X%	
Other 1	X%	
Other 2	X%	

3. Where data are available for that IU, fill in the grey cells with the % value for the indicator and the corresponding category (High, Moderate, and Low) based on the "Criteria definitions for WASH" table that was created and filled in in "Section 2: Filling in the Setting Criteria & Thresholds worksheet".

WASH Criteria						
Decision Factors: WASH	Criteria					
	ODF Status		School		Household	
	%	Category	%	Category	%	Category
Sanitation						
Hygiene						
Water						

4. Repeat data entry for each IU in its named IU form.

Section 5: Reviewing the Regional Overview sheet

Once the IU forms are filled for each IU, the Regional Overview sheet should be reassessed. The table within the Regional Overview sheet (cells B9:O50) will automatically summarize the NTD and WASH data for each IU based on the colour-coded keys available (cells K2:L6 and cells N2:O4). Note that the NTD and WASH keys use different colours.

Section 6: Making maps using QGIS

To aid with the review of the Regional Overview sheet, the data provided in the Regional Overview table can be reformatted and used in additional software programs such as QGIS to create compelling visualizations to summarize the resulting categorizations, such as maps (see example below from Uganda, based on data collated using the decision matrix and showing overlay of NTD co-endemicity and low access to water supply). Instructions on creating visualizations are not included in this document, as basic knowledge in ArcGIS or QGIS will be required.

Support in training on the basics of QGIS or in completing this section is available by contacting washtoolkit@gmail.com.


Uganda WASH-NTD Risk Profiles: NTD Risk and household access to improved (basic) water sources

Water
/ / <50% of population in district using an improved (basic) water source

NTD Risk
High
Moderate
Low
NA
No data
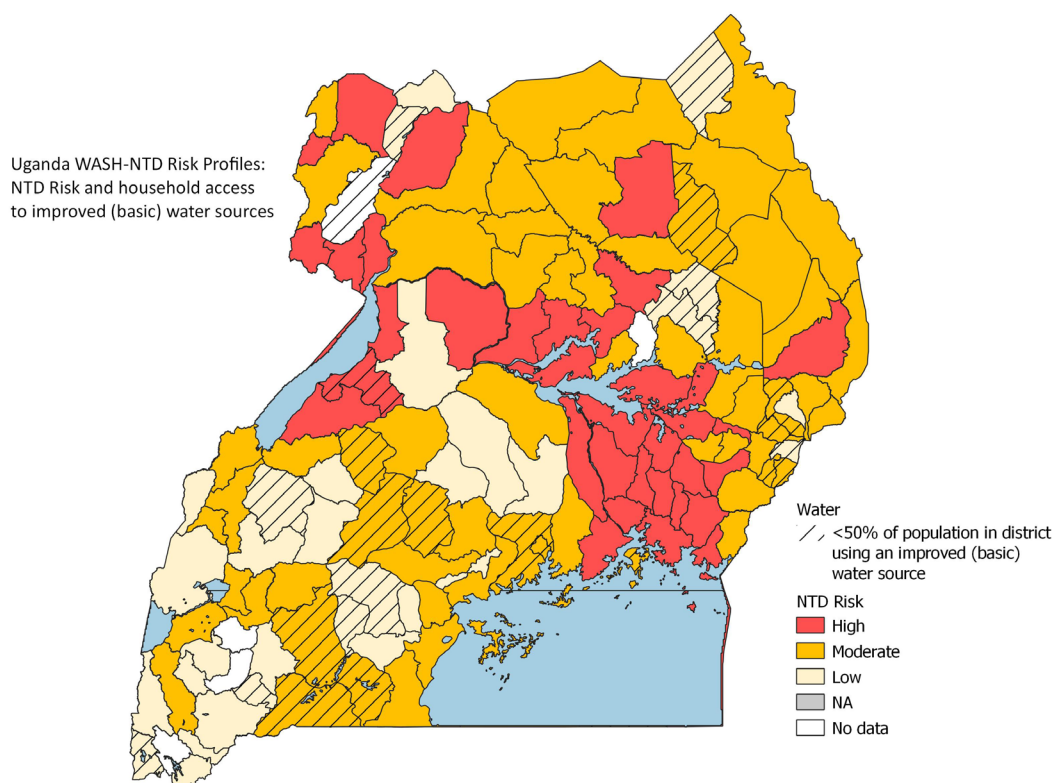
Annex: Editing the Microsoft VBA Macro

It is recommended that the "Criteria definitions for WASH" table in the "Setting Criteria & Thresholds" sheet is not amended to contain more than one indicator for school and household for each section (water, sanitation, and hygiene), apart from sanitation, for which an additional indicator has been included (ODF).

However, if there is an abundance of data available for the chosen country, you may want to consider expanding the table to include further indicators. This expansion requires amending multiple areas of the workbook. This annex covers this process. Note: this process requires advanced knowledge in Microsoft Excel and intermediate knowledge in Microsoft Excel VBA.

Step 1: Changing the cell references for IU data forms

1. Firstly, install or check that the "Developer" tab is on show in the Ribbon of Microsoft Excel. This can be done using these instructions.

2. Under the Developer tab, click "Visual Basic".
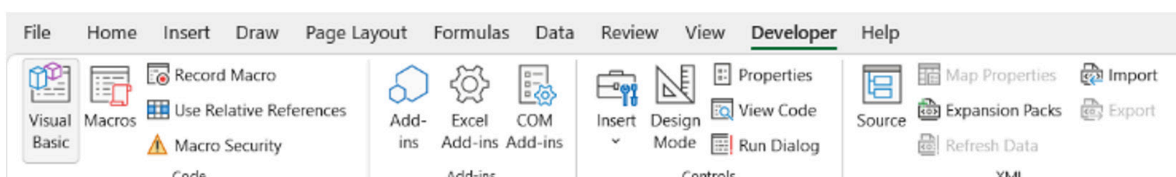
3. This will open the "Microsoft Visual Basic for Applications" window for this workbook. In the Project window on the left-hand side, click "Module1". As mentioned on the 4th line of code, "This VBA is designed to replicate a Hidden sheet for each district defined through the Regional Overview sheet".
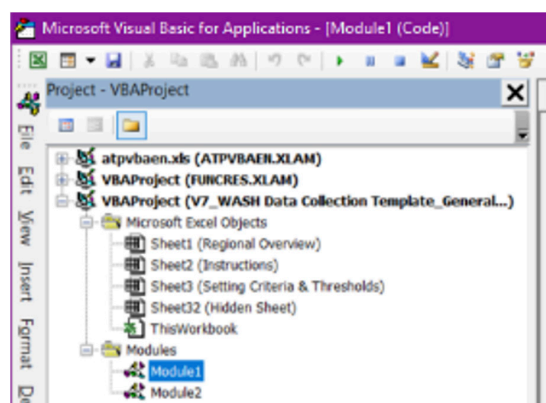
4. Note the cell reference for the updated "Criteria definitions for WASH" table in the "Setting Criteria & Thresholds" sheet. For example, the generalized table without amendments has the cells reference H7:M24.

5. Access the "Hidden Sheet" by right-clicking on any available sheet in the workbook and clicking "Unhide…". A pop-up will appear; ensure "Hidden Sheet" is selected and click "Ok".
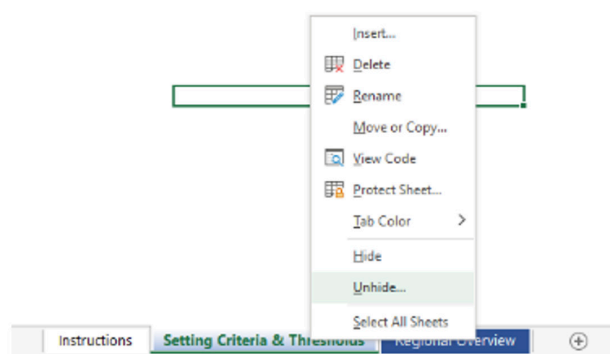
6. Copy and paste the updated "Criteria definitions for WASH" table structure to the "Hidden Sheet" to replace the existing "Criteria definitions for WASH" table. Again, make a note of the cell reference for the updated "Criteria definitions for WASH" table in the "Hidden Sheet".

7. Go back the Microsoft Visual Basic for Applications window, specifically to Module 1. Scroll to the Sub "CreateSheets_PasteInfo ()".

8. Under section "'Copying the criteria information into Hidden Sheet", modify the cell references within the second line of the code highlighted below. Specifically, amend "Range("K27:O41")" with the updated cell references for the "Hidden Sheet". Next, amend "Range("I10:M24")" with the updated cell references for the "Setting Criteria & Thresholds" sheet. If you were modifying the "Criteria definition for NTDs Prevalence" the cell references in the line above should be amended instead.

```
Sub CreateSheets_PasteInfo()

'Optimise Code
Call OptimizeCode_Begin

'Copying the criteria information into Hidden Sheet
Sheets("Hidden Sheet").Range("G12:J21").Value = Sheets("Setting Criteria & Thresholds").Range("C9:F18").Value
Sheets("Hidden Sheet").Range("K27:O41").Value = Sheets("Setting Criteria & Thresholds").Range("I10:M24").Value

'Removing the pop-up asking to save after each sheet
ThisWorkbook.UpdateLinks = xlUpdateLinksNever
Application.DisplayAlerts = False

'Dimension variables and declare data types
Dim rng As Range
Dim cell As Range

'Enable error handling
On Error GoTo Errorhandling

'Show inputbox to user and prompt for a cell range
Set rng = Application.InputBox(Prompt:="Select cell range of IU Names:", _
Title:="Create sheets", _
Default:=Selection.Address, Type:=8)
```

Step 2: Changing "WASH Criteria" table in "Hidden Sheet" sheet

Within "Hidden Sheet" there is a table named "WASH Criteria" (see the generalised table below). This table is used for data collation and reflects the indicators, and their categories, found within the "Criteria definitions for WASH" table.

Therefore, the table should be amended to ensure all indicators requiring data collection have an area for data entry. Note: in the generalized table the "Category" column is pre-set with a drop-down box to aid data categorization, with the categories of "High", "Moderate", and "Low". The table should always include both the percentage and the category data.

Decision factors: WASH	WASH criteria					
	Criteria					
	ODF status		School		Household	
	%	Category	%	Category	%	Category
Sanitation						
Hygiene						
Water						

Step 3: Changing the Regional Overview summary table

To reflect the additional or modified indicators stored in the "Criteria definitions for WASH" table, the overview summary table in the "Regional Overview" sheet should be modified. This may include adding or amending the current "WASH Categorization" section ensuring a column is available for each indicator in the table.

The following formula will need to be copied and amended for each IU of the columns in the updated "Regional Overview" table:

=IFERROR(INDIRECT("" & B12 & "'!" & "D28"),"")

The grey highlighted section, in this example "D28", will need to be updated with the equivalent cell reference of the updated corresponding "Category" columns within the "WASH Criteria" table (see above). Ensure the speech marks "" are surrounding the cell reference as per the above. The process has now been completed.