GLOBAL TASK FORCE ON CHOLERA CONTROL

Answers to the exercise to practice using the PAMI Excel tool to identify PAMIs for cholera elimination

Describe the exercise dataset

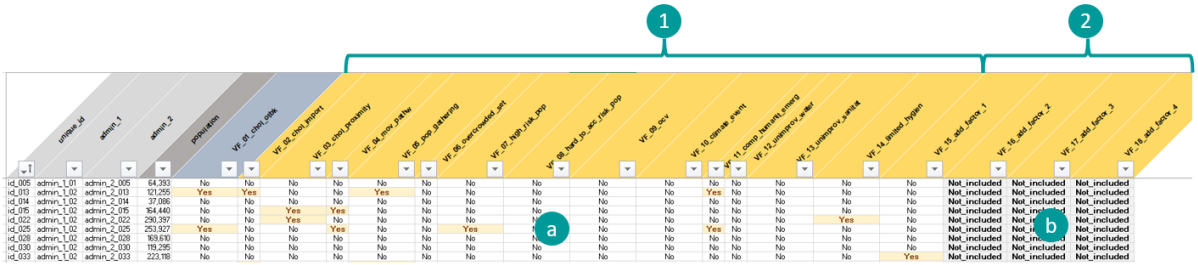
1. Is there any vulnerability factor included in the GTFCC indicative list for which data was not compiled in the exercise dataset? **No**

2. Is there any vulnerability factor not included in the GTFCC indicative list for which data was compiled in the exercise dataset? If so, what is the name of the corresponding variable? **Yes, VF_15_add_factor_1**

In the dataset, variables with data compiled are filled as Yes, No, Missing_value (see 'a' on the figure below). Variables with no data compiled are filled as Not_included and colored in grey (see b on the figure below).

1. In the GTFCC data model template, variables from VF_02_chol_import to VF_14_limited_hygien are vulnerability factors included in the GTFCC indicative list. For all of them data were compiled in the dataset (see 1 on the figure below).

2. In the GTFCC data model template, variables from VF_15_add_factor_1 to VF_18_add_factor_4 are potential vulnerability factors not included in the GTFCC indicative list but that may be added if considered relevant in the country-specific context. Data were compiled in the dataset for one additional vulnerability factor not included in the GTFCC indicative list, VF_15_add_factor_1 (see 2 on the figure below).



GLOBAL TASK FORCE ON CHOLERA CONTROL

Set parameters for the PAMI analysis

The vulnerability factor not included in the GTFCC indicative list that the country decided to consider in its PAMI analysis is the presence of harbor(s) with fish market. It is assessed (measurable vulnerable indicator) as NCP unit with at least one harbor with a fish market.

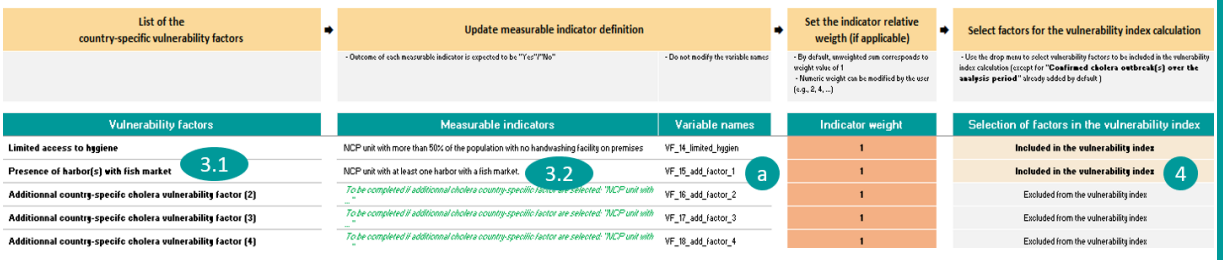
3. In the sheet Factor selection, add the definition of the vulnerability factor not included in the GTFCC indicative list that the country decided to consider in its PAMI analysis as well as the definition of the associated measurable vulnerability indicator. **See 3.1 & 3.2 on the figure below.**

4. Include this vulnerability factor in the calculations. **See 4 on the figure below.**

In the PAMI Excel tool, the **sheet Factor selection** is used to set parameters for the PAMI analysis.

3. As noticed when describing the dataset, the vulnerability factor not included in the GTFCC indicative list that the country decided to consider in its PAMI analysis is variable VF_15_add_factor_1 (see a on the figure below). For this variable, the definition of the corresponding vulnerability factor is entered in column Vulnerability factors (see 3.1 on the figure below) and the definition of the associated measurable vulnerability indicator is entered in column Measurable vulnerability indicator (see 3.2 on the figure below).

4. The variable VF_15_add_factor_1 is included in the analysis by selecting “Included in the vulnerability index” in column Selection of factors in the vulnerability index (see 4 on the figure below).



GLOBAL TASK FORCE ON CHOLERA CONTROL

Identify and address missing values

5. For which vulnerability factors and for how many geo units are there missing values?
   One vulnerability factor (Hard-to-access populations) and two geo units.

Sheet R.3| Missing data overview is used to identify any vulnerability factor with missing value(s). There are missing values for the vulnerability factor "Hard-to-access populations" (see 5.a on the figure below) and for this vulnerability factor values are missing for two geo units (see 5.b on the figure below).

Vulnerability factors	Num. of observations				Relative percentage			
	Missing values	"No"	"Yes"	Total	Missing values	"No"	"Yes"	Total
Confirmed cholera outbreak(s) over the analysis period	0	42	6	48	0.0%	87.5%	12.5%	100.0%
Confirmed cholera imported case(s) in the NCP operational geographic unit considered	0	37	11	48	0.0%	77.1%	22.9%	100.0%
Cross-border areas adjacent to frequently cholera-affected areas or identified PAMIs in neighbouring country(ies)	0	41	7	48	0.0%	85.4%	14.6%	100.0%
Location along major travel routes with transportation hubs	0	43	5	48	0.0%	89.6%	10.4%	100.0%
Major population gatherings	0	36	12	48	0.0%	75.0%	25.0%	100.0%
High population density locations or overcrowded settings	0	43	5	48	0.0%	89.6%	10.4%	100.0%
High-risk populations	0	36	12	48	0.0%	75.0%	25.0%	100.0%
Hard-to-access populations (5.a)	2 (5.b)	41	5	48	4.2%	85.4%	10.4%	100.0%
Population that received oral cholera vaccine (OCV) more than three years ago	0	42	6	48	0.0%	87.5%	12.5%	100.0%
High-risk for extreme climate and weather conditions	0	42	6	48	0.0%	87.5%	12.5%	100.0%
Complex humanitarian emergency	0	39	9	48	0.0%	81.3%	18.8%	100.0%
Unimproved water	0	39	9	48	0.0%	81.3%	18.8%	100.0%
Unimproved sanitation	0	42	6	48	0.0%	87.5%	12.5%	100.0%
Limited access to hygiene	0	36	12	48	0.0%	75.0%	25.0%	100.0%
Additionnal country-specifc cholera vulnerability factor (1)	0	41	7	48	0.0%	85.4%	14.6%	100.0%
Additionnal country-specifc cholera vulnerability factor (2)	0	0	0	0	.	.	.	.
Additionnal country-specifc cholera vulnerability factor (3)	0	0	0	0	.	.	.	.
Additionnal country-specifc cholera vulnerability factor (4)	0	0	0	0	.	.	.	.

6. What are the unique identifiers of the geo units with missing values? **id_058, id_112**

According to the sheet Factor selection, hard-to-access populations is variable VF_08_hard_to_acc_risk_pop (see 6.a on the figure below).

Vulnerability factors	Measurable indicators	Variable names
Hard-to-access populations	NCP unit with hard-to-access population	VF_08_hard_to_acc_risk_pop (6.a)

Sheet R.4| Table PAMIs export is used to filter the data. Variable VF_08_hard_to_acc_risk_pop is filtered for missing values (see 6.b on the figure below).

The unique identifiers of the two geo units with missing values for hard-to-access populations are id_058 and id_112 (see 6.c on the figure below).

unique_id	admin_1	admin_2	pop	VF_01_chol_otbk	VF_02_chol_import	VF_03_chol_proximity	VF_04_mov_pathw	VF_05_pop_gathering	VF_06_overcrowded_set	VF_07_high_risk_pop	VF_08_hard_to_acc_risk_pop	VF_09_ocv
id_058 (6.c)	_04	admin_2_058	227349	No	No	No	No	Yes	No	Yes	Missing_value	No	No
id_112	_07	admin_2_112	346997	No	No	No	No	No	No	No	Missing_value	No	No

(6.b)

7. Taking into account expert opinions, stakeholders determined that in the geo units with missing values, the corresponding vulnerability factor is absent. a) Fill the missing values accordingly in the dataset, b) update the calculations, c) make sure that there is no longer any missing value in the calculations.

a) To correct missing values, the recommended approach is to make the changes in the dataset file and reupload it in a blank version of the PAMI Excel tool. For the purpose of the exercise, missing values may be corrected in the sheet Data input table. Then “refresh all”.

b) If missing values were corrected in the dataset file and reuploaded in a blank version of the PAMI Excel tool, (re)include VF_15_add_factor_1 in the vulnerability index (sheet factor selection), include all geo units in the analysis (sheet R.1| Vulnera. index calculation), and “refresh all”. If missing values were corrected in the sheet Data input table, “refresh all”.

c) Sheet R.3| Missing data overview is used to check that there is no longer any missing value.

GLOBAL TASK FORCE ON CHOLERA CONTROL

Identify geo units that are PAMIs due to the occurrence of confirmed cholera outbreaks

8. How many geo units are PAMIs due to the occurrence of confirmed cholera outbreaks in recent years? **6**

9. What is the percentage of the country population living in these geo units? **10%**

Sheet R.2| Vulnera. index summary is used to have an overview of the PAMIs.

Geo units that are PAMIs due to the occurrence of confirmed cholera outbreaks in recent years are “initial PAMIs”. 6 geo units are PAMIs due to the occurrence of confirmed cholera outbreaks (see 8 on the figure below) and 10% of the country population live in these units (see 9 on the figure below).

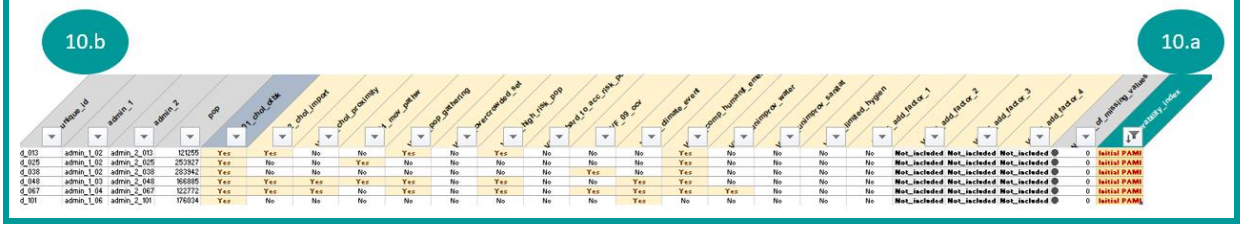
Vulnerability index values	Number of geographic units	Cum. number of geographic units	Rel. % of the num. of geographic units	Cum. % of the num. of geographic units	Total population	Rel. % of total population	Cum. % of total population
Initial PAMI	6	8 6	12.5%	12.5%	1,124,815	10.0%	9 10.0%
10	1	7	2.1%	14.6%	275,489	2.5%	12.5%
8	1	8	2.1%	16.7%	369,669	3.3%	15.8%
6	2	10	4.2%	20.8%	628,507	5.6%	21.4%
5	1	11	2.1%	22.9%	111,409	1.0%	22.4%
4	3	14	6.3%	29.2%	1,017,687	9.1%	31.4%
3	4	18	8.3%	37.5%	936,401	8.3%	39.8%
2	10	28	20.8%	58.3%	2,404,454	21.4%	61.2%
1	6	34	12.5%	70.8%	1,483,842	13.2%	74.4%
0	14	48	29.2%	100.0%	2,875,245	25.6%	100.0%
Grand Total	48		100.0%		11,227,518	100.00%	

10. What are the unique identifiers of geo units that are PAMIs due to the occurrence of cholera outbreaks in recent years? **id_013, id_025, id_038, id_048, id_067, id_101**

Sheet R.4| Table PAMIs export is used to have a detailed view of PAMIs.

Column Vulnerability_index is filtered for initial PAMIs (see 10.a on the figure below).

The unique identifiers of the geo units that are PAMIs due to the occurrence of confirmed cholera outbreaks in recent years are id_013, id_025, id_038, id_048, id_067, id_101 (see 10.b on the figure below).



GLOBAL TASK FORCE ON CHOLERA CONTROL

Assess a potential vulnerability index threshold

If the stakeholders decide on a vulnerability index threshold ≥ 4:

11. What would the cumulative number of geo units considered as PAMIs? **14**
12. What would the percentage of the country population living in PAMIs? **31.4%**

Sheet R.2| Vulnera. index summary is used to assess potential vulnerability index thresholds.

With a vulnerability index threshold ≥ 4, 14 geo units would be PAMIs (see 11 on the figure below) and 31.4% of the country population would live in PAMIs (see 12 on the figure below).

Vulnerability index values	Number of geographic units	Cum. number of geographic units	Rel. % of the num. of geographic units	Cum. % of the num. of geographic units	Total population	Rel. % of total population	Cum. % of total population
Initial PAMI	6	6	12.5%	12.5%	1,124,815	10.0%	10.0%
10	1	7	2.1%	14.6%	275,489	2.5%	12.5%
8	1	8	2.1%	16.7%	369,669	3.3%	15.8%
6	2	10	4.2%	20.8%	628,507	5.6%	21.4%
5	1	11	2.1%	22.9%	111,409	1.0%	22.4%
4	3	14	6.3%	29.2%	1,017,687	9.1%	31.4%
3	4	18	8.3%	37.5%	936,401	8.3%	39.8%
2	10	28	20.8%	58.3%	2,404,454	21.4%	61.2%
1	6	34	12.5%	70.8%	1,483,842	13.2%	74.4%
0	14	48	29.2%	100.0%	2,875,245	25.6%	100.0%
Grand Total	48		100.0%		11,227,518	100.00%	