



# Prioritising Vulnerable Populations

Using multi-criteria analysis  
(1000Minds.com) to prioritise vulnerable  
populations during emergencies

2014

Global WASH Cluster IM Toolkit

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## INTRODUCTION

### Why Do You Need To Identify Vulnerable Populations During Emergencies?

There are often enormous volumes of data circulating during emergencies and it can be difficult to assess this data to make informed decisions on the locations of the most vulnerable population. If the most vulnerable population can be defined, it is then easier to prioritise the targeting of specific locations for interventions. By identifying the locations of the most vulnerable population, the Cluster partners can then define their target areas relative to their capacity and the Cluster Coordinator and IMO can define the Cluster caseload. The caseload is the essential figure that sets in stone the Cluster's response through the Strategic Response Plan. **Hence, the ability to identify and define the most vulnerable population is critical to achieve an effective Cluster response.**

### The Difficulty with Identifying the Vulnerable Population?

The issue with identifying the most vulnerable population, by combining a number of datasets, is that each dataset is not equal in effect (on the population) as the next one, i.e. you cannot add all the datasets together and come up with a realistic number. If one location has a high risk of flooding and another has a high number of damaged houses, are these two situations equally detrimental on the population in every emergency? In one emergency context, the *number of damaged houses* may have a more detrimental effect on the population than a *flood*, while in another context, *flooding* will bring more issues and thus, is a more important factor to take into consideration.

In addition, it is often left to the IMO to develop a prioritisation model (including the weighing of variables) as they are the ones collecting and cleaning the data, but the Cluster Coordinator and other WASH experts should be involved in the process of creating the model, as they are the ones with the in-depth knowledge of the emergency and how WASH-related circumstances are affected by it.

### Using Multi-Criteria Decision-Making Software to Identify Vulnerable Populations (1000Minds)

A simple and transparent method to identify vulnerable populations, without the need to shape available data to fit pre-defined weights, is to use multi-criteria analysis on the data that is available at the time of the emergency. The software, 1000minds, has been identified as a valuable tool to identify vulnerable populations in an easy, flexible and transparent way.

1000Minds is web-based software that helps you make good decisions efficiently, transparently and fairly. It aids the prioritisation of locations or interventions in a consistent, fair and defensible way that's easily communicated to Cluster partners and stakeholders. 1000Minds has a number of different decision making tools. For identifying vulnerable populations, a group preference survey asks WASH experts to answer a series of questions involving trade-offs between pre-specified criteria.

This reveals preference values, or 'weights', and also 'on average' for the group – representing the relative importance of the criteria they were asked about. It's easy to compare participants' answers, their preference values, and their rankings of alternatives. The result of this *preference survey*, are weights that can be fed into a **model** (with emergency-specific data on WASH-related issues such as risk of cholera, sanitation levels, houses destroyed, access to improved water etc.). The model is built to suit both the emergency and the country and only uses data that is available and of a good

enough quality as defined by the WASH IMO and Cluster Coordinator. As better data becomes available, the model can be run again to refine the prioritisation.

There are a number of advantages to using this method to develop a model of vulnerability:

- **The Model does not rely on the IMO** making decisions (creating weights) about WASH-related subjects; rather the IMO runs the model with the involvement of WASH experts;
- **The Model is always context (emergency and country) specific** as it is developed by experts assessing real data for that specific context;
- **The Model does not rely on predefined data/weights**, it can run on whatever data is available at that time with experts making informed decisions (creating on-the-fly weights) on the data. It can be re-run when better data becomes available;
- **The Model employs a user friendly interface**, allowing interrogation of the results/weights/opinions of the experts;
- The output can be a simple excel with **ranking of locations** based on the combined expertise of WASH decision makers. Additional information can be incorporated to aid in prioritisation (partners already on the ground, security and access situation cost of interventions etc.);
- The Model can sit in the framework of **Common Operational Datasets**; enabling mapping/visualisation of data after the model is run.

## CREATING THE PRIORITISATION MODEL

The following guidance outlines how to collect, categorise and run a model in 1000Minds to create a prioritisation of vulnerable populations to target during emergencies.

At various stages, input is needed by the Cluster Coordinator (CC) and/or other WASH experts, data owners, while the IMO is involved in all stages of the process.

Task	Sub Task	Resources
Identify and collect key datasets	Identify available datasets	IMO, CC
	Collect data, maintain metadata	IMO
Preparing key datasets	Create categorisation levels	IMO, CC, data owners
	Create Model dataset	IMO
Complete model in 1000Minds	Step 1 – Start Model	IMO
	Step 2 – Criteria	IMO
	Step 3 – Other factors	IMO
	Step 4 – Alternatives	IMO
	Step 5 – Decisions	IMO, CC, WASH experts
	Step 6 – Preference valued	IMO
	Step 7 – Ranked alternatives	IMO
Visualise results	Visualise and distribute data	IMO

### 1. Identify and collect key datasets

#### Identify Available Datasets

Depending on the context, countries can be data rich or data poor, thus the model must rely on the best available data at the time. In addition, the type of data you need to use in a model will be emergency-specific. For instance, in a drought situation the *number of damaged houses* may not be relevant, but for an earthquake they would be. For both a drought and an earthquake, the number of IDPs will be important. For some emergencies, information on the pre-existing situation of improved water and sanitation coverage will be available, and will be especially important in long term protracted disasters. For other situations, the availability of pre-emergency data will be minimal and most of the datasets you use will be emergency-related (such as damage to infrastructure, IDP total etc.).

The following table gives an example (which should only be used as a guide) of the type of data that may be required to define/prioritise a target vulnerable population. These data variables are common across many of the models that are used at present (e.g. UNHCR, Child protection, OCHA), while some are WASH-specific.

The WASH IMO should work closely with the WASH Cluster Coordinator to identify the KEY datasets required to assess and prioritise the vulnerable population in a specific context. The WASH IMO should also liaise with the IMWG to ensure that the best available and agreed data is being incorporated into the Model.

Table 1 – Example **Criteria** datasets to create vulnerability model. The aim is not to have the most number of datasets included in the model, but to use the most accurate datasets available in the context of the emergency.

Category	Data	Protracted	Sudden Onset	Notes/Guidance
Vulnerability to water-borne disease	Cholera, risk of outbreak and current outbreak data	Yes	Yes	<ol style="list-style-type: none"> <li>1. <i>Risk of outbreak</i> data includes historic data which can indicate vulnerable populations and should be included in the model</li> <li>2. If <i>current outbreak</i> data (rather than <i>risk of outbreak</i> data) is available then the data could be included in the model as '<b>other factor</b>' on which decisions can be based. If it is included directly into the model, then it may skew results to areas with current outbreaks (which may be containable with rapid interventions - and not representative of a true picture of the whole emergency).</li> </ol>
Vulnerability to water-borne disease	Polio, risk of outbreak and current outbreak data	Yes	Yes	<ol style="list-style-type: none"> <li>1. <i>Risk of outbreak</i> data includes historic data which can indicate vulnerable populations and should be included in the model</li> <li>2. If <i>current outbreak</i> data (rather than <i>risk of outbreak</i> data) is available then the data could be included in the model as '<b>other factor</b>' on which decisions can be based. If it is included directly into the model, then it may skew results to areas with current outbreaks (which may be containable with rapid interventions - and not representative of a true picture of the whole emergency).</li> </ol>
Vulnerability to water-borne disease	Diarrhoea, AWD Levels, risk of outbreak and current outbreak data	Yes	Yes	<ol style="list-style-type: none"> <li>1. <i>Risk of outbreak</i> data includes historic data which can indicate vulnerable populations and should be included in the model</li> <li>2. If <i>current outbreak</i> data (rather than <i>risk of outbreak</i> data) is available then the data could be included in the model as '<b>other factor</b>' on which decisions can be based. If it is included directly into the model, then it may skew results to areas with current outbreaks (which may be containable with rapid interventions - and not representative of a true picture of the whole emergency).</li> </ol>
Sanitation	Historical and/or current access to improved sanitation	Yes	Yes	Historical and/or current access to improved sanitation or other information that is available on access to sanitation. This will vary from country to country in regard to terminology
Water supply	Historical and/or current access to improved water	Yes	Yes	Historical and/or current access to improved water or other information that is available on access to water. This will vary from country to country in regard to terminology
Risk of environmental disaster	Areas of drought/risk of drought	Yes	Yes	If the emergency is a <i>drought</i> then this data will delimit the vulnerable population. If the emergency is something else, then this information will identify areas that may become more vulnerable if a drought also occurs.

Risk of environmental disaster	Areas of flood/risk of flood	Yes	Yes	If the emergency is a <i>flood</i> then this data will delimit the vulnerable population. If the emergency is something else, then this information will identify areas that may become more vulnerable if a flood also occurs.
Health	Damage to hospitals, health centres	No	Yes	Data may be available from the Health Cluster or as a proxy from a general damage assessment
Education	Damage to schools	No	Yes	Data may be available from the Education Cluster or as a proxy from a general damage assessment
Shelter	Damage to buildings/houses	No	Yes	Data may be available from the Shelter Cluster or as a proxy from a general damage assessment
Nutrition	Malnutrition rates	Yes	Yes	Data trends may be available from Secondary Data Reviews or the Nutrition Cluster. This kind of data will generally be of low resolution
Population	Affected persons	Yes	Yes	Depending on the situation, affected persons data may include those that remain at home but are affected and those that are displaced. This data should be available from government, OCHA or UNHCR sources
Population	IDP/Refugees in Camps	Yes	Yes	This data should be available from government, OCHA or UNHCR sources
Population	IDP/Refugees outside camps	Yes	Yes	This data should be available from government, OCHA or UNHCR sources

**Table 2 – Other Factors.** *These datasets can be linked to the model but will not determine the outcome; rather they can be used for decision making after prioritisation is complete.*

Government	Functioning and non-Functioning Local Government	Yes	Yes	Relevant for both protracted and sudden onset. The existence of a functioning of non-functioning local government may affect how the WASH Cluster operates, e.g. whether it can imbed within a Department, such as Public Works, within the local government. Areas with non-functioning governments would normally require more assistance.
Security/Access	Access or security constraints	Yes	Yes	This dataset could indicate areas that are difficult to access due to conflict or environmental issues (landslides etc.) depending the context, the locations may not be receiving as much help as other areas, and these areas may need rapid assessments to be carried out.
Assessments	Locations where assessments have taken place	Yes	Yes	Use information to assess what areas that may be at risk, are not yet assessed.
Existing partner locations	Locations where partners are already working	Yes	Yes	Use information to help target/focus response

**Table 3 – Additional Datasets that might be required.**

Additional datasets	Population statistics from a national census	Yes	Yes	Used to create percentage/magnitude of affected population. Not in model but potentially to incorporate with criteria data before modelling to normalise datasets
Additional datasets	Admin (COD) boundaries	Yes	Yes	Administration boundaries that relate to the highest resolution being used for data here. For instance, if most datasets are <i>per district</i> then you need the COD at district level. It is important to use the COD/Pcodes so that you can map the results of the Model output afterwards

## Collect Data, Maintain Metadata

### How many datasets?

You are likely to be restricted in the number of datasets by the availability of good data. Try to use between five-seven datasets that cover the critical areas of the emergency. The lists below show the *example/potential* datasets for a sudden onset and a protracted emergency

#### **Protracted (example):**

- IDP numbers
- Access to improved water
- Access to improved sanitation
- Risk of cholera
- Risk of flooding
- Malnutrition rates

#### **Sudden Onset (example):**

- IDP numbers
- IDPs in camps
- Access to improved water
- Risk of flooding
- AWD levels
- %/# of damaged buildings

Once you identify and collect the key datasets for the emergency make sure to create metadata (data type, source, data accessed etc.) and keep it up to date, this will guarantee that any processes are recorded and can be shared to interested organisations so that the prioritisation of locations and interventions is transparent to all.

**See an example dataset and a data template within the WASH IMO Toolkit**



## 2. Preparing key datasets

### Create Categorisation Levels

#### Dataset type

Some of the datasets may be quantitative, while others are qualitative. It is important to maintain metadata on every process that each dataset undergoes before it is added to the model. This will add strength to the results.

#### Quantitative data

Within 1000Minds, data needs to be categorised from numbers into text that is logical to the WASH expert.

E	F
<b>Access to Sanitation</b>	<b>IDP Figures</b>
Very poor access- Less than 20% have access	High >100000 Regionally
Poor access- 20-40% have access	Medium 25000-100000 Regionally
Medium access- 40-60% have access	Low 5000-25000 Regionally
Good access- 60-80% have access	

**Criteria** (e.g. cholera risk, drought risk and IDP numbers) may come as a set of numbers or percentages. This data is **categorised** (e.g. high>71%, medium 31-70%, low<30%) before adding it to the model.

**As every emergency has different data availability and requirements, a universal categorisation (of levels and breakpoints) is not appropriate, thus it is the job of the IMO and Cluster Coordinator to make sure the categories are applicable for the emergency.**

#### Tips for Categorisation

- ✓ Liaise with the agency that supplied the data, they may already have a categorisation system in place
- ✓ Assess if the data needs to be normalised before it is categorised
- ✓ Assess the data for obvious natural breaks
- ✓ Discuss data with the WASH Cluster Coordinator, WASH experts and the IMWG
- ✓ Check if there are existing standards (country or global e.g. Sphere<sup>1</sup>) available for the datasets to help in categorisation, e.g. malnutrition levels, red flag levels for cholera outbreaks, quantity of water available

#### Qualitative data

Some of the data that will be used will already be categorised (qualitative). These categories may have been taken directly from Cluster Standards or other models. Try and access the metadata on these datasets as to why these levels were used. The more information on the data quality and processes used to categorise the data, the more confidence you can have in the model.

You may need to combine some categories e.g. if there are six categories, can you combine them to make three categories without losing critical information?

**Try to keep levels (e.g. high, medium, low) to three if possible. The more levels, the more time to complete the model during the pairwise comparison exercise (Step 5, described below).**

<sup>1</sup> <http://www.spherehandbook.org/en/how-to-use-this-chapter-1/>

## Create Model Dataset

### Dealing with dataset with missing values

Inevitably, some datasets will have no information/values for some locations. This may be for a number of reasons e.g. no survey completed in that location. The general agreed rule is to add the **median**<sup>2</sup> value for that dataset and assign it to the missing value. Obviously, if a dataset is full of gaps, you need to weigh up the value (suitability) of using this dataset in the model.

### Bringing the data together

It is likely that you will have data at different spatial levels from settlement to district to region. The highest spatial resolution datasets will be the richest but not necessarily the most useful when it comes to wide scale planning at the start of an emergency that covers a large geographical area. A model at district level may be more useful for planning purposes. Data that is only available at a lower resolution (e.g. regional), can be added if it is identified as critical, but make sure to indicate in the Criteria category that it is regional data (e.g. IDPS regionally >100,000).

Once you decide on the spatial resolution of your model, use the related Common Operational Dataset (COD - <https://www.humanitarianresponse.info/applications/data>) or IMWG agreed administrative dataset for this resolution as a framework on which to add the criteria (example showing District). This ensures that you can relate the model back to other datasets and you can also map the data with GIS.

	D	E	K	L
1	<b>DIST_NAME</b>	<b>DIS_CODE</b>	<b>Cholera Risk</b>	<b>Flood Risk</b>
2	Adan Yabaal	2102	Medium Risk	Low Risk
3	Afgooye	2302	Low Risk	High Risk
4	Afmadow	2802	Very High-Hotspot	High Risk
5	Baardheere	2602	Low Risk	Low Risk
6	Badhaadhe	2803	Very High-Hotspot	High Risk
7	Baki	1102	Low Risk	Low Risk
8	Balcad	2103	Low Risk	High Risk

When you add the Excel to 1000Minds there is only one column to add a location identifier (NAME) such as the name of the district. If you are in a country where there are multiple districts in different affected regions with the same name (spelling), then use the PCode as the NAME, to ensure a unique identifier.

A *work-around*, to keep the district name in 1000Minds, is to add the PCODE as 'other factor' (see Step 3 below) and add the district name as NAME. Although the PCODE will not be used in the model, by adding it as 'other factor', it will remain in the Excel after the model has been produced, so that there is no issue with mixing up locations with similar names when linking to other datasets after the prioritisation is complete.

**See an example dataset and a data template within the WASH IMO Toolkit**

<sup>2</sup> The median is the middle number in a sorted list of numbers (do not use the mean as this could be skewed by outliers)

### 3. Create the model in 1000minds

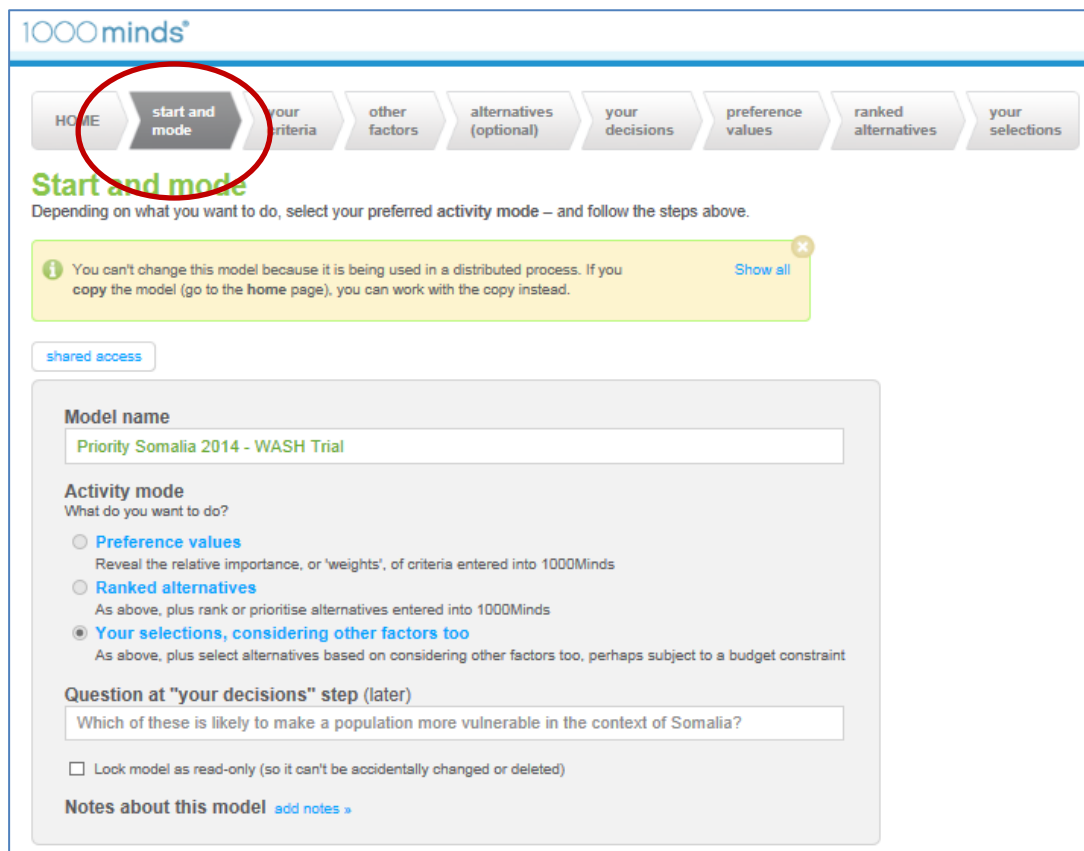
**Note that information/instructions on use of 1000Minds is amended (given a WASH context) from guidance here <http://www.1000minds.com/about/guides/decision-making-prioritization-guide>**

- Go to [www.1000minds.com](http://www.1000minds.com) and click **log in**. If you don't have a 1000Minds user account, click **sign up for a trial** (or **log in if there is an existing WASH account**)
- Enter your username (usually email address) and password.

After logging into 1000Minds, all you have to do is follow these steps to create a WASH Vulnerability Model

#### Step 1: Start and Mode

- Give the Model a name
- Pick the 3<sup>rd</sup> option '*your selections, considering other factors too*'
- Type in a question that WASH experts will answer e.g. 'Which of these is likely to make a population more vulnerable in the context of Somalia?'
- Add notes about the model if you wish (you can always return to this page later and change the name/notes/question)



1000minds®

HOME **start and mode** your criteria other factors alternatives (optional) your decisions preference values ranked alternatives your selections

### Start and mode

Depending on what you want to do, select your preferred activity mode – and follow the steps above.

**i** You can't change this model because it is being used in a distributed process. If you copy the model (go to the home page), you can work with the copy instead. [Show all](#)

[shared access](#)

**Model name**  
Priority Somalia 2014 - WASH Trial

**Activity mode**  
What do you want to do?

☐ **Preference values**  
Reveal the relative importance, or 'weights', of criteria entered into 1000Minds

☐ **Ranked alternatives**  
As above, plus rank or prioritise alternatives entered into 1000Minds

☒ **Your selections, considering other factors too**  
As above, plus select alternatives based on considering other factors too, perhaps subject to a budget constraint

**Question at "your decisions" step (later)**  
Which of these is likely to make a population more vulnerable in the context of Somalia?

☐ Lock model as read-only (so it can't be accidentally changed or deleted)

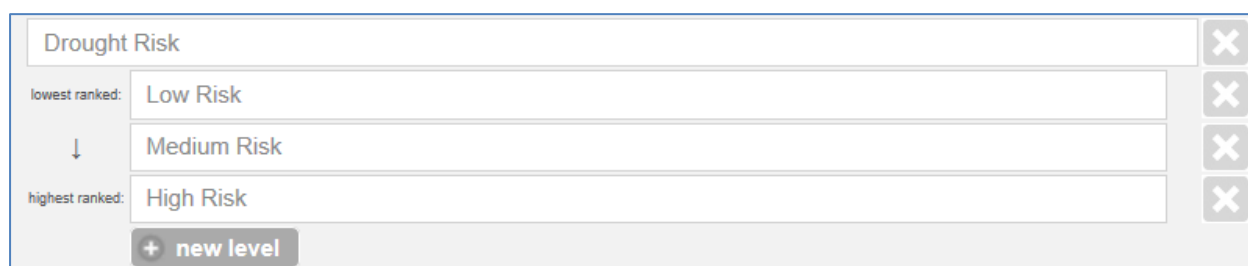
**Notes about this model** [add notes »](#)

## Step 2: Your Criteria



Start by entering the criteria, which can be in qualitative or quantitative terms. As an illustration, see categorisation of the risk of Drought below. Within your Excel model, you will have already a variable called Drought Risk and it will be categorised into Low, Medium and High Risk. Replicate these Excel categories in the 1000Minds model. Ensure that the categories are entered from lowest to highest.

**Note:** use highest rank as the worst scenario e.g. most houses damaged, most prone to AWD outbreaks, most at risk of flooding, high risk of drought



A screenshot of the 'Drought Risk' criteria input form. It shows a title bar 'Drought Risk' with a close button. Below it, there are three input fields for risk levels: 'lowest ranked: Low Risk', 'Medium Risk', and 'highest ranked: High Risk'. Each field has a close button on the right. A downward arrow is between the first and second fields. At the bottom, there is a '+ new level' button.

Add *new levels* per criteria and *new criteria* (data variables) as required.

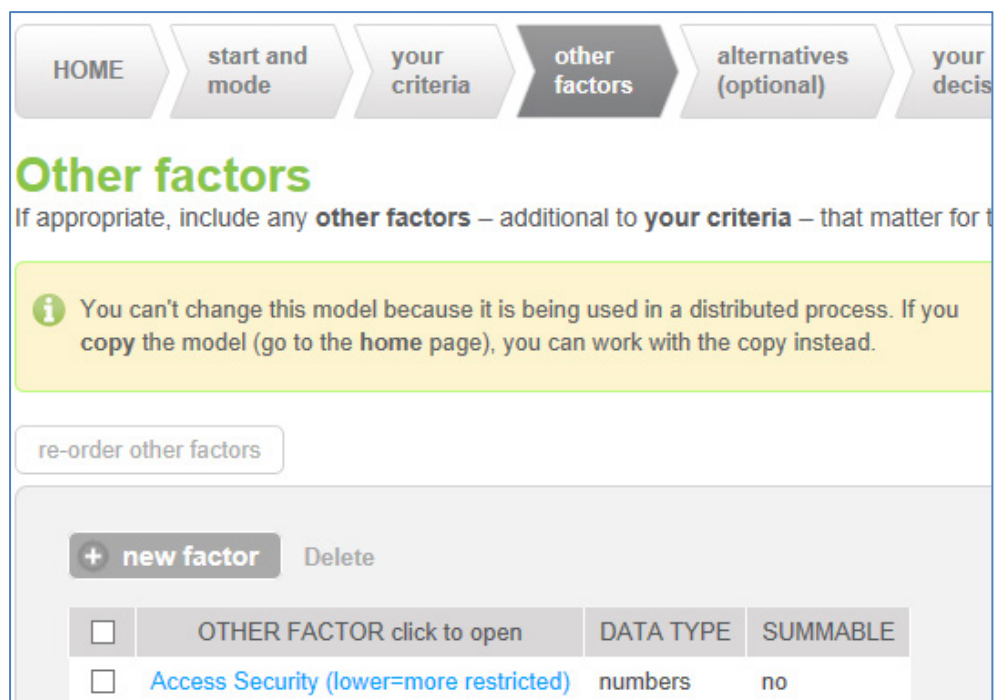
**Note:** the more levels that you have the more time it will take for the model to run, as each level needs to be compared to the other criteria levels. Try to keep levels to 3-4 per criteria.

## Step 3: Other Factors



Other factors are also likely to be relevant – for instance, the security situation, presence of a functional government or the presence of WASH partners already. These other factors do not form part of the weighting model, but are used to make decisions after weights have been assigned.

If appropriate, include any **other factors** – additional to **your criteria** – that matter for the emergency you're considering. The example below shows Access/Security levels as per data from OCHA.



HOME start and mode your criteria **other factors** alternatives (optional) your decis

## Other factors

If appropriate, include any **other factors** – additional to **your criteria** – that matter for t

**i** You can't change this model because it is being used in a distributed process. If you copy the model (go to the home page), you can work with the copy instead.

re-order other factors

**+ new factor** Delete

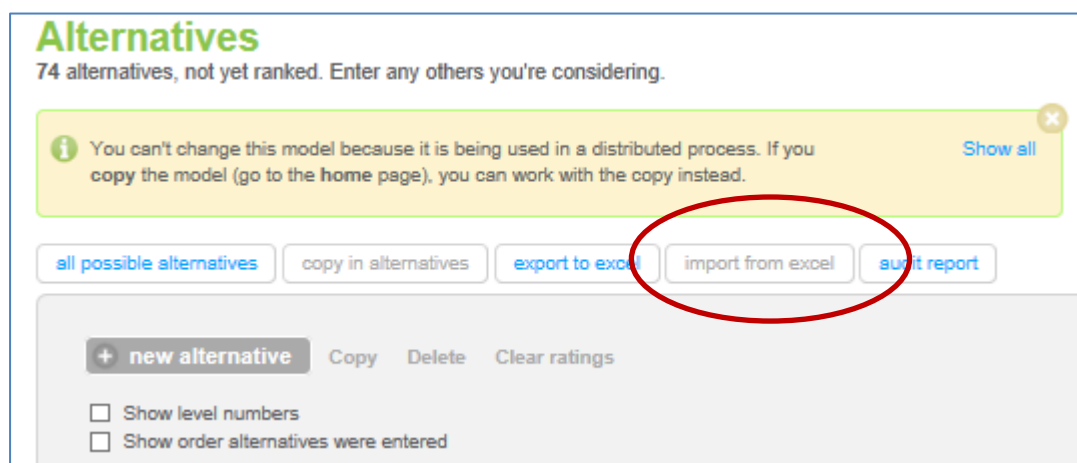
<input type="checkbox"/>	OTHER FACTOR click to open	DATA TYPE	SUMMABLE
<input type="checkbox"/>	Access Security (lower=more restricted)	numbers	no

### Step 4: Alternatives (Importing the Excel Model)



HOME start and mode your criteria other factors **alternatives (optional)** your decisions preference values ranked alternatives your selections

Enter the alternatives (your prepared Excel worksheet). The alternatives are essentially the locations and related data (districts, regions, data on cholera etc.) and are already set up in the Excel model. From the Alternatives dialog you can directly upload the Excel (**import from Excel**) and assign the variables to the criteria that you defined in Step 2.



## Alternatives

74 alternatives, not yet ranked. Enter any others you're considering.

**i** You can't change this model because it is being used in a distributed process. If you copy the model (go to the home page), you can work with the copy instead. [Show all](#)

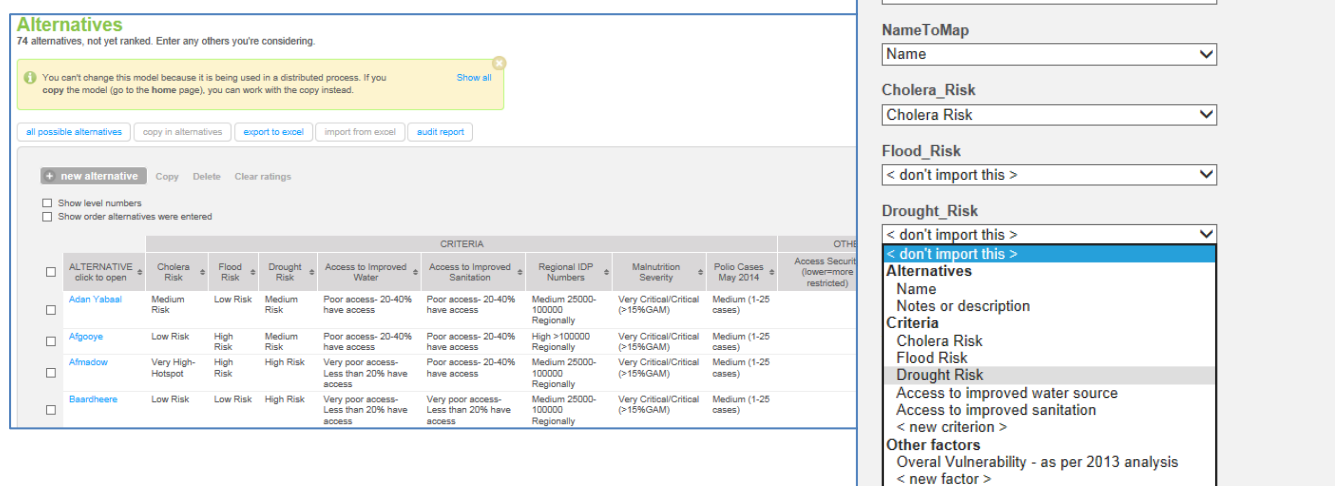
[all possible alternatives](#) [copy in alternatives](#) [export to excel](#) **[import from excel](#)** [audit report](#)

**+ new alternative** Copy Delete Clear ratings

☐ Show level numbers

☐ Show order alternatives were entered

- Click the top left cell to highlight the table and click **'select highlighted data'** tab
- Select the fields that related to your data structure
- Check that the data structure is correct by clicking **'check data structure'**
- Once you are satisfied, click **'import to alternatives'**
- The imported table should appear as below



**Alternatives**  
74 alternatives, not yet ranked. Enter any others you're considering.

**Criteria**

ALTERNATIVE	Cholera Risk	Flood Risk	Drought Risk	Access to Improved Water	Access to Improved Sanitation	Regional IDP Numbers	Malnutrition Severity	Polio Cases May 2014	Access Security (lower=more restricted)
Adan Yabaal	Medium Risk	Low Risk	Medium Risk	Poor access- 20-40% have access	Poor access- 20-40% have access	Medium 25000-100000 Regionally	Very Critical/Critical (>15%GAM)	Medium (1-25 cases)	
Afgoye	Low Risk	High Risk	Medium Risk	Poor access- 20-40% have access	Poor access- 20-40% have access	High >100000 Regionally	Very Critical/Critical (>15%GAM)	Medium (1-25 cases)	
Afmadow	Very High-Hotspot	High Risk	High Risk	Very poor access- Less than 20% have access	Poor access- 20-40% have access	Medium 25000-100000 Regionally	Very Critical/Critical (>15%GAM)	Medium (1-25 cases)	
Baardheere	Low Risk	Low Risk	High Risk	Very poor access- Less than 20% have access	Very poor access- Less than 20% have access	Medium 25000-100000 Regionally	Very Critical/Critical (>15%GAM)	Medium (1-25 cases)	

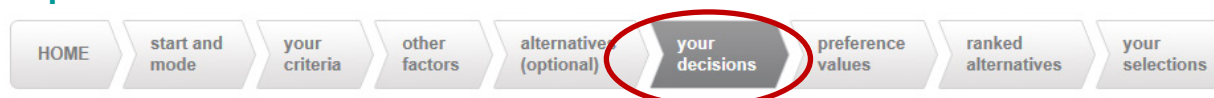
**Import Options:**

- ☒ Update data for any existing alternatives with the same name
- District:
- NameToMap:
- Cholera\_Risk:
- Flood\_Risk:
- Drought\_Risk:

**Alternatives List:**

- Name
- Notes or description
- Criteria
- Cholera Risk
- Flood Risk
- Drought Risk
- Access to improved water source
- Access to improved sanitation
- < new criterion >
- Other factors
- Overall Vulnerability - as per 2013 analysis
- < new factor >

## Step 5: Your Decisions



1000Minds asks some simple questions involving choosing between two hypothetical alternatives (multi-criteria decision making) defined on just two criteria at a time – as illustrated here from a response to a natural disaster.

It is at this stage that the WASH IMO works with WASH experts (WASH Coordinator/ some key partners/ SAG etc.) to answer the questions on 1000Minds. Depending on how many criteria there are, they might be asked 30-50 such questions.

**Which of these elements is more important to prioritise response locations**  
(given they're identical in all other respects)

IDP Total NOW  
**Medium**

Total number of houses damaged  
**High -10,001-200,000**

this one

this combination is impossible

or

IDP Total NOW  
**High**

Total number of houses damaged  
**Medium - 1,000-10,000 damaged**

this one

this combination is impossible

« undo last decision
they are equal
skip this question for now »

**NOTE:** the model uses skip logic so that you will not have to answer all the questions, so the process speeds up as you run through it.

The WASH experts' answers determine the 'weights' on the criteria, reflecting their relative importance specifically to the country and emergency context at hand.

It is critical to have at least two WASH experts to discuss the importance of one criterion over another. It is possible to distribute this part of the exercise to multiple WASH experts via email and they can complete Step 5 individually (results/weights are returned and consolidated in 1000Minds see- <http://www.1000minds.com/about/guides/guide-preferences-survey>), but there is added value in the experts sitting together to discuss the reasoning behind preferences. **In this way the final MODEL OF VULNERABILITY can be agreed and ratified more quickly.**

## Step 6: Preference Values



The weights, reflecting preferences with respect to the relative importance of the criteria, are known as 'preference values' (sometimes referred to collectively as a 'points system').

Post Ty - AWD Levels (cases)	% Bar graph	
No cases	0.0%	
Some cases (<100)	18.7%	
Many cases (>100)	37.8%	
<b>IDP Total NOW</b>		
Low	0.0%	
Medium	18.7%	
High	27.8%	
<b>Total number of houses damaged</b>		
Low - 1-1,000 damaged	0.0%	
Medium - 1,000-10,000 damaged	9.1%	
High -10,001-200,000	18.2%	
<b>Affected Persons</b>		
Low	0.0%	
Medium	4.3%	
High	8.6%	

The ability of 1000Minds software to visualise preferences is key to being able to rapidly produce an agreed model of vulnerability for an emergency response. There are many additional visualisations and statistics that can be shared with the WASH experts.



## Step 7: Ranked Alternatives



Based on the preference values and how you described the alternatives at Step 4, 1000Minds ranks alternatives from first to last according to their 'total scores'. You can enter new alternatives any time and, depending on the application, they can be ranked for one-off decision-making problems or repeatedly as new alternatives enter the frame and old ones exit.

You can also include 'other factors' (or 'considerations') that are relevant, additional to your criteria – e.g. 'functioning government', 'security situation', 'polio outbreak', 'strategic factors', 'strength of evidence', etc.

RANK	TOTAL SCORE	OTHER FACTORS	
		UNICEF Priority Area	Partner onsite already
1 <sup>st</sup>	71.3%	Yes	No
2 <sup>nd</sup>	67.9%	Yes	No
3 <sup>rd</sup>	63.6%	Yes	No
4 <sup>th</sup>	63.2%	Yes	No
4 <sup>th</sup>	63.2%	Yes	No
6 <sup>th</sup>	57.9%	Yes	No
6 <sup>th</sup>	57.9%	No	Yes
6 <sup>th</sup>	57.9%	Yes	No
9 <sup>th</sup>	57.4%	Yes	No

**Based on this information you can make your decisions about (prioritise) the areas to target for the emergency response in a very transparent way.**

## Group Decision Making

As previously stated, the WASH model can be distributed via email to WASH experts. This is very useful in contexts where experts are not available to sit together. The disadvantage of this is that they cannot fully discuss the multiple criteria in the context of the current emergency. There is also an option to have participants discussing the options via conference call but this scenario is unlikely to be available in the context of a large scale emergency. The best option is to have the experts in one room.

If you need information on how to distribute the Model via email see full guidance here

<http://www.1000minds.com/about/guides/guide-preferences-survey>



## Visualise and Distribute the Data

From the Ranked Alternatives page, an Excel can be exported with all the data, including scoring. This can then be linked back to the COD (via Pcode or unique district name) and mapped on a GIS. Alternatively, it can be shared directly as an Excel file. The model will remain on the 1000Minds website so that you can go back and add additional criteria or datasets as they become available and refine the model.

	A	I	J
1	District	Ranks	Total_score
2	Afmadow	1	94.5%
3	Badhaadhe	1	94.5%
4	Banadir	1	94.5%
5	Belet Weyne	1	94.5%
6	Kismaayo	1	94.5%
7	Mar		
8	Bu'a		
9	Diin		
10	Jala		
11	Bayo		
12	Jilib		
13	Qan		
14	Gar		
15	Cab		
16	Luud		
17	Sabl		
18	Afg		

Excel and web-mapping visualisations of the prioritisation exercise.

