



World Health
Organization

Civil–military health security mapping tool

User manual

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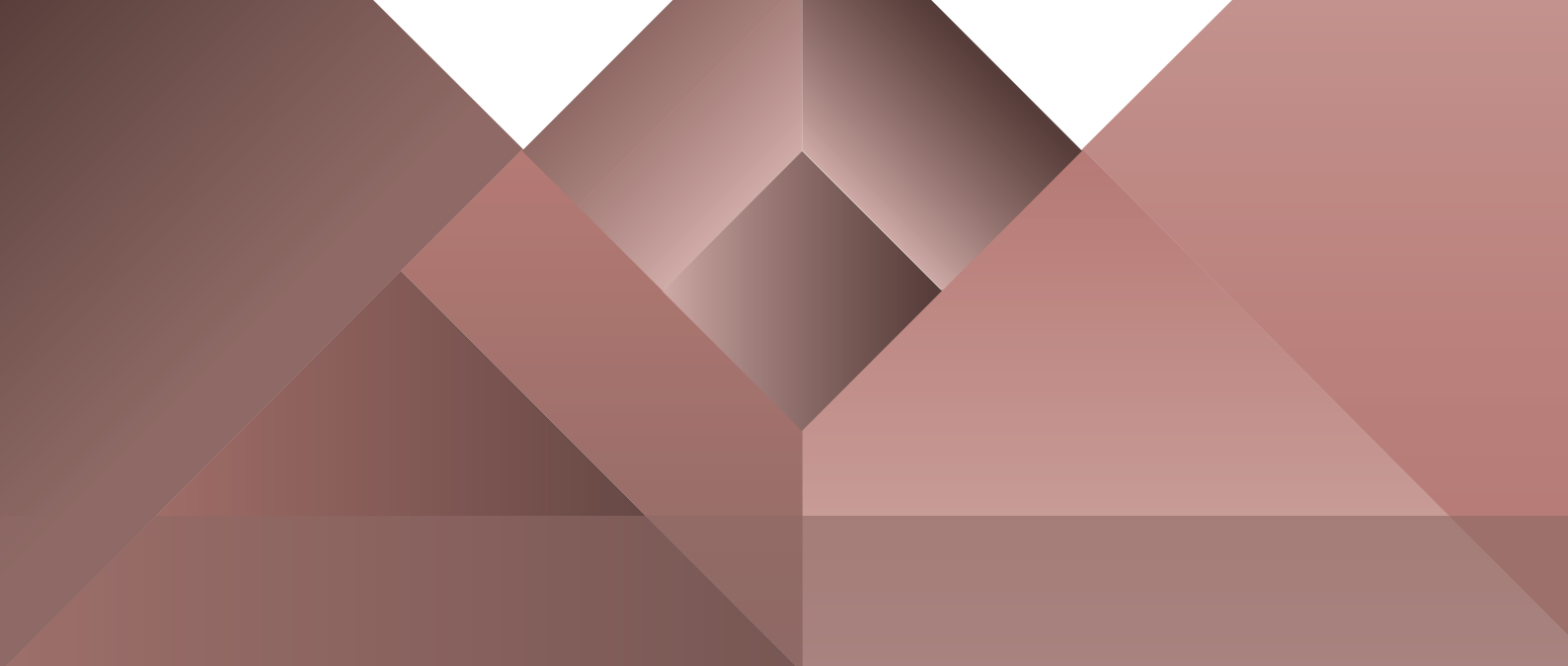
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Abbreviations

CBRN	chemical, biological, radiological and nuclear
CMAP	civil–military health security mapping
GPW13	thirteenth general programme of work
GPW14	fourteenth general programme of work
EOC	emergency operations centre
IHR	International Health Regulations
IHR MEF	International Health Regulations monitoring and evaluation framework
IPC	infection prevention and control
JEE	joint external evaluation
MOU	memorandum of understanding
NCF	national civil–military health collaboration framework for strengthening health emergency preparedness
UHC	universal health coverage



1. Introduction

Advancing civil–military health collaboration for strengthening health emergency preparedness contributes to the WHO strategic vision outlined in both the thirteenth general programme of work (GPW13) (1) and the fourteenth general programme of work (GPW14) (2). GPW13 introduced the triple billion target, including one billion more people better protected from health emergencies, underscoring the importance of multisectoral approaches to preparedness and response.

GPW14 builds on this foundation with its overarching goal “to promote, provide and protect health and well-being for everyone, everywhere,” and its guiding principle to “expand and enhance partnerships, community engagement and intersectoral collaboration.” These priorities are further reinforced by World Health Assembly resolution WHA74.7, which promotes an all-hazards, multisectoral, whole-of-government approach to health emergencies.

Establishing and formalising relationships between public health authorities, military and security sector representatives, emergency management agencies, and other relevant partners before crises can strengthen preparedness and response, in line with the International Health Regulations (IHR) (2005) (3).

To this end, WHO published the National civil–military health collaboration framework for strengthening health emergency preparedness: WHO guidance document (NCF) (4). The NCF provides guidance to the public health and military sectors at the national level for establishing, advancing, and maintaining effective collaboration. It focuses on developing core country capacities to prevent, detect, respond to, and recover from health emergencies.

Strengthening civil–military collaboration is an important component of national health security preparedness.

1.1 Development of the civil-military health security mapping (CMAP) tool

Member States first mandated WHO to develop guidance on collaboration between public health and military health services at the national level as an outcome of the global meeting, Managing future global public health risks by strengthening collaboration between civilian and military health services (Jakarta, Indonesia, October 2017) (5). Building on this, a subsequent technical consultation with Member States on national cross-sectoral collaboration between the security and health sectors (6), held in China, Hong Kong Special Administrative Region, in December 2018, discussed the draft NCF guidance (4), and introduced the notion of developing a complementary mapping tool to facilitate civil-military health collaboration.

The project and mapping tool were further discussed at the first regional civil-military health security socialization workshop in Bucharest, Romania, on 7–8 June 2022, marking the formal kick-off to the project on civil-military collaboration for health emergency preparedness. The CMAP tool was formally introduced at the consultation meeting in Geneva, Switzerland, in June 2023 (7). The meeting brought together over 50 participants, including representatives from Ministries of Health and Defence, international organizations, and other stakeholders, who provided valuable feedback. Since then, the CMAP tool and mapping exercise have been used as an integral part of the national workshops on advancing civil-military collaboration to strengthen health emergency preparedness.

During the last regional workshop on advancing civil-military collaboration to strengthen health emergency preparedness, held in Copenhagen, Denmark, in April 2024 (8), countries shared experiences and lessons learnt from national civil-military workshops and mapping exercises. Discussions highlighted the impact of the workshops on joint external evaluation (JEE) processes, and Member States confirmed that the CMAP tool has been essential in strengthening health emergency preparedness. The tool has now been validated through national workshops across three WHO regions, and a customized version is being developed for subnational and urban contexts.

All external experts submitted to WHO a declaration of interest disclosing potential conflicts of interest that might affect, or might reasonably be perceived to affect, their objectivity and independence in relation to the subject matter of this guidance. WHO reviewed each of the declarations and concluded that none could give rise to a potential or reasonably perceived conflict of interest related to the subjects discussed at the meeting or covered by the guidance.

1.2 Purpose of the CMAP tool

In line with the IHR (2005) (3) and contributing to the International Health Regulation monitoring and evaluation framework (IHR MEF) (9), the NCF and the CMAP tool support countries in strengthening capacities under JEE indicator R2 “Linking public health and security authorities” (10) by identifying civil-military capacities and gaps at both national and subnational levels.

The CMAP tool features separate interfaces for the public health and military sectors, allowing each sector to complete the mapping exercise independently. Additional interfaces can be developed for other relevant sectors upon request, ensuring that all stakeholders are integrated into the planning process. Its adaptability and flexibility make the CMAP tool a dynamic instrument for countries seeking to strengthen coordination across multiple sectors. By incorporating additional sector-specific interfaces, the CMAP tool remains responsive to diverse national contexts and governance structures, supporting a unified, multisectoral approach to health emergency preparedness.

1.3 Applying the CMAP tool to strengthen national health security preparedness

Once the key functions are clear, the next step is understanding how to apply the CMAP tool in practice. The tool supports countries in translating mapping results into actionable strategies by:

- Identifying gaps and needs: Analysis of responses highlights gaps in civil-military health emergency preparedness, informing targeted interventions.
- Informing decision-makers: CMAP outputs provide evidence-based insights for resource allocation and investment priorities.
- Facilitating resource optimisation: By pinpointing areas of collaboration, the CMAP tool helps countries maximise the use of existing resources across sectors.

1.4 CMAP data outputs and their role in collaboration

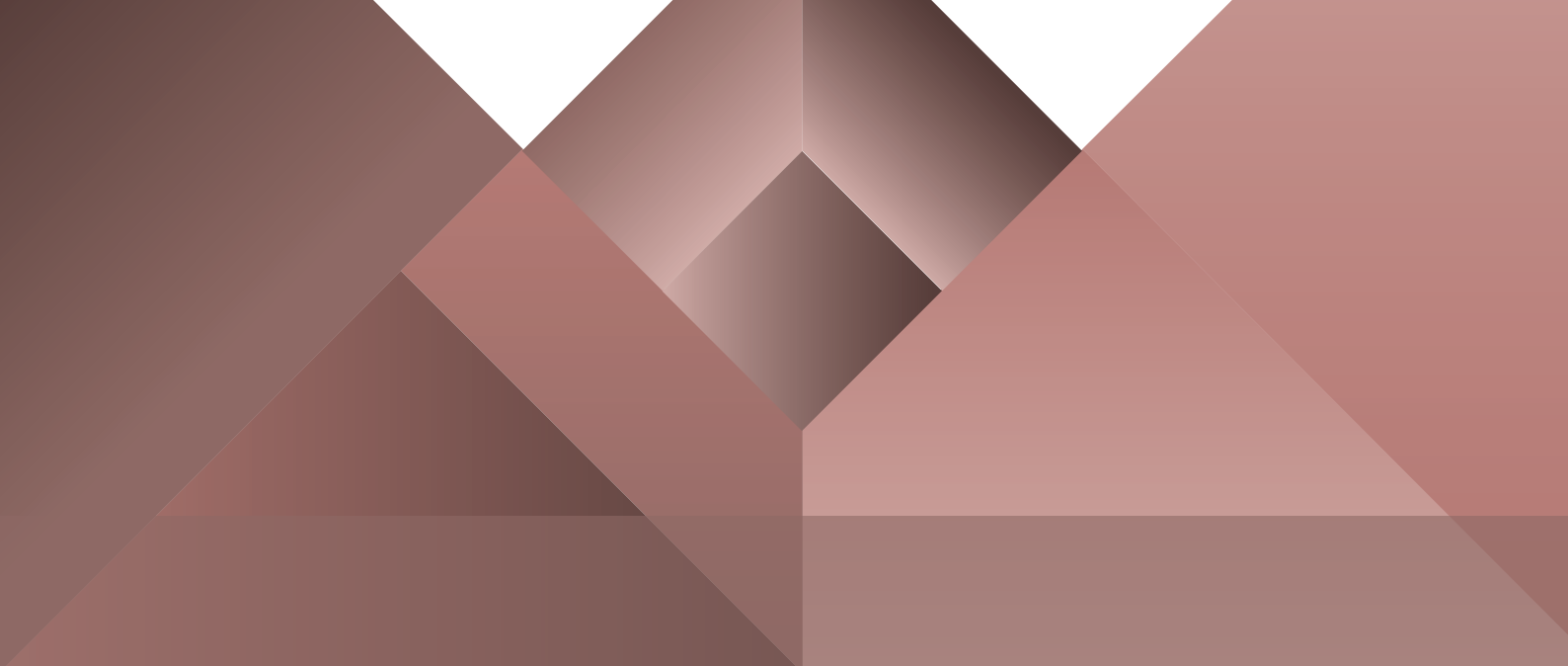
The value of the CMAP tool lies not only in the mapping exercise but also in the actionable insights it generates. Data outputs serve as a foundation for strengthening multisectoral coordination by:

- Promoting cross-sectoral collaboration: CMAP provides a shared platform for mapping joint capacities and capabilities, fostering dialogue between sectors.
- Highlighting synergies: Outputs reveal opportunities for joint efforts, leading to more efficient and effective preparedness and response.
- Enabling multisectoral coordination: By focusing on IHR core capacities, CMAP ensures that preparedness efforts involve all relevant stakeholders beyond the health sector.

1.5 Objective of the CMAP user manual

The objective of the user manual is to guide users in effectively applying the CMAP tool to strengthen civil-military collaboration for health emergency preparedness. Specifically, it aims to:

- Introduce the CMAP tool and its purpose within the context of WHO guidance, IHR core capacities, and the JEE framework.
- Explain the key functions of the CMAP tool, including its role in mapping capacities, identifying gaps, and supporting multisectoral planning.
- Provide practical guidance on applying the CMAP tool to strengthen national health security preparedness, including examples of use cases.
- Describe the data outputs generated by the CMAP tool and how these support cross-sectoral collaboration and decision-making.
- Guide users in interpreting CMAP results, including scoring and visualization methods.
- Introduce the CMAP interfaces (military, public health, and joint activity mapping data sheet) and explain their respective roles in the mapping process.



2. Operational overview of the CMAP tool

2.1 Key functions of the CMAP tool

Before exploring the technical details, it is important to understand what the CMAP tool is designed to achieve. The tool serves as a structured mechanism for countries to assess and strengthen civil–military collaboration for health emergency preparedness. Its core functions include:

- Identifying existing capacities and capabilities: It enables countries to map civil and military resources, personnel, and expertise relevant to health emergency preparedness. This includes contributions from public health agencies, military forces, and other sectors.
- Aligning with IHR core capacities: The tool focuses on capacities corresponding to the IHR core capacities, which are essential for effective preparedness and response at the national level.
- Facilitating collaboration and synergies: By mapping these capacities, the CMAP tool helps identify areas where cooperation between public health and security sectors can be strengthened for greater efficiency and impact.

2.2 Understanding and interpreting the CMAP results

Interpreting the CMAP results correctly is essential for turning data into decisions. Responses from the mapping worksheets are converted into percentage scores:

- A score of 100% represents all yes responses;
- A score of 0% represents all no responses;
- Unanswered questions are excluded from the denominator to ensure accuracy.

It is important to note that scores of 0% or 100% are not typical and should not be considered the goal. Most results will fall somewhere in between, reflecting areas of partial capacity and opportunities for improvement. These intermediate scores provide the most valuable insights for planning, as they highlight where collaboration and capacity-building efforts are needed.

Final scoring visuals cannot be downloaded directly; however, screenshots can be taken using the snipping tool. Countries may also share their data with WHO and request assistance in preparing analysis and presentation packages based on their mapping results.

2.3 CMAP tool interfaces explained

The tool is structured around two main interfaces—military and public health—each tailored to sector-specific priorities. Together with the joint activity mapping data sheet, these interfaces provide a comprehensive view of civil-military collaboration:

- Military interface: Focuses on the sector's capacities and capabilities related to health emergency preparedness.
- Public health interface: Concentrates on the status of ongoing civil-military collaboration from the perspective of public health authorities.

Questions in each interface are customized to reflect sector-specific roles and responsibilities. Both interfaces include access to the joint activity mapping data sheet, which records existing cross-sectoral collaboration and training activities over the past 12 months.

The following sections provide detailed guidance on these operational components, beginning with the military interface, followed by the public health interface, and concluding with the joint activity civil-military activity data sheet. Together, these elements enable countries to systematically assess contributions, identify gaps, and strengthen multisectoral preparedness for health emergencies.

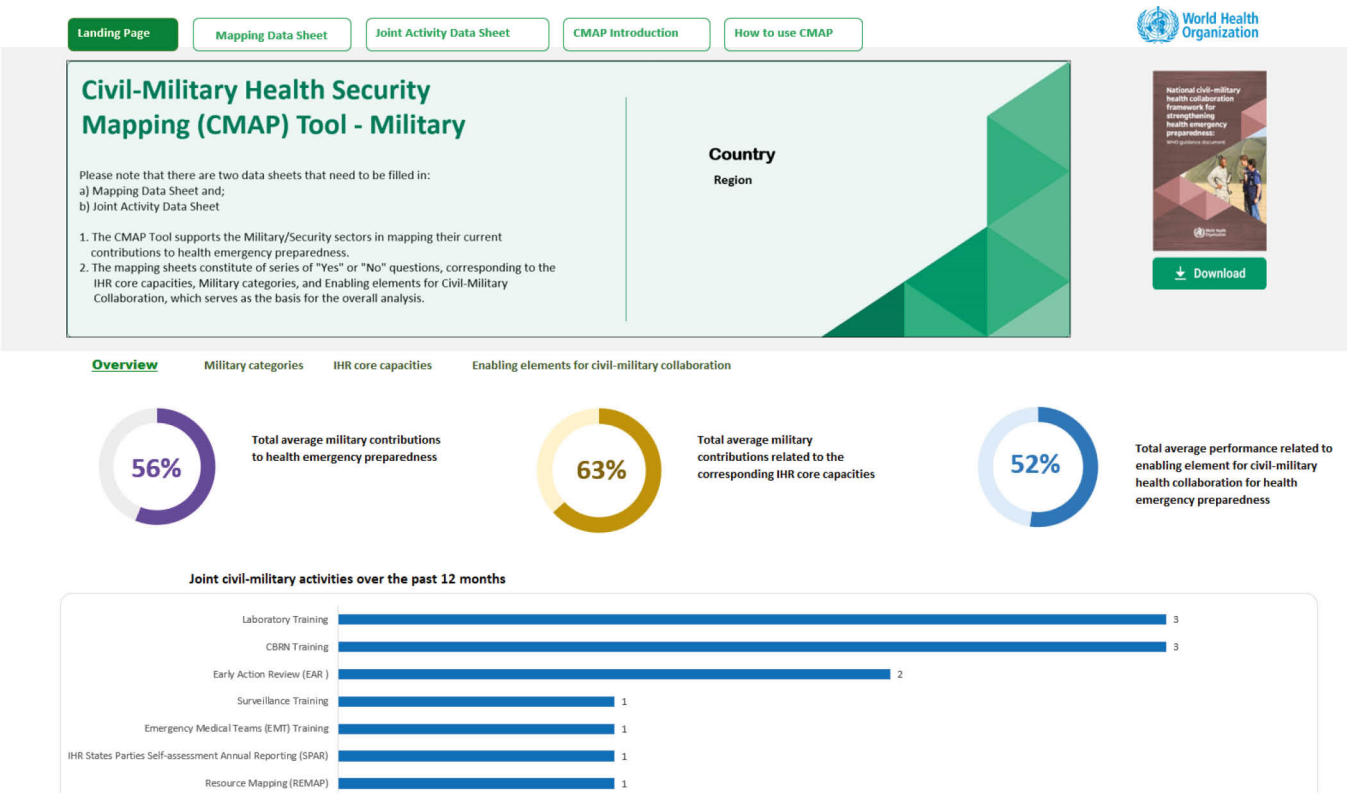
3. Military interface

This section introduces the military interface, which is designed to capture inputs from stakeholders in the military/security sector(s). By adding data to the military mapping data sheet, the landing page and sub-dashboards will show the scoring of input data.

3.1 Landing page

Upon opening the CMAP tool, users are directed to the landing page. The landing page serves as the central navigation hub and includes hyperlink buttons that provide access to the different sections of the tool. It also displays doughnut charts that summarize results based on the mapping data entered by users (Fig. 1).

Figure 1. Military interface: CMAP landing page



3.1.1 Features of the landing page

At the top of the landing page, there are five hyperlink buttons that direct the users to the landing page, mapping data sheet, joint activity data sheet, CMAP introduction, and how to use the CMAP (Fig. 2).

Figure 2. Military interface: CMAP landing page: hyperlinks

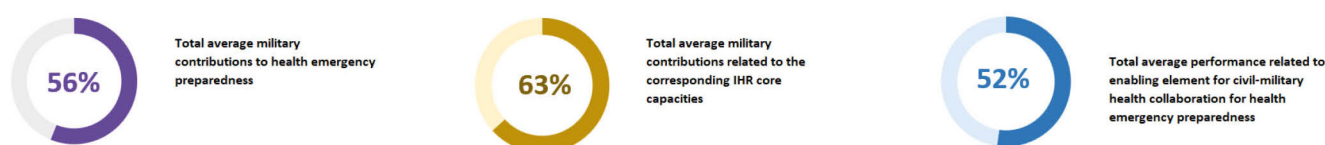


- Mapping data sheet and joint activity data sheet: By selecting the hyperlink buttons for the mapping data sheet or the joint activity data sheet, the user will be directed to the data sheets that require data entry.
- CMAP Introduction: By selecting the CMAP introduction hyperlink button, users will be taken to a page that explains the rationale behind the development of the tool.
- How to use CMAP: By selecting the how to use CMAP hyperlink button, users will be taken to a page that gives guidance on how to use the tool.

3.1.2 Main doughnut visualization charts on the landing page

The three doughnut charts on the landing page show the overall average performance for each sub-dashboard. The first doughnut chart to the left is the total average performance of the military contributions to health emergency preparedness, the second doughnut chart is the total average military contribution related to the corresponding IHR core capacities, and the third doughnut chart displays the total average performance related to enabling elements for civil-military health collaboration for health emergency preparedness (Fig. 3).

Figure 3. Military interface: CMAP landing page: main doughnut visualization charts



3.1.3 Understanding the main doughnut visualization chart

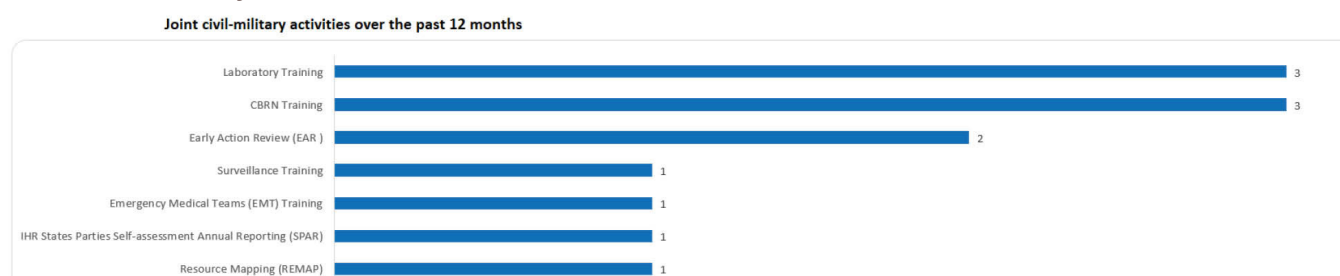
The three main doughnut charts present the level of the military's contribution to national health emergency preparedness. Below is a breakdown of how to interpret the doughnut charts based on the answered questions:

- Military categories: The higher the percentage, the higher the military contributions to health emergency preparedness.
- IHR core capacities: The higher the percentage, the higher the military contributions related to the corresponding IHR core capacities.
- Enabling civil-military collaboration: The higher the percentage, the higher the performance related to enabling elements of national civil-military collaboration for health emergency preparedness.
- Lower percentages indicate lower levels of contribution.

3.1.4 Bar chart on landing page

At the bottom of the landing page, there is a bar chart generated from the joint civil-military activity datasheet (Fig. 4). The bar chart illustrates the number of joint civil-military activities over the past 12 months.¹

Figure 4. Military interface: CMAP landing page: bar chart with results from joint civil-military activity datasheet



¹ See the section 5 Joint civil-military activity data sheet for more information.

3.2 Military mapping data sheet

The military mapping data sheet is a comprehensive questionnaire designed to gather essential information, both qualitative and quantitative, related to the military/security sector(s) (Fig. 5). To access this worksheet, click the mapping data sheet hyperlink button at the top of the landing page. After entering the mapping data sheet, the user will find the questions that need to be answered in the third column. All questions will be linked to or correspond to the following:

- Military question categories (left side of the question column).
- IHR core capacities (blurred right side of the comments column).
- Enabling elements for national civil-military collaboration for health emergency preparedness (blurred far-right side of the IHR core capacities items).

Figure 5. Military interface: military mapping data sheet

[Landing Page](#)
[Mapping Data Sheet](#)
[Joint Activity Data Sheet](#)
[CMAP Introduction](#)
[How to use CMAP](#)


Military Mapping Data Sheet

The mapping data sheet contains 161 questions in total, including 154 binary questions (answered with "Yes" or "No") and 7 numerical questions (answered with a numerical value; question numbers 16, 27, 40, 59, 66, 67 and 78). Please note that depending on the answers provided, the answer boxes will display: green for "Yes", orange for "No", and blue if left empty. Additional information related to the question can be included in the "Additional Comments" column. If a question is not relevant to your country context, please leave it blank; it will be excluded from the denominator used for scoring.

Each question is linked to the corresponding "IHR Core Capacities" and "Enabling Elements for National Civil-Military Health Collaboration for Health Emergency Preparedness" listed in the same row. Please note that the boxes under "IHR Core Capacities" and "Enabling Elements" (grey area) cannot be edited.

No	Military Category	Question	Answer	Additional Comments	Corresponding IHR core capacities						Enabling elements for civil-military health collaboration for health emergency preparedness				
					Corresponding IHR Core Capacity 1	Corresponding IHR Core Capacity 2	Corresponding IHR Core Capacity 3	Corresponding IHR Core Capacity 4	Corresponding IHR Core Capacity 5	Corresponding IHR Core Capacity 6	Establishing a strategic collaboration for health emergency preparedness	Acknowledging differences between the public health and military health services	Identifying technical areas for health emergency preparedness collaboration	Institutionalizing civil-military health collaboration for health emergency preparedness	Jointly building capacities and training for health emergency preparedness
1	MOUs and agreements between Defence and other Ministries	Does the military have a designated focal point for communication with the MoH/IHR focal point?	Yes		C2: IHR coordination and National IHR Focal Point	C1: Policy, legal and normative instruments to implement IHR	C7: Health emergency management				Multisectoral, whole-of-government approach enhances preparedness	Building trust and developing an understanding of each other's organizational culture and capabilities		Formalizing collaboration on health emergency preparedness	
2	MOUs and agreements between Defence and other Ministries	Is there a legislation to ensure communication related to health emergencies between the military and other ministries?	No		C1: Policy, legal and normative instruments to implement IHR	C2: IHR coordination and National IHR Focal Point	C7: Health emergency management				Legislative context for collaboration	Sharing information increases mutual understanding	Placing focus on emergency preparedness	Formalizing collaboration on health emergency preparedness	
3	MOUs and agreements between Defence and other Ministries	Does the military have SOPs with MoH for sharing morbidity data and/or outcomes of public health investigations?			C1: Policy, legal and normative instruments to implement IHR	C2: IHR coordination and National IHR Focal Point	C5: Surveillance				Multisectoral, whole-of-government approach enhances preparedness	Sharing information increases mutual understanding	Identifying specific technical areas for collaboration	Formalizing collaboration on health emergency preparedness	
4	MOUs and agreements between Defence and other Ministries	Does the military have written agreement(s) on the procurement and/or sharing of medical supplies, items and equipment with MoH?	Yes		C1: Policy, legal and normative instruments to implement IHR	C2: IHR coordination and National IHR Focal Point	C7: Health emergency management	C3: Financing			Legislative context for collaboration	Taking stock of capacities in both sectors	Placing focus on emergency preparedness	Formalizing collaboration on health emergency preparedness	Funding for joint emergency preparedness efforts
5	MOUs and agreements between Defence and other Ministries	Does the military have written agreement(s) with the MoH for financial contribution in case of required assistance by MoD?	No		C1: Policy, legal and normative instruments to implement IHR	C2: IHR coordination and National IHR Focal Point	C3: Financing				Legislative context for collaboration			Formalizing collaboration on health emergency preparedness	Funding for joint emergency preparedness efforts
6	MOUs and agreements between Defence and other Ministries	Does the military have written agreement(s) on command and control at sub-national levels in the context of health emergencies?	Yes		C1: Policy, legal and normative instruments to implement IHR	C2: IHR coordination and National IHR Focal Point	C7: Health emergency management				Legislative context for collaboration			Formalizing collaboration on health emergency preparedness	

The third column contains the questions that should be answered. On the right side of the questions column, the users can find the multicoloured answer column. Users can respond to the questions by selecting either yes or no from the dropdown box, based on their understanding. A few questions are quantitative, and numbers should be entered instead. On the right of the multicoloured answer column, further information can be included in the additional comments column, should the users find it necessary to explain the answer in more detail (Fig. 6). The following are the colours for each option selected in the question column.

Figure 6. Military interface: mapping data sheet questions

Question	Answer	Additional Comments
Does the military have a designated focal point for communication with the MoH IHR focal point?	Yes	
Is there a legislation to ensure communication related to health emergencies between the military and other ministries?	No	
Does the military have SOPs with MoH for sharing morbidity data and/or outcomes of public health investigations?		
Does the military have written agreement(s) on the procurement and/or sharing of medical supplies, items and equipment with MoH?	Yes	

Light green colour — Yes

Orange colour — No

Light yellow colour — Numeric

Light blue colour — Empty

3.3 Sub-dashboard pages on the landing page

The sub-dashboard pages are located in the middle of the landing page and have hyperlink buttons that direct users to the breakdown of the results, which visualizes the responses from the mapping data sheet (Fig. 7).

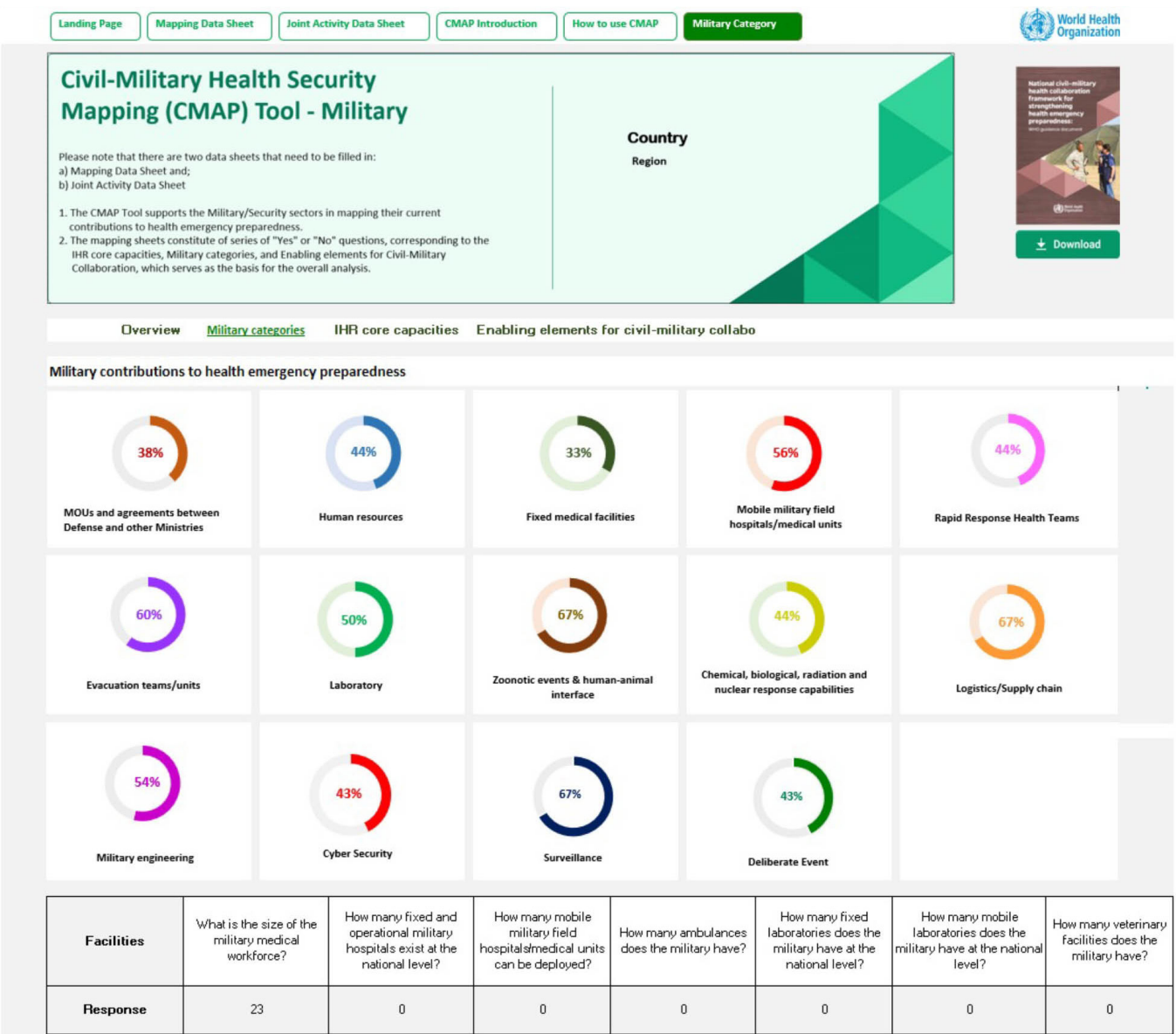
Figure 7. Military interface: sub-dashboard pages

<u>Overview</u>	Military categories	IHR core capacities	Enabling elements for civil-military collaboration
------------------------	----------------------------	----------------------------	---

3.4 Military contributions to health emergency preparedness

The military contributions to health emergency preparedness sub-dashboard exhibits a range of different specialized categories, which are visualized in 14 separate doughnut charts (Fig. 8). It will also display a table of resources summarising answers to the numerical questions. The sub-dashboard page can be accessed by clicking the military categories hyperlink button (Fig. 7).

Figure 8. Military interface: Military categories sub-dashboard



3.5 Clarifications of the military categories and information captured

These definitions are specific to the CMAP tool and are aligned with WHO guidance documents for the technical areas.

Memorandum of understanding (MOU) and agreements between the Ministry of Defence and other ministries: This category assesses the formal agreements, legislation, and coordination mechanisms between military and civilian health services. It examines communication focal points, data sharing protocols, joint procurement, financial agreements, and the integration of military capabilities into national emergency plans. This is crucial for ensuring seamless civil-military collaboration during a health crisis. (4,11)

Human resources: This category evaluates the size and capabilities of the military medical workforce. It focuses on the sharing of workforce information with the Ministry of Health, the availability of ancillary staff, and the presence of specialized focal points for risk communication and epidemiology. The assessment also includes military medical training programs and the workforce inclusion in national emergency plans and civil-military simulation exercises. (4,12,13)

Fixed medical facilities: This category assesses the availability, geographical coverage, and specialized capabilities of fixed military hospitals and primary health-care facilities. It evaluates their capacity to manage infectious diseases and chemical, biological, radiological and nuclear (CBRN) events, their accessibility to civilians during emergencies, and their contribution of routine data to national surveillance systems. The section also examines their integration into national preparedness plans and civil-military simulation exercises. (4,13)

Mobile military field hospitals/medical units: This section evaluates the deployable capabilities of military field hospitals and medical units. It assesses their capacity for rapid deployment in response to infectious disease outbreaks and CBRN events, their ability to support points of entry, and their role in community engagement in hard-to-reach areas. Their contribution to national surveillance systems and integration into emergency preparedness plans and exercises are also key areas of focus. (4,14)

Rapid-response health teams: This category assesses the existence and specific capabilities of military rapid-response teams for various public health activities. It evaluates their ability to investigate outbreaks, provide emergency medical care, conduct infection prevention and control, and manage laboratory samples. Their role in risk communication and their integration into national emergency plans and collaborative exercises are crucial for immediate public health interventions. (4,15,16)

Evacuation teams/units: This section assesses the military's evacuation capabilities, including the number of ambulances and their capacity to transport patients with highly infectious diseases. It evaluates the sufficiency of trained medical staff and the full integration of these assets into national health emergency plans and civil-military simulation exercises to ensure efficient patient movement during crises. (4,17)

Laboratory: This category evaluates the military's fixed and mobile laboratory capabilities. It assesses biosafety levels, the capacity to analyse various threats (e.g., chemical agents, zoonotic diseases), and the existence of military laboratory networks. The section also examines the deployability of mobile laboratories to support emergencies and their inclusion in national preparedness plans and civil-military collaboration exercises. (4,18)

Zoonotic events & human-animal interface: This section assesses the military's veterinary capabilities and collaboration on zoonotic diseases. It evaluates military veterinary facilities, diagnostic capabilities, availability for deployment at Points of Entry, and the existence of electronic surveillance systems. The assessment also includes the provision of training and the integration of these capabilities into national emergency preparedness plans and civil-military exercises, emphasising a "One Health" approach. (4,19)

CBRN response capabilities: This category assesses the military's specialized capabilities for responding to CBRN events. It covers their surveillance, detection, reconnaissance, personal decontamination, and casualty evacuation capabilities. The section also examines their capacity to track hazards and the complete integration and consolidation of these military capabilities with civilian first responders within national emergency plans and joint simulation exercises. (4,10,12,20)

Logistics/Supply chain: This category evaluates the military's logistical capabilities for supporting health emergencies. It assesses the availability of specialized transport (e.g., cold chain), the existence of dedicated medical stockpiles (including personal protective equipment), and the integration of the military's supply chain into national health emergency plans. Regular inclusion in simulation exercises is also assessed, highlighting their critical role in ensuring timely resource delivery. (4)

Military engineering: This section evaluates the military's diverse engineering capabilities, which are crucial during health emergencies. This includes their capacity for large-scale construction, providing portable water, emergency power, and medical gases. The assessment also covers their mapping capabilities and their potential to serve as surge capacity for public health efforts, with a focus on their inclusion in national plans and civil-military collaboration exercises. (4,21)

Cybersecurity: This category assesses the cybersecurity posture of military health operations to safeguard sensitive data and digital systems. It assesses the presence of dedicated teams and training, regular risk assessments and disaster recovery plans. The section also scrutinises the implementation of data encryption, access controls (e.g., two-factor verification), and the use of secure official email to ensure data integrity and system resilience. (4,22–24)

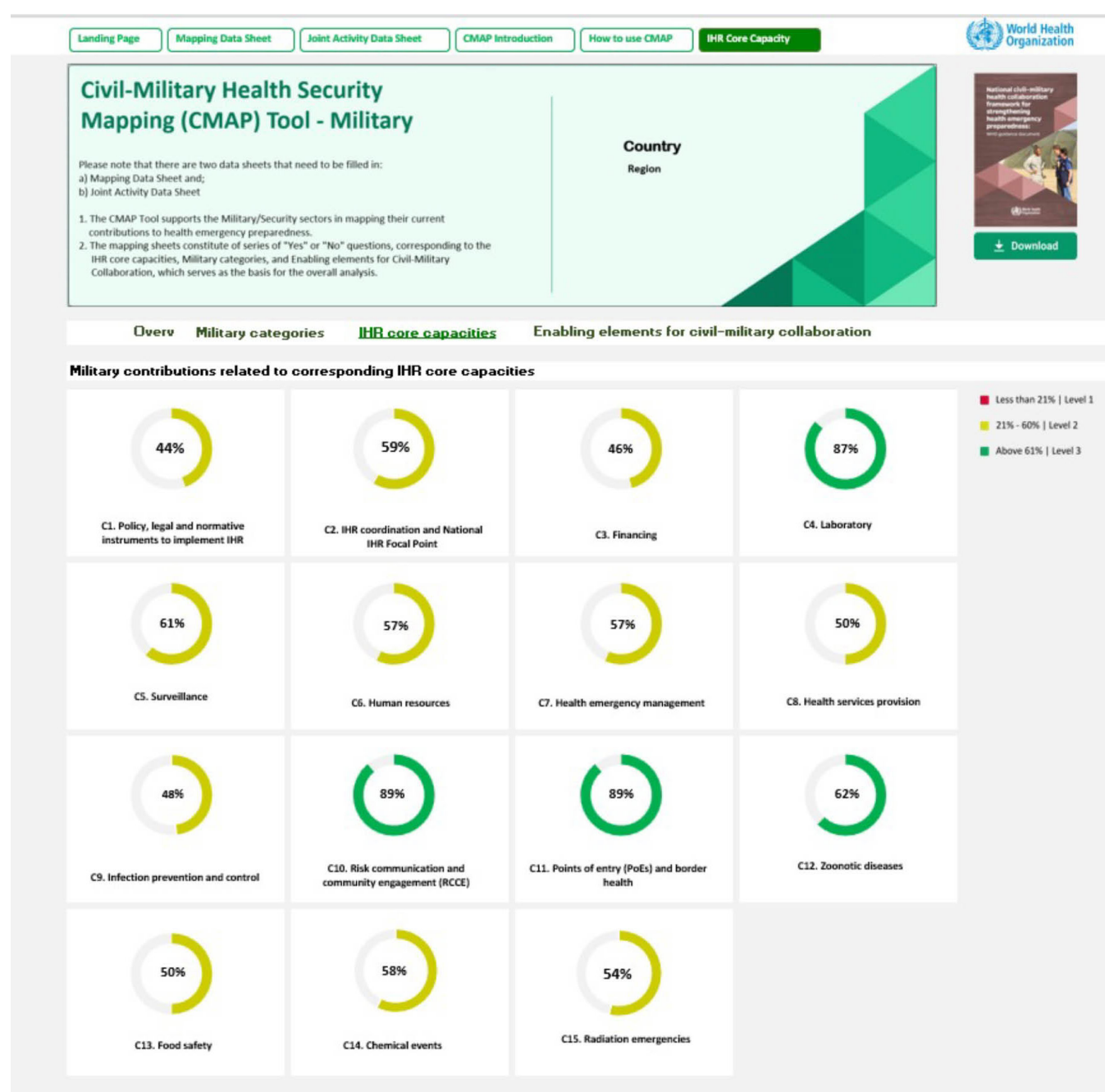
Surveillance: This section assesses the military's surveillance capabilities and their integration with national public health systems. It evaluates the operational status of military surveillance systems, their scope, and whether they feed into public health systems. The assessment also covers mechanisms for early detection, real-time data analysis, zoonotic disease surveillance, and the military's capabilities to investigate and respond to outbreaks. (4,25–27)

Deliberate events: This category evaluates the military's preparedness for deliberate events like intentional biological or chemical attacks. It evaluates the presence of trained personnel, specific response plans, and coordination mechanisms with law enforcement. The section also scrutinises access to medical countermeasures, rapid diagnostic testing, decontamination procedures and protocols for monitoring disinformation campaigns that may follow such an event. (4,20)

3.6 Military contributions related to the corresponding IHR core capacities

The military contributions related to the corresponding IHR core capacities sub-dashboard page visualizes how the answered mapping questions relate to the 15 IHR core capacities (Fig. 9).

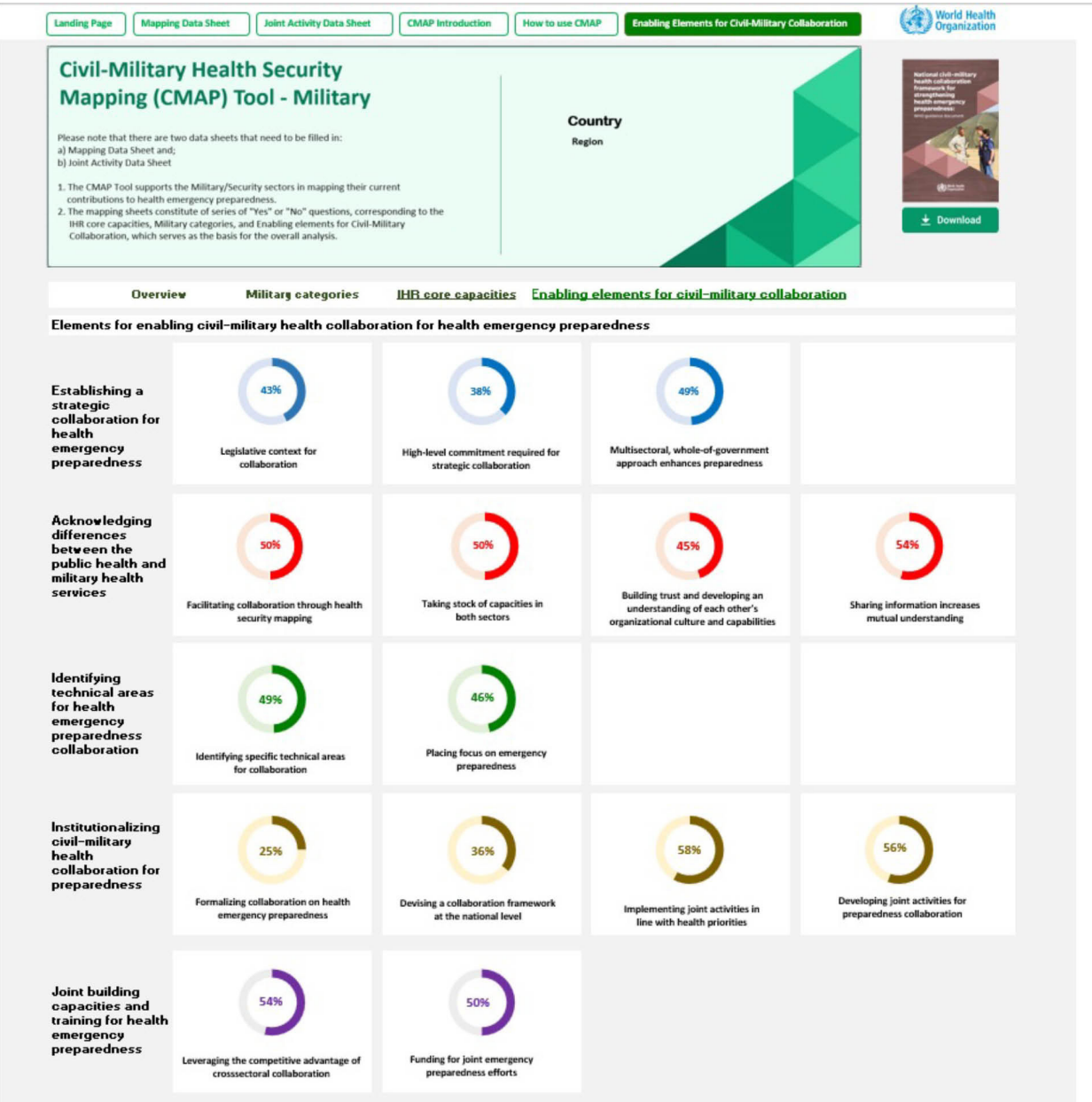
Figure 9. Military interface: military contributions related to the corresponding IHR core capacities

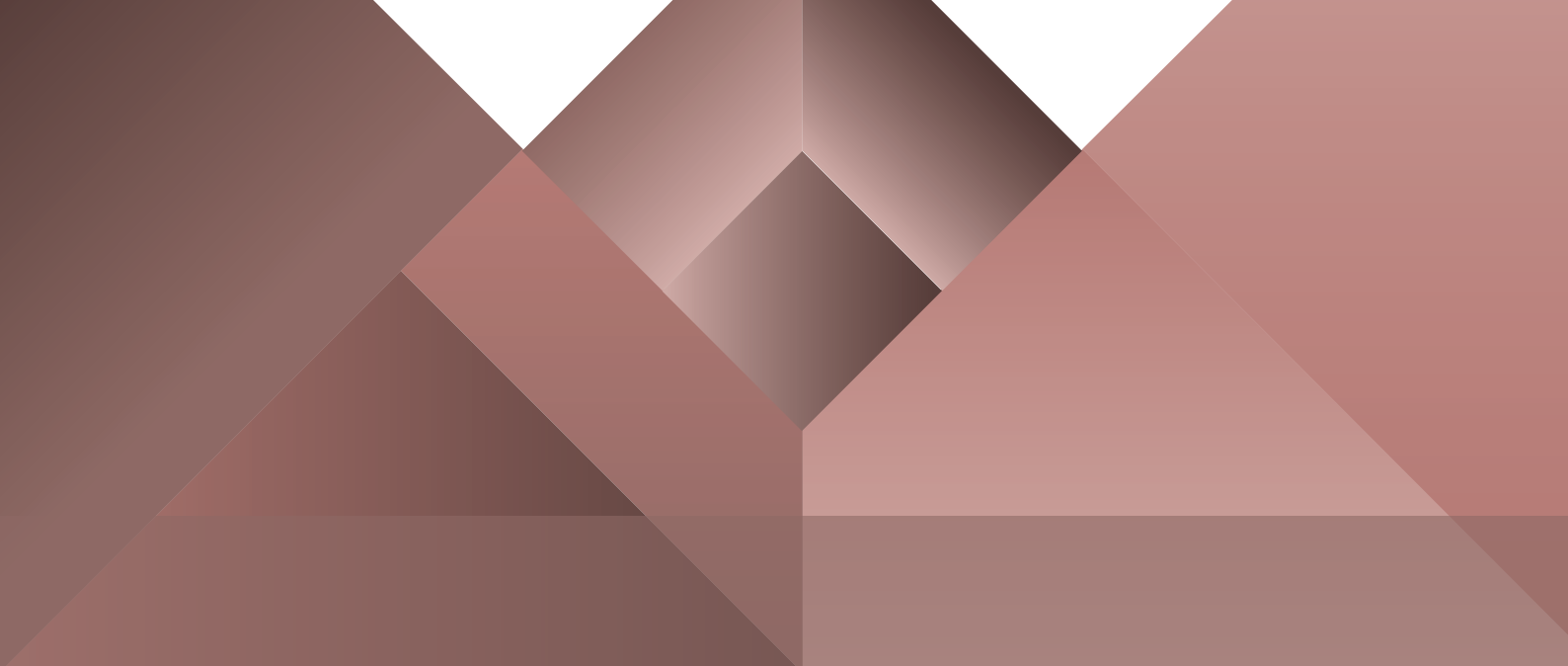


3.7 Military contribution to the enabling elements for civil-military collaboration for health emergency preparedness

The elements for enabling civil-military health collaboration for health emergency preparedness sub-dashboard page visualizes how the answered questions relate to the enabling elements for civil-military collaboration, which correspond to the NCF (4). The sub-dashboard features 15 items in doughnut charts visualized by the mapping answers (Fig. 10).

Figure 10. Military interface: elements for enabling civil-military health collaboration for health emergency preparedness sub-dashboard





4. Public health interface

This section introduces the public health interface, designed to collect input from stakeholders in the public health sector. By adding data to the public health mapping data sheet, the landing page and sub-dashboards will show the scoring of the input data (Fig. 11).

4.1 Landing page

Upon opening the CMAP tool, users are directed to the landing page. This interface serves as the central navigation hub, featuring hyperlink buttons that allow easy access to the tool's various sections. It also includes dynamic doughnut charts that visually present summary results based on the entered mapping data. These visual elements provide a quick overview of key indicators and progress (Fig. 11). The CMAP landing page features all hyperlink buttons that help users navigate to other pages, as well as the main doughnut charts presenting results based on the mapping data users have included.

Figure 11. Public health interface: CMAP landing page



4.1.1 Features of the landing page

At the top of the landing page for the Public health interface, there are five hyperlink buttons to the landing page, mapping data sheet, joint activity data sheet, CMAP introduction and how to use the CMAP (Fig. 12).

Figure 12. Public health interface: CMAP landing page hyperlinks

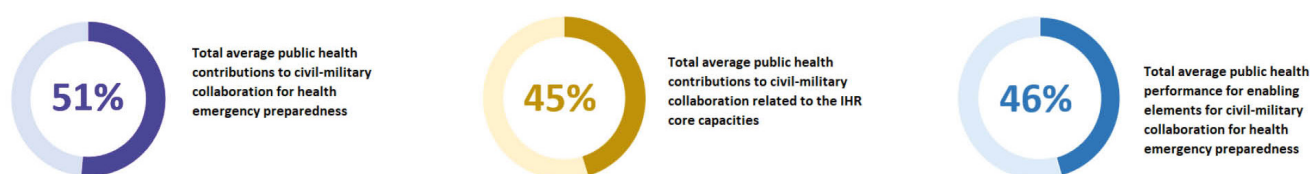


- Mapping data sheet and joint activity data sheet: By selecting the hyperlink buttons, either the mapping data sheet or the joint activity data sheet, the user will be directed to the data sheets that require data entry.
- CMAP introduction: By selecting the CMAP introduction hyperlink button, users will be taken to a page that explains the rationale behind the development of the CMAP tool.
- How to use CMAP: By selecting the how to use CMAP hyperlink button, users will be taken to a page that gives guidance on how to use the CMAP tool.

4.1.2 Main doughnut visualization charts on the landing page

The three doughnut charts on the landing page show the average performance of each sub-dashboard. The first doughnut chart to the left represents the total average performance of public health contributions to civil-military collaboration for health emergency preparedness. The second doughnut chart represents the total average performance of civil-military collaboration related to the corresponding IHR core capacities, and the third doughnut chart shows the total average public health performance of the enabling civil-military collaboration dashboard (Fig. 13).

Figure 13. Public health interface: CMAP landing page: main doughnut visualization charts



4.1.3 Understanding the main doughnut visualization chart

The main doughnut charts present the level of public health's contribution to national civil-military collaboration for health emergency preparedness. Below is a breakdown of how to interpret the doughnut charts based on the answered questions:

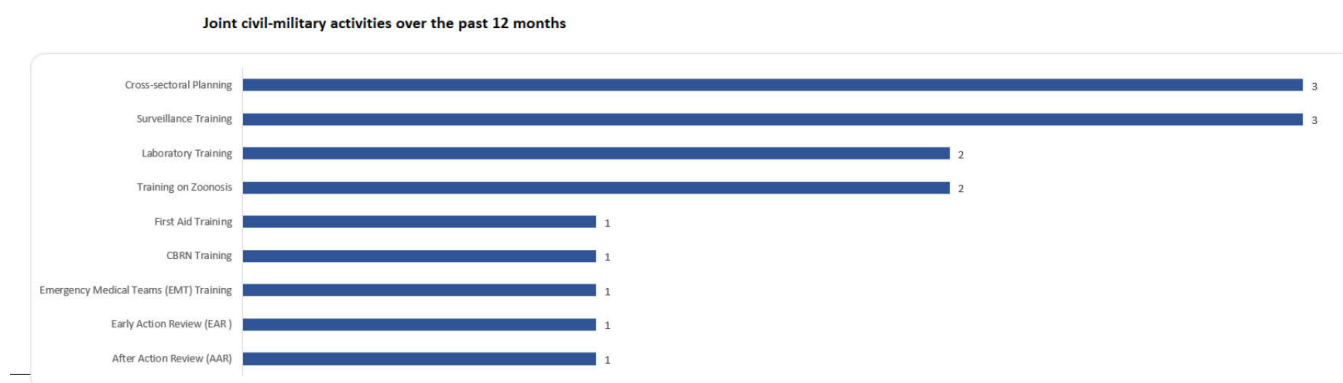
- Public health categories: The higher the percentage, the higher the public health contributions to civil-military collaboration for health emergency preparedness.
- IHR core capacities: The higher the percentage, the higher the public health contributions to civil-military collaboration related to the corresponding IHR core capacities.
- Enabling civil-military collaboration: The higher the percentage, the higher the public health contributions to enabling national civil-military health collaboration for health emergency preparedness.
- Lower percentages indicate lower levels of contribution.

4.1.4 Bar chart on the landing page

At the bottom of the main dashboard page, there is a bar chart that is generated from the joint activity data sheet. The bar chart depicts the number of planned joint civil-military activities over the past 12 months (Fig. 14).²

² See section 5 Joint civil-military activity data sheet for more information.

Figure 14. Public health interface: CMAP landing page: bar chart with results from joint civil-military activity data sheet



4.2 Public health mapping data sheet

Below is a detailed description of the public health mapping data sheet (Fig. 15), which can be accessed by clicking the mapping data sheet button at the top of the landing page. The questions that need to be answered by the public health sector are listed in the third column of the mapping data sheet. All questions relate to or correspond to the following:

- Public health question categories (located on the left side of the question column).
- IHR core capacities (blurred right side of the comments column).
- Enabling elements for national civil-military health collaboration for health emergency preparedness (blurred at the far-right side of the comments column).

Figure 15. Public health interface: mapping data sheet

How to use the tool - Public Health Mapping Data Sheet

The mapping data sheet contains 117 binary questions in total, (answered with "Yes" or "No"). Please note that depending on the answers provided, the answer boxes will display: green for "Yes", orange for "No", and blue if left empty. Additional information related to the question can be included in the "Additional Comments" column. If a question is not relevant to your country context, please leave it blank; it will be excluded from the denominator used for scoring.

Each question is linked to the corresponding "IHR Core Capacities" and "Enabling Elements for National Civil-Military Health Collaboration for Health Emergency Preparedness" listed in the same row. Please note that the boxes under "IHR Core Capacities" and "Enabling Elements" (grey area) cannot be edited.

Categories	Questions	Answers	Additional Comments	IHR core capacities					Enabling elements for civil-military health collaboration for health emergency preparedness				
Categories	Questions	Answer	Additional Comments	Corresponding IHR Core Capacity 1	Corresponding IHR Core Capacity 2	Corresponding IHR Core Capacity 3	Corresponding IHR Core Capacity 4	Corresponding IHR Core Capacity 5	Establishing a strategic collaboration for health emergency preparedness	Acknowledging differences between the public health and military health services	Identifying technical areas for health emergency preparedness	Institutionalizing civil-military health collaboration for preparedness	Jointly building capacities and training for health emergency preparedness
1. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements that enable the public health sector to utilize the military capabilities and capacities in the context of health emergencies?	Yes		C1. Policy, legal and normative instruments to implement IHR	C7. Health emergency management	C8. Health services provision			Legislative context for collaboration	Facilitating collaboration through health security mapping	Placing focus on emergency preparedness	Implementing joint activities in line with health priorities	
2. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements that enable the public health sector and military to share resources in the context of health emergencies?	No		C1. Policy, legal and normative instruments to implement IHR	C6. Human resources	C7. Health emergency management			Legislative context for collaboration		Placing focus on emergency preparedness	Implementing joint activities in line with health priorities	Leveraging the competitive advantage of crosssectoral collaboration
3. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements that enable the public health sector and military to share resources in the context of health emergencies?			C1. Policy, legal and normative instruments to implement IHR	C3. Financing	C7. Health emergency management	C6. Human resources		Legislative context for collaboration		Placing focus on emergency preparedness	Implementing joint activities in line with health priorities	Funding for joint emergency preparedness efforts
4. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements that enable the public health sector and military to share resources to support public health priorities?	Yes		C1. Policy, legal and normative instruments to implement IHR	C3. Financing	C8. Health services provision	C6. Human resources		Legislative context for collaboration		Placing focus on emergency preparedness	Implementing joint activities in line with health priorities	Funding for joint emergency preparedness efforts
5. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements on how the public health sector and military can jointly finance emergency procurement of equipment and materials?	Yes		C1. Policy, legal and normative instruments to implement IHR	C3. Financing	C7. Health emergency management	C8. Health services provision		Legislative context for collaboration	Building trust and developing an understanding of each other's organizational capabilities	Placing focus on emergency preparedness	Implementing joint activities in line with health priorities	Funding for joint emergency preparedness efforts
6. Policy, legal and normative instruments to implement IHR and Financing	Are there any legal instrument/agreements that enable the public health sector and military to conduct intra- and after-action reviews on civil-military collaboration for health security preparedness?	Yes		C1. Policy, legal and normative instruments to implement IHR	C6. Human resources	C7. Health emergency management			Legislative context for collaboration	Building trust and developing an understanding of each other's organizational capabilities	Placing focus on emergency preparedness	Developing a collaborative framework at the national level	Leveraging the competitive advantage of crosssectoral collaboration
Sub-total Policy, legal and normative instruments		80%											
7. IHR coordination and NFP	Does the National IHR Focal Point (NFP) have a Point of Contact (POC) in the military?	No		C1. Policy, legal and normative instruments to implement IHR	C2. IHR coordination and management				Multisectoral, whole-of-government approach	Sharing information increases mutual understanding	Placing focus on emergency preparedness		

The third column contains the questions that should be answered. To the left of the questions column is the answer column. Users will respond to the questions by selecting yes or no from the dropdown box based on their understanding. The yes or no responses to the questions will generate the dashboard visualizations. Some questions are quantitative, and numbers should be entered in this case. To the right of the answer column, further information can be included in the additional comments column if necessary to explain further (Fig. 16). The following are the colours for each option selected in the question column.

Figure 16. Public health interface: mapping data sheet questions

Questions	Answer	Additional Comments
Are there any legal instruments/agreements that enable the public health sector to utilize the military capabilities and capacities in the context of health emergencies?	Yes	
Are there any legal instruments/agreements that enable the public health sector to engage the military for training and/or simulation exercises?	No	
Are there any legal instruments/agreements that enable the public health sector and military to share resources in the context of health emergencies?		
Are there any legal instruments/agreements that enable the public health sector and military to share resources to support public health priorities?	Yes	
Are there any legal instruments/agreements on how the public health sector and military can jointly finance emergency procurement of equipment and materials?	Yes	

Light green colour

Orange colour

Light yellow colour

Light blue colour

— Yes

— No

— Numeric

— Empty

4.3 Sub-dashboard pages on the landing page

The public health sub-dashboard pages are located in the middle of the landing page and have hyperlink buttons that direct users to the breakdown of the results, which visualize the responses from the mapping data sheet (Fig. 17).

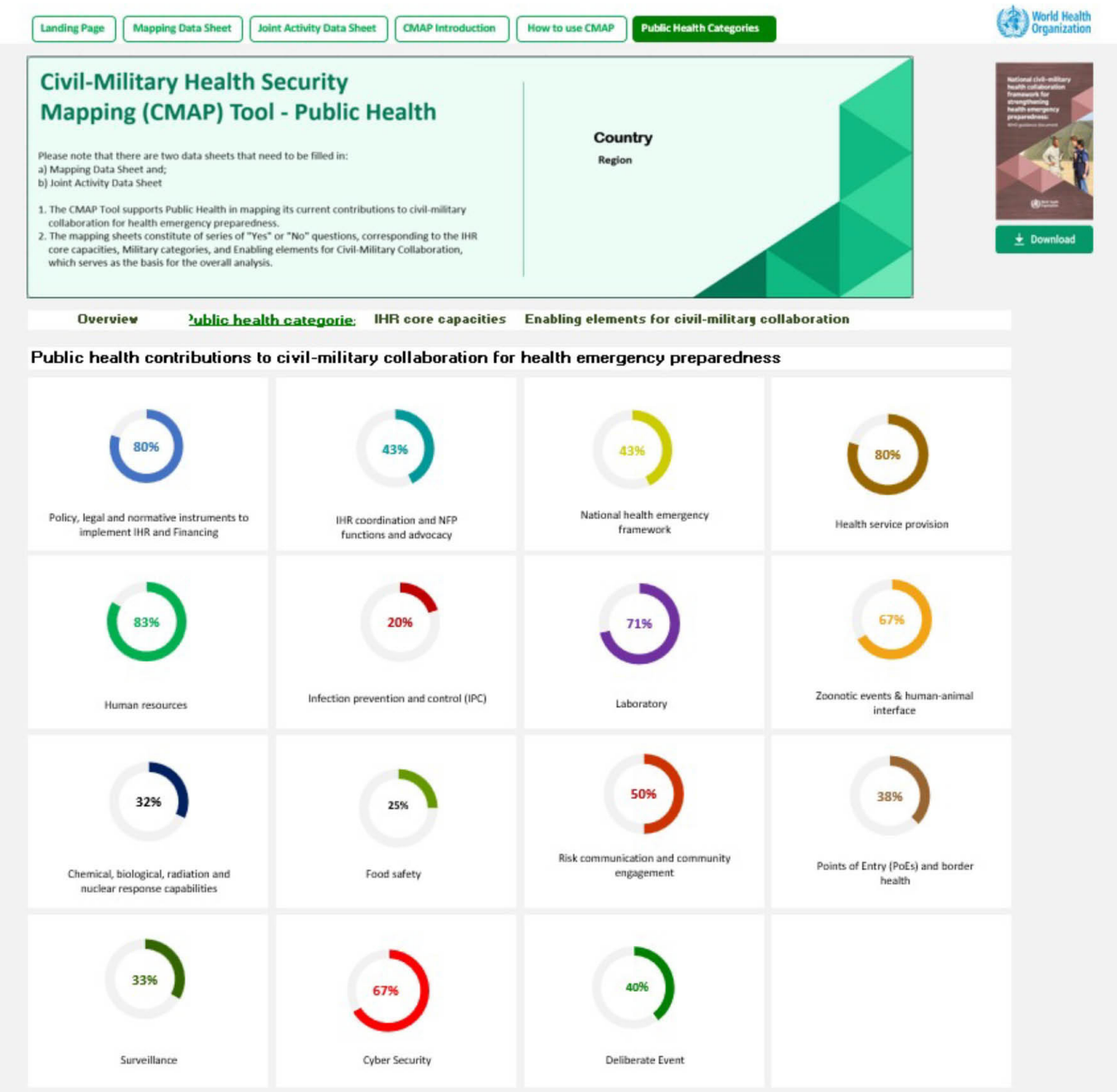
Figure 17. Public health interface: sub-dashboards pages

Overview	Public health categories	IHR core capacities	Enabling elements for civil-military collaboration
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4.4 Public health contributions to civil-military collaboration for health emergency preparedness

The public health contributions to civil-military collaboration for health emergency preparedness sub-dashboard features a range of different specialized categories, which are visualized in 14 separate doughnut charts (Fig. 18). The sub-dashboard page can be accessed by clicking the public health categories hyperlink button (Fig. 17).

Figure 18. Public health interface: public health categories sub-dashboard



4.5 Clarifications of the public health categories and the type of information captured

These definitions are specific to the CMAP tool and are aligned with WHO guidance documents for the technical areas.

Policy, legal and normative instruments to implement IHR and financing: This category assesses the existence of a formal legal and financial framework that enables public health authorities to utilize military capabilities during health emergencies. It explicitly examines legal instruments that permit security authorities to provide training, share resources, and co-finance emergency procurements. (4,10,12)

IHR coordination and national focal point functions and advocacy: This section evaluates the operational coordination and communication between the Ministry of Health and the military/security authorities. It assesses whether a designated point of contact exists, whether communication is routinely maintained and documented in national plans, and whether civilian and military communication systems can be effectively linked. It also examines the inclusion of military emergency operations centre (EOC) capabilities in national plans, as well as the routine conduct of joint civil–military simulation exercises and after-action reviews. (4,12)

National health emergency framework: This category assesses the extent to which the Ministry of Health has systematically reviewed and integrated the military's diverse capabilities—both medical and nonmedical—into the national health emergency framework. It scrutinises the formal assessment of military assets for logistics (including cold chain), engineering (construction), procurement, and real-time mapping. (4,10,12)

Health service provision: This section evaluates the integration of military health service assets into national emergency preparedness plans. It specifically assesses the inclusion of military hospitals, step-down facilities, mobile medical teams, and ambulances within the national framework. (4,10,12)

Human resources: This category assesses the public health sector's capacity to leverage military medical and ancillary personnel as a surge workforce during health emergencies. It evaluates whether the Ministry of Health has formally assessed this potential, whether it can provide the necessary medical training to military personnel, and whether joint civil–military training, simulation exercises, and after-action reviews are routinely conducted. (4,10,12)

Infection prevention and control (IPC): This section assesses the level of civil–military collaboration on IPC, which is fundamental to containing infectious disease outbreaks. It examines the existence of joint IPC standards, collaboration for transporting highly infectious patients, and the conduct of joint IPC training, simulation exercises, and after-action reviews. (4,10,12)

Laboratory: This category evaluates the collaboration between civilian and military laboratories. It assesses whether the Ministry of Health utilizes specialized military laboratory capacities (e.g., mobile labs), whether military labs are included in the national laboratory reporting scheme, and whether joint laboratory simulation exercises and reviews are conducted. (4,10,12,18)

Zoonotic events & human-animal interface: This section assesses civil-military collaboration for managing zoonotic disease threats. It evaluates whether the military's veterinary lab capabilities are included in national plans, if military labs routinely report disease information to the Ministry of Health, and if a joint electronic surveillance platform for the human-animal interface exists. (4,10,12,19)

CBRN response capabilities: This category evaluates the joint planning and procedures for responding to high-consequence CBRN events. It assesses the existence of joint plans and standard operating procedures for handling contaminated casualties, agreements for accessing military stockpiles and equipment (including personal protective equipment), and collaboration on activities such as downwind hazard mapping and forensic testing. (4,10,12,20)

Food safety: This section assesses civil-military collaboration on safeguarding public health from food and waterborne threats during emergencies. It examines joint capabilities for testing water quality, providing portable water, testing food for contamination, and transporting food (especially with cold chain requirements). (4,10,12)

Risk communication and community engagement: This category evaluates the collaboration between public health and military sectors in risk communication and community engagement. It assesses whether the Ministry of Health can leverage the military's communication networks and mobile teams for disseminating information, and if joint efforts exist for producing situational maps and reports. (4,10,12)

Points of entry and border health: This section assesses civil-military collaboration at national points of entry for disease detection and containment. It evaluates whether the Ministry of Health collaborates with the military on treatment units, laboratory diagnostics, veterinary personnel, and CBRN specialists at borders. Regular joint training and after-action reviews are also assessed. (4,10,12,21)

Surveillance: This category evaluates the collaboration between the public health and military sectors for a national surveillance system. It assesses whether a joint system exists to detect and monitor public health threats, including mechanisms for early detection of emerging diseases and zoonoses. It also examines the use of military personnel for tasks such as contact tracing, sharing resources and data, and conducting joint drills and after-action reviews. (4,10,12,26,27)

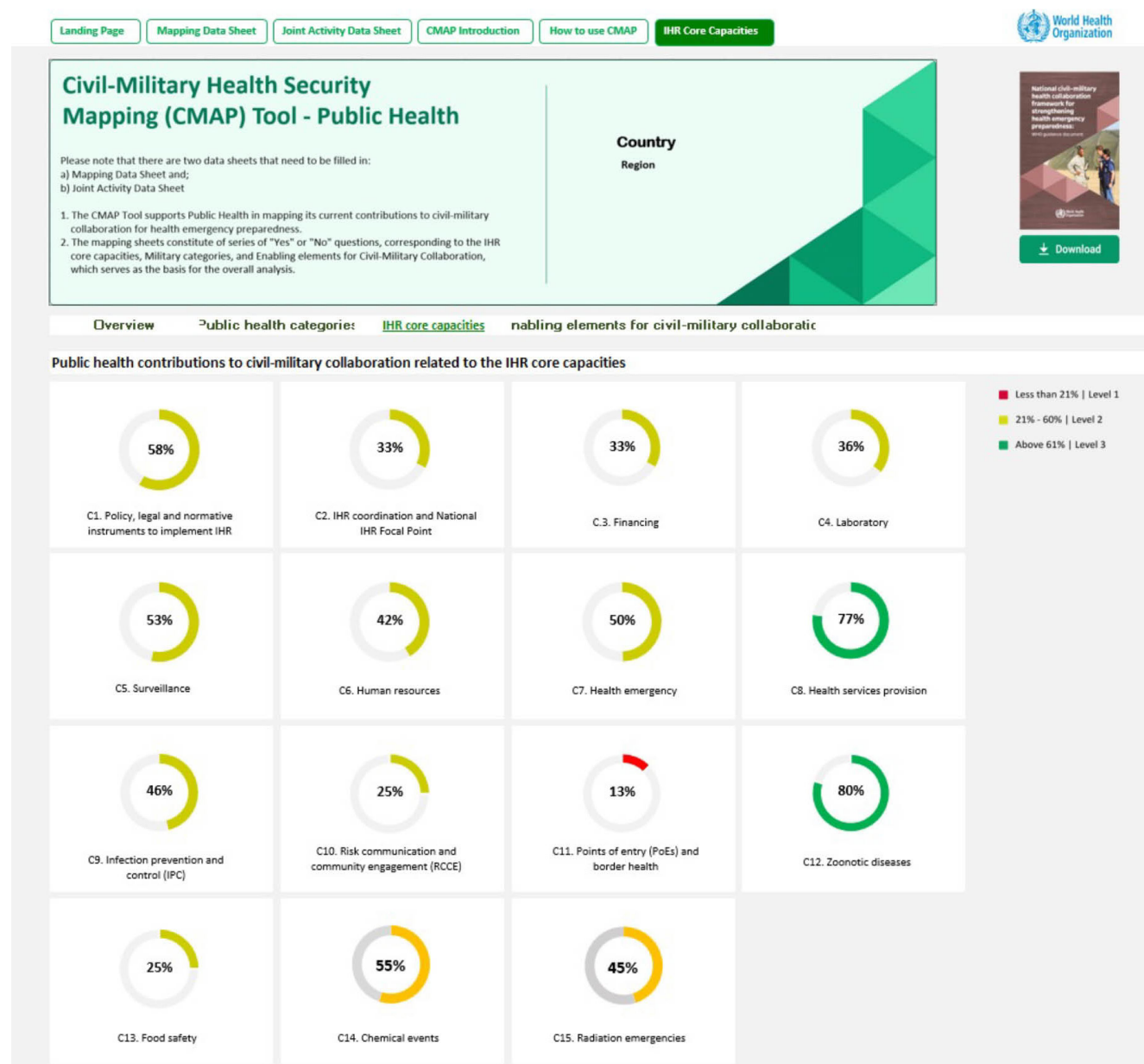
Cybersecurity: This category assesses the mechanisms for civil-military collaboration on cybersecurity, which is vital for protecting sensitive health data and critical digital infrastructure during emergencies. It evaluates the existence of a designated liaison, the use of secure communication channels, the conduct of joint risk assessments, and collaboration on cyber threat response efforts. (4,10,12,22-24)

Deliberate events: This category assesses the public health's plans to utilize military support in responding to deliberate events, such as acts of terrorism or CBRN attacks. It assesses the existence of a national plan for multisectoral response, established coordination protocols with the military, and access to military resources such as personal protective equipment and decontamination procedures. (4,20)

4.6 Public health contributions to civil-military collaboration related to the IHR core capacities

The public health contributions to civil-military collaboration related to the IHR core capacities sub-dashboard page visualizes how the answered questions relate to the IHR core capacities. There are 15 IHR core capacities linked to the mapping questions, which are visualized in separate IHR core capacities doughnut charts (Fig. 19).

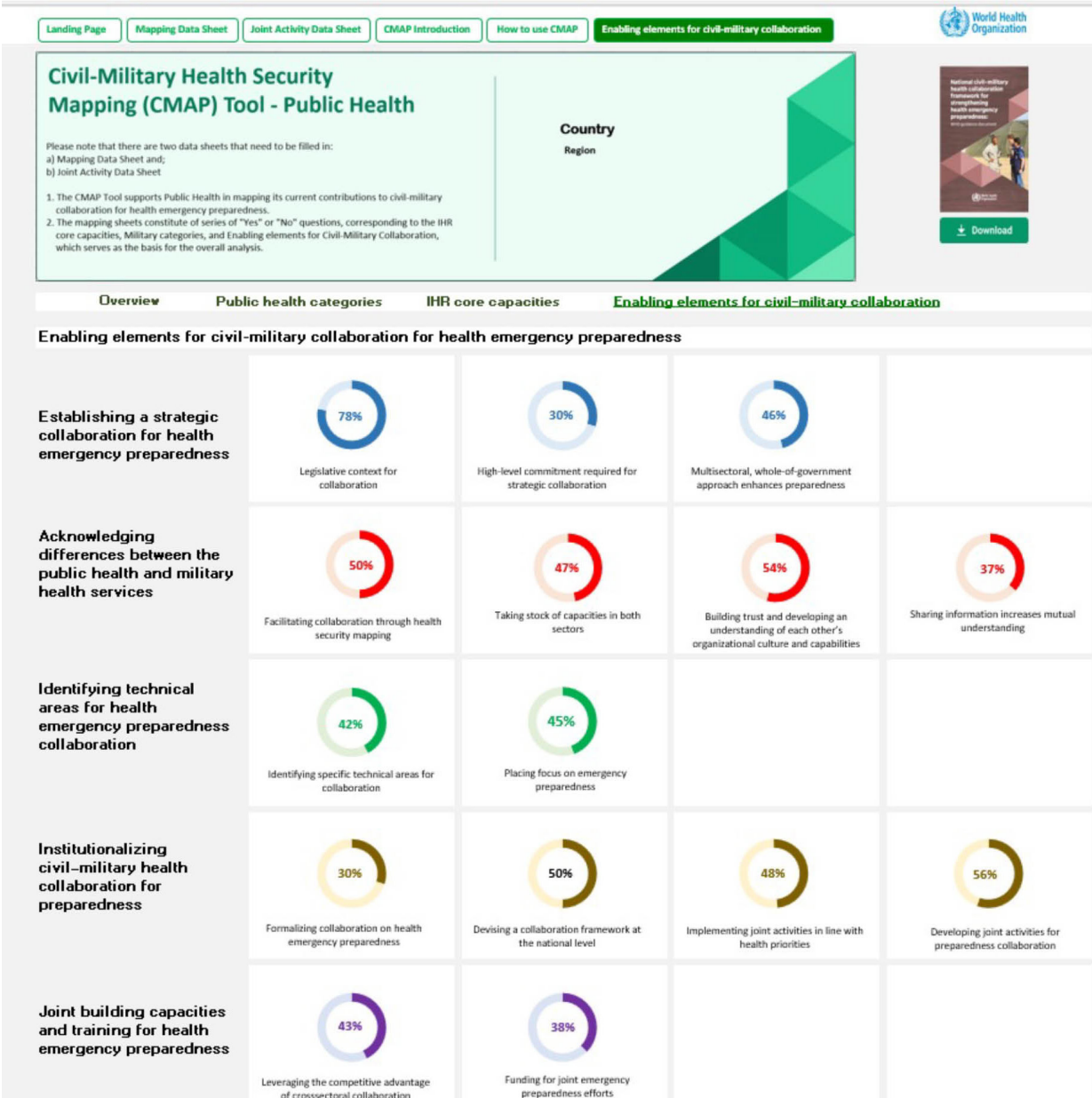
Figure 19. Public health interface: public health contributions to civil-military collaboration related to the IHR core capacities

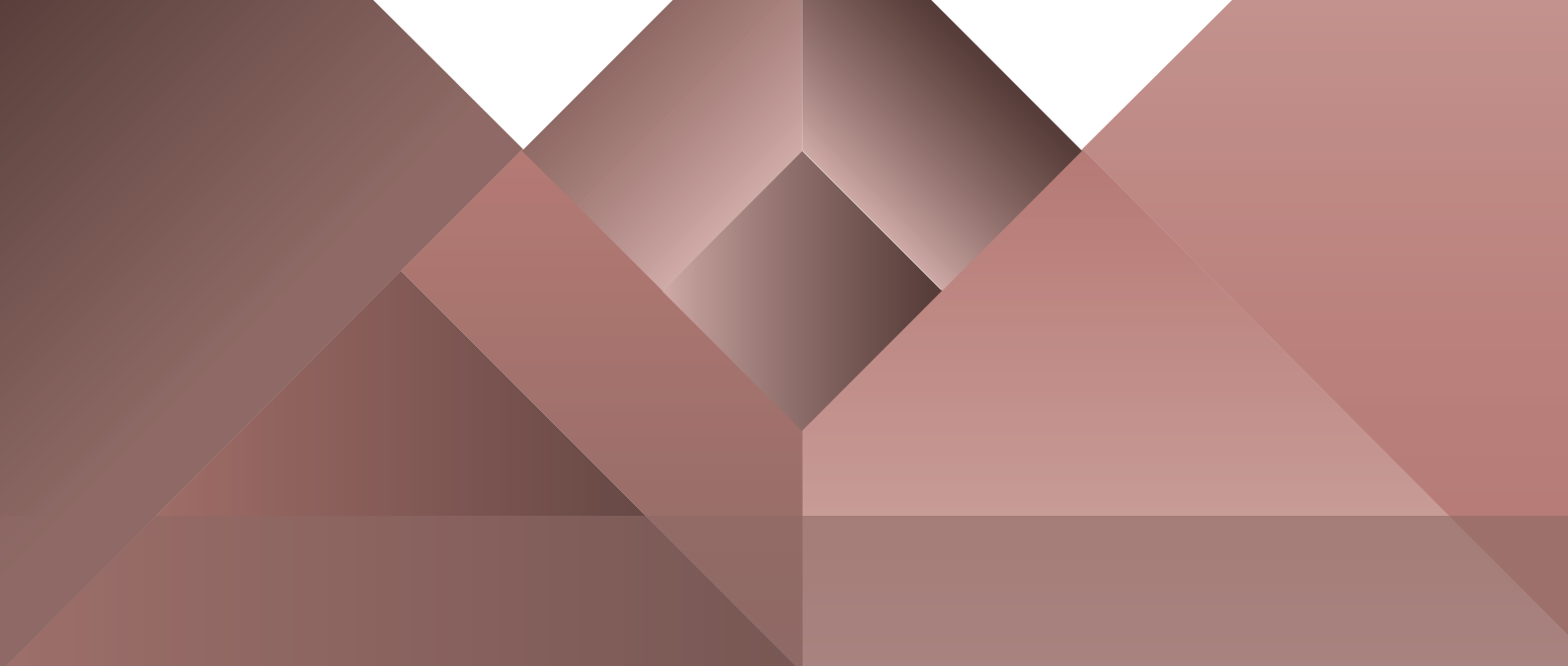


4.7 Public health contribution to the enabling elements for civil-military collaboration for health emergency preparedness

The enabling elements for civil-military collaboration for health emergency preparedness sub-dashboard page visualizes how the answered mapping questions relate to the enabling elements for civil-military collaboration, which correspond to the NCF (4). The enabling civil-military collaboration sub-dashboard has 15 separate items that are visualized in doughnut charts (Fig. 20).

Figure 20. Public health interface: enabling elements for civil-military collaboration for health emergency preparedness





5. Joint civil–military activity data sheet

To access the joint civil–military activity data sheet, click on the hyperlink [joint activity data sheet](#) at the top of the landing page.

Both the public health and military interfaces include a secondary data sheet dedicated to documenting joint civil–military activities related to health emergency preparedness conducted over the past 12 months (Fig. 21). Stakeholders from each sector are requested to provide relevant information, with a particular focus on training activities and the sectors involved. The joint activity data sheet features free-text columns that allow users to describe the nature of the activities, participating entities, and other contextual details. Below is an overview of the functions of each column in the joint civil–military activity data sheet.

Figure 21. Joint civil-military activity data sheet

[Landing Page](#)
[Mapping Data Sheet](#)
[Joint Activity Data Sheet](#)
[CMAP Introduction](#)
[How to use CMAP](#)


How to use the - Joint Activity Data Sheet

Please select "Type of joint activity" from the dropdown list that has taken place during the past 12 months. Kindly specify the training activity and sectors involved in the free-text columns. For "Follow-up joint activity identified" note that, depending on the answers provided, the answer boxes will show light green for "Yes", orange for "No" and light blue if left empty. If you select "Yes" in the column "Follow-up joint activity identified", please include further details in the "Comments" column. Please also note that you can make any general comments in the "Comments" column.

	Type of joint activity	Specify activity	Sector involved	Follow-up joint activity identified	Comments
2	Cross-sectoral Planning			Yes	
3	Surveillance Training			No	
3	Surveillance Training				
4	Simulation Exercise (SIMEX)			Yes	
5	Emergency Medical Teams (EMT) Training			Yes	

The joint activity data sheet enables users to specify previous civil-military activities that have occurred in the country over the last 12 months. In the type of joint activity column, users are asked to click the dropdown menu and select the joint cross-sectoral activities that have taken place. The activity and sectors involved should be specified in the free-text columns specify activity and sectors involved.

If there was a follow-up activity identified from the particular training that was conducted, users should select yes or no in the follow-up joint activity identified column. The column will display different colours based on the input (light green for yes, orange for no and blue when left empty). Further details or general comments can be included in the comments column.

The selected activities from the dropdown menu will populate the bar chart on the CMAP landing page, which summarizes the total number and type of joint civil-military activities over the last 12 months, and whether a follow-up joint activity is identified.

6. Frequently asked questions

	Question	Response
1	Is expertise in Microsoft Excel required to utilize the CMAP tool?	No, the tool is intentionally designed to be user-friendly and straightforward. Users are only required to read and respond to the questions.
2	Can the CMAP tool be adapted to the country's specific context?	The tool is fully customizable to better align with the particular context of each country. Users can contact WHO for technical support in the customization process. WHO, in consultation with the country, can make necessary modifications before the mapping exercise.
3	Will the completed mapping data be sent to WHO?	No, the mapping data will only be used by the user country to provide an overview of the cross-sectoral collaboration for health emergency preparedness. The data can be utilized to support the preparation of national workshops and the Joint External Evaluation processes. It remains solely in the possession of the user country. It can be shared voluntarily with WHO to request support in preparing the data analysis and/or PowerPoint presentations.
4	Are the CMAP tools used by the military and public health sectors identical?	The CMAP tool for the military and public health sectors differs slightly, as they use different interfaces and ask different questions. The military interface supports the military/security authorities in mapping their current contributions to health emergency preparedness. Conversely, the public health interface supports the public health in mapping its current contributions to civil-military collaboration for health emergency preparedness.
5	Is there an online version of the CMAP tool?	No, the CMAP tool is only accessible in Excel to enhance user-friendliness and eliminate concerns about connectivity issues and online data breaches.

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Annex. Civil–military health security mapping tool quick guide

The civil–military health security mapping (CMAP) tool strengthens national health emergency preparedness by mapping resources, identifying gaps, and promoting collaboration between the public health and military/security sectors—in alignment with the International Health Regulation (IHR) (2005) requirements.

Key interfaces:

- **Military interface:** Captures the military’s contribution to Health Emergency Preparedness.
- **Public health interface:** Captures the Public Health’s contribution to the current collaboration with the military/security sectors for Health Emergency Preparedness.

Navigating the CMAP tool: When opening the CMAP tool in Excel, it automatically starts on the landing page, which serves as the central navigation point and displays scoring in doughnut chart visualizations.

Located at the top of the landing page, hyperlink buttons allow users to navigate to and access key sections of the CMAP tool. The hyperlink button showing the deep green indicates which current page the user is on.

Landing page: Central navigation hub, and presents a summarized result of the input data

Mapping data sheet: Direct access to the questionnaires for data input

Joint activity data sheet: Access to input for past joint activities

CMAP introduction: Provides background information on the tool’s development and purpose

How to use CMAP: Offers guidance on using the tool (this summary covers the core steps of the tool)

Getting started using the mapping data sheet

1. Access the mapping data sheet by clicking the mapping data sheet at the top of the open tool on the left-hand side.
2. Locate the mapping questions in the third column of the mapping data sheet.
3. Enter responses:

- a. Navigate to the answer column, located immediately to the right of the questions.
 - i. For binary questions, select yes or no from the dropdown list in each cell.
 - ii. For quantitative questions, enter the specific numerical value requested
 - iii. Visual Cues (colours): The cells in the question column display certain colours to indicate the type of response or status.
 - iv. If there is any further information relevant to the question, it can be included in the additional comments section right next to the question.
4. Algorithm for the scoring: All questions in the mapping data sheet are linked to IHR core capacities (middle-right) and/or enabling elements for national civil-military collaboration for health emergency preparedness (far-right).

Scoring visualizations

The landing page will display three main doughnut charts summarising the mapping results, along with a bar chart showing past joint cross-sectoral activities. In the middle of the landing page, you will find hyperlink buttons that lead to sub-dashboards, which provide detailed breakdowns by public health or military categories, IHR core capacities, and enabling elements for civil-military collaboration.

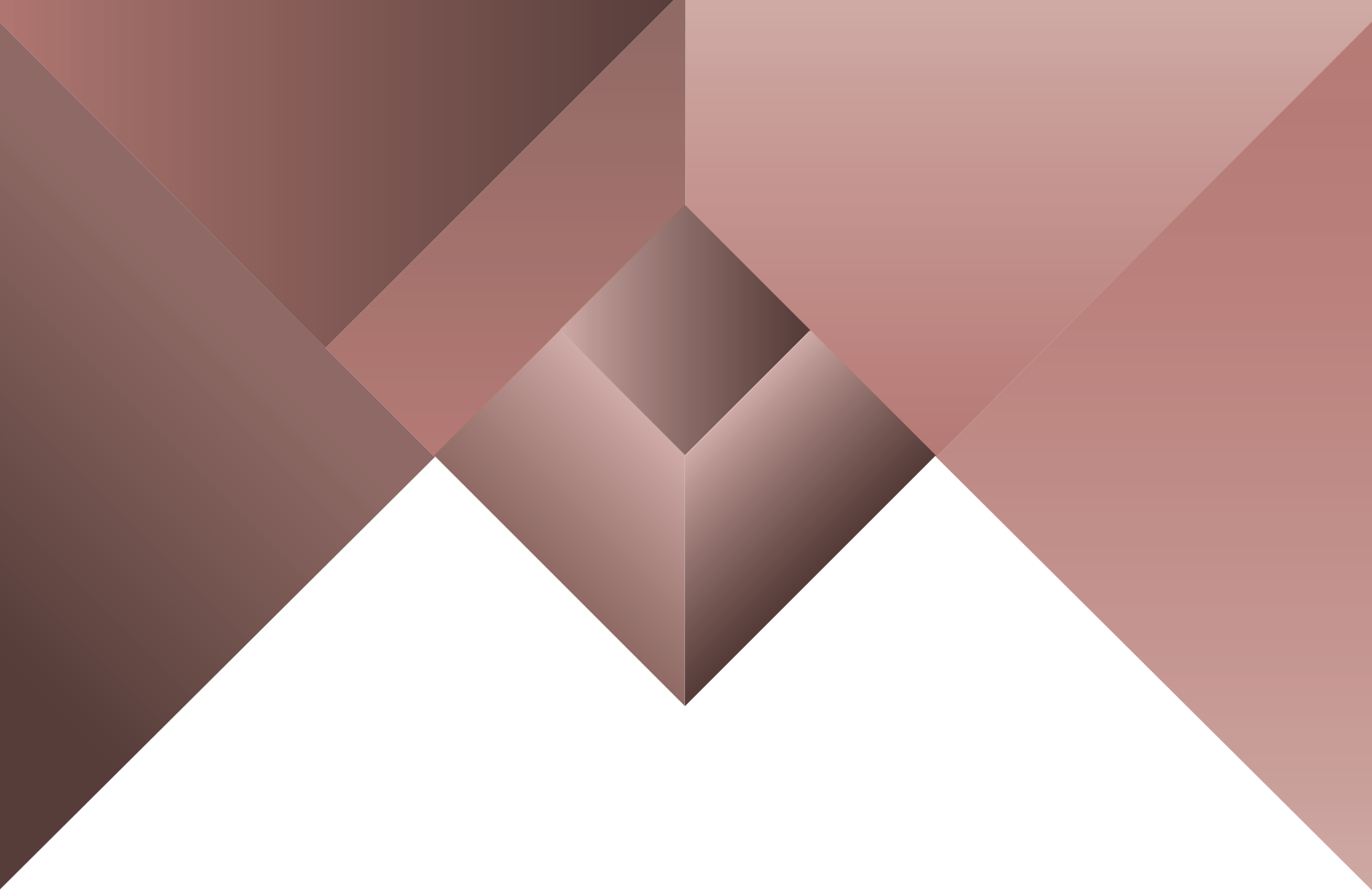
Note that if a question is left empty/unanswered (marked blue), it will be excluded from the denominator, i.e., the scoring result.

Getting started using the joint civil-military activity data sheet:

1. Access the joint activity data sheet from the hyperlink buttons at the top of the landing page.
2. Select type of joint activity from the drop-down menu for documentation of past collaboration.
3. Provide a clear, specific description of the joint activity and identify the civilian and military sectors involved in the free-text columns.
4. In the follow-up joint activity identified column, select yes if a subsequent activity has been identified or planned. Include any relevant comments in the designated comments section.
5. The data entered in this section populates the bar chart on the main dashboard, which provides a visual summary of all activities.

Interpreting the scores

Scores represent the level of contribution or collaboration based on the data provided. Higher percentages, closer to 100%, indicate stronger contributions or well-established collaborative factors, while lower percentages, closer to 0%, suggest gaps or limited capacity. It is important to note that scores of 0% or 100% are rare and should not be considered the goal. Most results will fall between, highlighting areas of partial capacity and opportunities for improvement. These intermediate scores provide valuable insights for planning and prioritising capacity-building efforts.



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