Annex 1

Institutional capacity assessment

Methodological framework

This paper describes the methodological framework to assess the institutional capacity of the central-level health system to address health issues in the artisanal and small-scale gold mining sector.

Analysis of the findings that emerge from the assessment will provide evidence that will inform development of an ASGM public health strategy. The strategy will be included in the national action plan, as required by the Minamata Convention on Mercury.

Piloted in Ghana, Mozambique and Nigeria.

# Objective

The Minamata Convention on Mercury is an international treaty that entered into force in 2017 with the goal to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds *(1)*. Each country that ratifies the Minamata Convention (thereafter referred to as a “Party” to the Convention) and formally notifies the Minamata Convention Secretariat that there is “more than insignificant” ASGM in its territory is obligated to develop a national action plan (NAP) describing the approach to reduce, and where feasible eliminate, the use and emission of mercury in ASGM. World Health Assembly Resolution WHA67.11 (2014) calls upon the World Health Organization (WHO) Secretariat to support ministries of health in meeting their obligations under the Minamata Convention on Mercury. WHO offers guidance, creates tools, and provides training materials to support WHO Member States in this regard *(2)*.

The institutional capacity assessment will be carried out with the objective to determine priority areas of significant importance that should be considered for the public health strategy component of the country’s NAP on ASGM. The main questions guiding the institutional capacity assessment are:

* To what extent are existing regulations, policies, structures and processes in place at the national and subnational levels to respond to ASGM health-related issues?
* Are the current institutional capacities at the ministry of health and other critical agencies available to deal with health issues in the context of ASGM and to what extent?
* What are the strengths and opportunities for enhancing existing capacities and what are the challenges that need to be addressed?

According to the Minamata Convention, the public health strategy for ASGM is expected to address three key issues.

* **Health data collection.** Taking an integrated public health approach, data collection is not limited to health data related to mercury but covers the public health status of the community generally.
* **Training for health care workers.** Health care workers are often unaware of the effects of mercury and are unable to recognize, diagnose and treat mercury poisoning. Health systems should have treatment protocols in place for mercury-related health effects, including exposure to mercury in ASGM.
* **Awareness-raising and education among miners.** Existing health care structures that are already integrated into and trusted by communities can provide a readily available platform for awareness-raising about mercury and its dangers.

 In addition, effective intersectoral engagement between health and other relevant ministries and agencies is perceived as essential for ensuring the effective implementation of measures to address the public health impacts of exposure to mercury in ASGM. Ensuring that health issues are appropriately addressed will support the implementation of measures anticipated in non-health areas.

# Methodological framework

The methodological framework is based on three complementary components: first, the operationalization of institutions (institutional dimensions, horizontal axis); second, the clustering of health-relevant topics (priority areas, vertical axis); and third, indicators that allow assessment of each specific institutional component per content topic (topical indicators, cells).

 Table 1. Logic of the methodological framework

|  |  |  |  |
| --- | --- | --- | --- |
| Institutional dimensions  Priority areas | **Policy and regulatory set-up** | **Structure-level set‑up** | **Procedural set-up and performance** |
| Health hazards in ASGM communities | Topical indicators | Topical indicators | Topical indicators |
| Occupational health hazards  related to ASGM | Topical indicators | Topical indicators | Topical indicators |
| Environmental hazards related to ASGM that have implications for health | Topical indicators | Topical indicators | Topical indicators |
| Chemical management related to ASGM | Topical indicators | Topical indicators | Topical indicators |

## 2.1 Institutional dimensions: defining and measuring institutional capacity

The starting point is to understand what is meant by the terms “capacity” and “institution”.

**Capacity.** There is no universally accepted definition of the term “capacity”. This paper adopts the United Nations definition of capacity as “the ability of individuals, institutions and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner” *(3)*.

**Institution.** An institution “constitutes humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws, constitutions), informal constraints (norms of behaviour, conventions, and self-imposed codes of conduct), and their enforcement characteristics, a broad term that is understood to comprise both the formal and informal ‘rules of the game’ that structure human interaction in a society as well as the enforcement characteristics of both” *(3)*.

Operationalizing institutions is to render them accessible and functional. The operationalization process typically has three main elements: the policy and regulatory level, organizational structure and resources, and the specific procedural set-up. In this case, the assessment was conducted at three complementary levels:

1. Policy and regulatory set-up

This institutional aspect includes the laws and regulations that establish an entity’s mandate and define its responsibilities, duties, obligations and powers. Some topics addressed in this dimension are regulations and policies for chemical hazards, such as mercury, cyanide, and chemicals contained in dust and gases.

2. Structure-level set-up

The structural dimension looks at organizational aspects, that is, how organizations are set up and structured to enable them to fulfil their mandate and put objectives into action. This also includes questions of resources and staffing (for example, whether there are sufficient numbers of employees with adequate capabilities, including knowledge, skills and attitudes). Some topics addressed in this dimension are the responsibilities of organizational units and staff, availability of primary health facilities and hospitals, and availability of technical and laboratory equipment to diagnose, monitor and treat ASGM-related health conditions.

3. Procedural set-up and performance

Procedural requirements determine the way in which critical functions are carried out, including strategic and business planning, managing workflow, communication, budgeting and financial control, reporting, monitoring and performance management, and the recruitment, remuneration, professional development and retention of staff. It further includes the ways in which working relationships are managed between ministries, between ministries and other public bodies, and between different levels of central and decentralized government, and their arrangements for the coordination of activities. Some of the topics addressed in this dimension are mechanisms for responding to health emergencies, preventive mechanisms to address health hazards related to ASGM, and training programmes for health staff to detect, monitor and treat health conditions related to ASGM.

## 2.2 Priority areas: linking capacity with topical issues

In a second step regarding the operationalization of institutional capacities, ASGM-related health issues are clustered into four priority areas, which are defined in accordance with the existing World Health Organization (WHO) issue clusters *(4)*:

1. **Health hazards in ASGM communities**. These include chemical hazards (mercury, cyanide, and chemicals contained in dust and gases), biological hazards (cholera, malaria, dengue fever, sexually transmitted infections and HIV/AIDS), and psychosocial hazards (drugs, alcohol, violence and nutritional deficits).
2. **Occupational health hazards related to ASGM.** These include chemical hazards (mercury, cyanide, and chemicals contained in dust and gases), and biomechanical and physical hazards (musculoskeletal disorders, overexertion, physical trauma, noise, heat and humidity).
3. **Environmental hazards related to ASGM that have implications for health.** These include land degradation, mercury emissions and pollution, siltation, erosion and water contamination.
4. **Chemical management related to ASGM.** This includes management of mercury, cyanide, and chemicals contained in dust and gases.

## 2.3 Topical indicators: characteristics of relevant institutional dimensions

The third and final element of the methodological framework consists of indicators describing relevant institutional characteristics for each priority area (Table 2). They are derived from institutional and organizational theory. The institutional characteristics underlying each indicator are guiding the questions for conducting the assessment.

First, the indicators serve as a heuristic tool to establish to what extent those characteristics are developed or present in the institutional and organizational set-up. Typically, the desired characteristics are present to different degrees – some may be fully developed, some may be rudimentary, some may be available (to a varying extent) while others may be fully absent. To reflect these varying degrees of implementation, each topical indicator is scored ordinally (on a scale of 1 to 5), as shown in Table 3 below. The criteria for scoring involve both the existence of the indicator and the extent to which the indicator is actually implemented (in the case of policies), used (in the case of processes or systems), and available (in the case of structures). A score for the level of implementation, use or availability implies that there is at least some level of existence of the indicator. If the level of existence of the indicator is higher than the level of implementation, use or availability, it should be recorded in a column for comments that will be included at the right of the table containing the indicators. The results of this analysis are visualized in one spider diagram for each priority area (see Figure 1). Those spider diagrams are intended to be read in conjunction with the text explaining the findings.

Second, the results presented under the different indicators serve as starting points for planning measures to strengthen institutional capacity. They highlight possible entry points, point to potential synergies between organizational units within and across ministries, and provide a sound basis for prioritizing action.

Table 2. Methodological framework applied, linking priority areas, institutional dimensions and topical indicators

|  |  |  |  |
| --- | --- | --- | --- |
| **Priority area** | **Institutional dimension** | **Topical indicator** | **Score** |
| **A. Health hazards  in ASGM  communities** | A.1 Regulatory and policy level | A.1.1 Regulations and policies for chemical hazards such as mercury, cyanide, chemicals contained in dust and gases |  |
| A.1.2 Regulations and policies for biological hazards such as cholera, malaria, dengue fever, sexually transmitted infections, HIV/AIDS |  |
| A.1.3 Regulations and policies for psychosocial hazards such as drugs, alcohol, violence, nutritional deficits |  |
| A.1.4 Regulations and policies for primary and referral health care provision |  |
| A.2 Structure level | A.2.1 Organization and job responsibilities of key institutions |  |
| A.2.2 Primary health facilities and hospitals |  |
| A.2.3 Technical and laboratory equipment to diagnose, monitor and treat ASGM-related health conditions |  |
| A.2.4 Knowledge resources to address ASGM issues |  |
| A.3 Process level | A.3.1 Mechanisms for responding to health emergencies (e.g. chemical spills, disease outbreaks) |  |
| A.3.2 Preventive mechanisms to address health hazards related to ASGM (e.g. chemical spills, disease outbreaks) |  |
| A.3.3 Training programmes for health staff to detect, monitor and treat health conditions related to ASGM |  |
| A.3.4 Coordination mechanisms among ministries to address health hazards |  |
| **B. Occupational health hazards related to ASGM** | B.1 Regulatory and  policy level | B.1.1 Regulations and policies for the following occupational health hazards in ASGM:   * chemical hazards (mercury, cyanide, chemicals contained in dust and gases) * biomechanical and physical hazards (musculoskeletal disorders, overexertion, physical trauma, noise, heat and humidity) |  |
| B.2 Structure level | B.2.1 Organization and job responsibilities of key institutions |  |
| B.2.2 Technical and laboratory equipment to diagnose, monitor and treat ASGM-related occupational health conditions (see also A.2.3) |
| B.2.3 Knowledge resources to address ASGM issues |  |
| B.3 Process level | B.3.1 Mechanisms for responding to health emergencies in the workplace (e.g. chemical spills and accidents) |  |
| B.3.2 Preventive mechanisms to address occupational health hazards in the workplace (e.g. chemical, biomechanical, physical) |  |
| B.3.3 Coordination mechanisms among ministries to address occupational health hazards |  |
| **C. Environmental  hazards related to ASGM that have implications for health** | C.1 Regulatory and  policy level | C.1.1 Regulations and policies for land degradation, mercury emissions and pollution, siltation, erosion, water contamination |  |
| C.2 Structure level | C.2.1 Organization and job responsibilities of key institutions |  |
| C.2.2 Technical and laboratory equipment to assess, monitor and improve ASGM-related environmental issues |  |
| C.2.3 Knowledge resources to address ASGM issues |  |
| C.3 Process level | C.3.1 Mechanisms for responding to environmental emergencies related to ASGM (e.g. mercury pollution, water contamination) |  |
| C.3.2 Preventive mechanisms to address environmental hazards related to ASGM (e.g. land degradation, mercury emissions and pollution, siltation, erosion, water contamination) |  |
| C.3.3 Training programmes for staff to detect and monitor environmental hazards related to ASGM |  |
| C.3.4 Coordination mechanisms among ministries to address environmental hazards that have implications for health |  |
| **D. Chemical  management related to ASGM** | D.1 Regulatory and  policy level | D.1.1 Regulations and policies for chemical management |  |
| D.2 Structure level | D.2.1 Organization and job responsibilities of key institutions |  |
| D.2.2 Technical and laboratory equipment to identify chemicals (mercury, cyanide, chemicals contained in dust and gases) |  |
| D.2.3 Knowledge resources to address ASGM issues |  |
| D.3 Process level | D.3.1 Mechanisms for responding to chemical emergencies |  |
| D.3.2 Preventive mechanisms to address chemical hazards |  |
| D.3.3 Coordination mechanisms among ministries to address chemical management |  |

## 2.4 Data sources: key informant interviews and document review

Based on the topical indicators, interview scripts are developed covering all priority areas and institutional dimensions. Questions in the interview scripts aim to understand to what extent:

* regulations and policies are in place and implemented
* relevant elements at the structure level are in place and available
* elements at the process level are in place and available.

In the cases in which existing regulations, structures or processes exist partially or are not in place, the questions of the interview scripts addressed how they could be enhanced, adapted or expanded to accommodate and address ASGM-related health issues. These findings are reported as well.

Semi-structured interviews are then conducted with a suggested minimum of 15 key informants representing governmental entities (for example, ministry of health, ministry of environment, ministry of mining, or agencies governing the use of chemical substances). Where possible, key informants from private or civil society organizations should also be interviewed, as well as informants from the United Nations Industrial Development Organization and WHO.

The document review consists of the analysis of information gathered from public institutions, international organizations and nongovernmental organizations. Furthermore, relevant information gathered for the assessment will include laws, regulations, decrees, organic statutes, legal resolutions, programmes, organizational charts, studies, private and public reports, national and international statistics, information from the census and academic papers. The documents can be gathered in hard copy or digital format.

# Assessment and analysis, strengths and challenges

After data collection, three steps are performed.

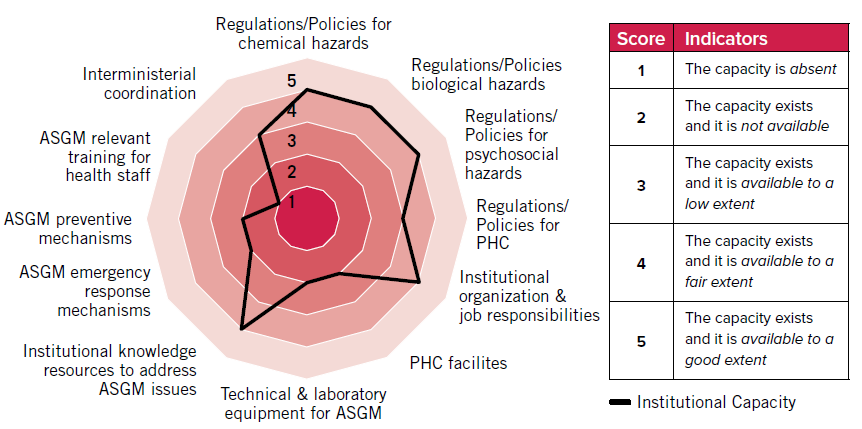
1. First, the data collected are evaluated, triangulated and summarized for each indicator.
2. Second, the written summary is expressed in a score along a five-step Likert scale, ranging from 1 (the capacity described in this particular indicator is absent) to 5 (the capacity described in this particular indicator is available to a good extent) (Table 3).

Table 3. Scores and indicators

|  |  |
| --- | --- |
| Score | Indicators |
| 1 | The capacity is *absent* |
| 2 | The capacity exists and it is *not available* |
| 3 | The capacity exists and it is *available to a low extent* |
| 4 | The capacity exists and it is *available to a fair extent* |
| 5 | The capacity exists and it is *available to a good extent* |

For every priority area, a radar chart is provided to facilitate the visualization of institutional capacities in place (Figure 1).

Figure 1. Exemplar radar chart for visualization of institutional capacities



1. Third, strengths and challenges are highlighted for the regulatory, structure and process levels of each priority area. Options and entry points facilitating the strengthening of institutional capacity identified during the interviews are also reported.

The summary of the main findings obtained during the assessment process are documented in accordance with the institutional priority areas:

1. health hazards in ASGM communities
2. occupational health hazards related to ASGM
3. environmental hazards related to ASGM that have implications for health
4. chemical management related to ASGM.

# Recommendations

Finally, recommendations are suggested for both the priority areas and for the relevant institutional dimension. Ideally, the proposals introduce practical timelines, budget criteria and strategic involvement of relevant stakeholders.

References

1. Minamata Convention on Mercury: text and annexes. Nairobi: United Nations Environmental Programme (<http://www.mercuryconvention.org/>, accessed 10 February 2021).

2. Resolution WHA67.11. Public health impacts of exposure to mercury and mercury compounds: the role of WHO and ministries of public health in the implementation of the Minamata Convention. In: Sixty-seventh World Health Assembly, Geneva, 19–24 May 2014. Geneva: World Health Organization; 2014 (<https://apps.who.int/iris/handle/10665/162849>, accessed 3 February 2021).

3. Capacity development: a UNDP primer. New York: United Nations Development Programme; 2009 (<https://www.undp.org/content/undp/en/home/librarypage/capacity-building/capacity-development-a-undp-primer.html>, accessed 12 February 2021).

4. Environmental and occupational health hazards associated with artisanal and small-scale gold mining. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/247195>, accessed 10 February 2021).