Annex 3. Template for study protocol

Assessment of public health challenges in artisanal and small-scale gold mining communities and the local health system’s readiness to respond

Note about the template

The development of national action plans (NAPs) for artisanal and small-scale gold mining (ASGM) is an obligation under Article 7 of the Minamata Convention on Mercury for each Party that determines that ASGM is more than insignificant in its territory. Such NAPs must include a public health strategy on the exposure of artisanal and small-scale miners and their communities. In order to support the countries developing public health strategies, the World Health Organization (WHO) has developed a step-by-step guide to facilitate the conduct of a rapid health assessment and an institutional capacity assessment. These two types of assessments were piloted in Ghana, Mozambique and Nigeria (2017–2019) and inform the development of an adequate national public health strategy. This study protocol template is an annex to the WHO [*Step-by-step guide for developing a public health strategy for artisanal and small-scale gold mining in the context of the Minamata Convention on Mercury*](https://www.who.int/publications/i/item/9789240022768) and is hence based on the research study protocols that were developed for the pilot studies.

The present study protocol template can be used to facilitate the detailed planning of the assessments and for seeking ethical clearance. Importantly, the template needs to be complemented with country- or context-specific information (see instructions in [square brackets]) and potentially restructured or further developed in order to be compliant with the requirements of the corresponding ethics committee.

Research study protocol

Title of the research study

Assessment of public health challenges in artisanal and small-scale gold mining communities and the local health system’s readiness to respond in [name of country]

|  |  |
| --- | --- |
| Type of research study | Research study in which health-related personal data are collected and no biological material is sampled from humans |
| Principal investigator | [List name, profession, institute or organization and contact details (email address, phone number) for all investigators and coordinators] |
| Co-investigator |  |
| Project coordinator(s)  |  |
| Study duration |  |
| Protocol version and date |  |

Signature page

|  |  |
| --- | --- |
| Study title | Assessment of public health challenges in artisanal and small-scale gold mining communities and the local health system’s readiness to respond in [country name] |

The signing parties hereby confirm to conduct all research activities as described in the study protocol (version [X], [date]) and to follow the International Ethical Guidelines for Health-Related Research Involving Humans put forward by the Council for International Organizations of Medical Sciences and the World Health Organization together with the Declaration of Helsinki and the local legally applicable requirements in [country name].

For [name of principle investigator’s institution]:

|  |  |
| --- | --- |
| [place, date] | [name of principle investigator] |

For [name of co-investigator’s institution]:

|  |  |
| --- | --- |
| [place, date] | [name of co-investigator] |

For [name of project coordinators’ institution]:

|  |  |
| --- | --- |
| [place, date] | [name of coordinator(s)] |
|  |  |

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# Abbreviations

ASGM artisanal and small-scale gold mining

CIOMS Council for International Organizations of Medical Sciences

FGD focus group discussion

HFA health facility assessment

KII key informant interview

NAP national action plan

NGO nongovernmental organization

UNEP United Nations Environment Programme

UNIDO United Nations Industrial Development Organization

WHO World Health Organization

# Study team and administrative structure

|  |  |
| --- | --- |
| Principle investigator, lead health assessment, technical expert | [name][organization or institution (including address) and contact details (email and telephone number) of each team member] |
| Co-investigator, technical expert |  |
| Local investigator |  |
| Technical adviser |  |
| Support assistant, United Nations agencies |  |
| Social mobilization officer I |  |
| Social mobilization officer II |  |
| Local logistics officer |  |
| Local academic liaison officer |  |
| Local intergovernmental coordination officer |  |
| Technical expert, health assessment |  |
| Project coordinator |  |

# 1. Introduction

## 1.1 Artisanal and small-scale gold mining and health

Artisanal and small-scale gold mining (ASGM) is, broadly speaking, the exploitation of smaller gold deposits by individuals, small groups or small cooperatives *(1)*. ASGM is often labour-intensive work using no or limited mechanization and may have low recovery rates. The sector is often characterized by low levels of capital, productivity and occupational safety, and limited access to land and trading markets. ASGM is practised in over 70 countries. An estimated 10–15 million people are involved in ASGM, including 4–5 million women and 1 million children, whereas a further 80–100 million people’s livelihoods are affected by ASGM *(2, 3)*. ASGM is an important activity in many developing countries, as it provides a primary and additional source of income, particularly in rural regions where economic alternatives to agriculture are limited. The ASGM sector is estimated to contribute about 25% of global gold production *(4)*. [Please further develop this introductory section by modifying the first paragraph and adding an additional paragraph that provides background information on ASGM in the study country (for example, number of people working in this sector, known health issues associated with ASGM, motivation for further investigation).]

Example from Nigeria [delete in final version of your study protocol]:

ASGM-related health hazards can be categorized as chemical (e.g. mercury, cyanide, arsenic, lead), biological (e.g. water- and waste-related diseases, sexually transmitted infections), biomechanical (e.g. traumas, overexertion), physical (e.g. noise, low oxygen levels) and psychosocial (e.g. drug abuse, stress, fatigue) *(5)*.

Many countries are taking active steps to reduce and where possible eliminate the use of mercury in ASGM processes. However, due to its low cost, easy use and widespread availability, mercury amalgamation remains the preferred method employed in ASGM to extract gold. Consequently, mercury is used in ASGM in more than 70 countries and represents the largest global demand sector for mercury, with approximately 1600 tonnes per year used. ASGM is also estimated to be the largest source of anthropogenic mercury emissions to the environment *(4, 6)*.

## 1.2 Rationale for the study

The Minamata Convention on Mercury, adopted in 2013, is an international environmental treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds *(7)*. The Convention was named after the Japanese city Minamata, which suffered a devastating incident of mercury poisoning. In paragraph 3(a) of Article 7 (see Appendix A to this document), the Minamata Convention on Mercury obligates each Party that has more than insignificant ASGM in its territory to develop and implement a national action plan (NAP) in accordance with Annex C to the Convention (see Appendix B to this document).

Paragraph 1(h) of Annex C states that the NAP shall include a public health strategy on the exposure of artisanal and small-scale miners and their communities. The public health strategy should include, inter alia, the gathering of health data, training for health care workers, and awareness-raising through health facilities. The World Health Organization (WHO) has developed the *Step-by-step guide for developing a public health strategy for artisanal and small-scale gold mining in the context of the Minamata Convention on Mercury* for health ministries to support the development of public health strategies on ASGM *(8)*. The WHO guidance may also aid the development of other NAP content required under Annex C, specifically paragraph 1(i), which requires that the NAP contain strategies to prevent the exposure of vulnerable populations, particularly children and women of childbearing age, especially pregnant women, to mercury used in ASGM, and paragraph 1(j), which requires that the NAP contain strategies for providing information to artisanal and small-scale miners and affected communities.

This WHO initiative has been established in response to World Health Assembly resolution WHA67.11 (2014), which recognizes the role of health ministries in supporting the implementation of the Convention and calls upon WHO to provide technical support in this regard. WHO has thus developed a research approach comprising a suite of tools to support the development of public health strategies on ASGM. WHO piloted the use of the research approach and related tools in three African countries that, at the time of the conduct of the pilot studies, (a) had extensive ASGM activities and (b) were in the process of developing a NAP, namely Ghana, Mozambique and Nigeria.

The specific objective of the health situation assessment is to generate initial evidence and information regarding priority health concerns of artisanal and small-scale gold miners and their communities and to provide an initial understanding about available health system capacity to respond to those health concerns. This information is then expected to inform the selection of priorities and interventions to be reflected in the public health strategy of the NAP. The health situation assessment is intended to be a preliminary study, and is not expected to provide an in-depth epidemiological overview of the health impacts of ASGM.

The current study protocol addresses the methodology of the health situation assessment, which includes community consultations, individual interviews and a health facility assessment (HFA). An institutional capacity assessment to determine overall health system readiness at the national and subnational – but not local – levels to detect, prevent and address health issues associated with ASGM, including mercury exposure, will be conducted in parallel with the health situation assessment. The institutional capacity assessment is not however addressed in the current study protocol.

[Please further develop this section by modifying the paragraphs and adding additional information regarding the objectives of your health situation assessment and the use of the WHO step-by-step guide.]

Example from Nigeria [delete in final version of your study protocol]:

The current study aims at piloting the WHO guidance (and in particular the study protocol) being developed to support the conduct of an assessment of public health challenges in an ASGM context. The specific objective of the health situation assessment is to generate initial evidence and information regarding priority health concerns of artisanal and small-scale gold miners and their communities and to provide an initial understanding about available health system capacity to respond to those health concerns. This information is then expected to inform the selection of priorities and interventions to be reflected in the public health strategy of the NAP.

The health situation assessment is intended to be a preliminary study, and is not expected to provide an in-depth epidemiological overview of the health impacts of ASGM. The methods and tools developed to support it are thus geared towards obtaining a preliminary and if possible representative picture of the health challenges of artisanal and small-scale gold miners and their communities and the capacity of health facilities to address and respond to their particular health needs.

Lessons learned and insights from the pilot experiences in the three countries will be used to enhance the protocol and present a set of tailored recommendations for each country that can then be used to inform the development of their public health strategies as part of the NAP. The objectives of the health situation assessment are to identify artisanal and small-scale gold miners’ health-seeking behaviour, gain insight into the perceptions of the miners and their family members of the risks associated with ASGM, and assess the relative readiness and capacity of local health systems to respond to ASGM-related health issues.

The current study protocol addresses the methodology of the health situation assessment, which includes community consultations, individual interviews and HFAs.

An institutional capacity assessment to determine overall health system readiness at the national and subnational – but not local – levels to detect, prevent and address health issues associated with ASGM, including mercury exposure, will be conducted in parallel with the health situation assessment. The institutional capacity assessment is however not addressed in the current study protocol.

## 1.3 Political linkages and political involvement

[Here, please describe your country’s involvement in the Minamata Convention and the political linkages, roles and responsibilities of all relevant national and international authorities in the context of the Convention (e.g. ministries, WHO and others).]

Example from Nigeria [delete in final version of your study protocol]:

Nigeria signed the Minamata Convention in 2013. The country has also formally notified the Minamata Convention Secretariat that there is more than insignificant ASGM in its territory. Nigeria is therefore obligated to develop a NAP, which includes a public health strategy on the exposure to mercury of artisanal and small-scale gold miners and their communities.

Under the Convention, such NAPs must be formally endorsed by the respective government and submitted to the Convention Secretariat no later than three years after entry into force of the Convention or three years after the notification to the Secretariat, whichever is later. The Minamata Convention on Mercury entered into force on 16 August 2017.

NAP activities are formally under way in Nigeria. This process is being supported by the United Nations Industrial Development Organization (UNIDO) with funding from the Global Environment Facility. At the request of UNIDO, WHO has agreed to co-execute (with the respective health ministry) the health components of the NAP activities being implemented in each country.

UNIDO and the Nigerian Government have designated the Federal Ministry of Environment to be the main national coordinating and executing agency of this project. The Federal Ministry of Environment is the administrative authority on environmental protection and the designated national authority on the Minamata Convention on Mercury.

The Ministry of Solid Minerals Development, the institution responsible for activities related to ASGM in Nigeria, will be responsible for the development of the national ASGM assessment and baseline.

WHO, working in close coordination and collaboration with the Ministry of Health, is the executing agency for the health components of the project.

UNIDO is the Global Environment Facility implementing agency for the project. The UNIDO project manager will provide technical advice and will coordinate and monitor the project activities. All workplans, responsibilities, timelines, and budget should be reviewed and approved by the UNIDO project manager to ensure fast, safe, and accurate execution of the project.

# 2. Aim and objectives

ASGM sites and communities are diverse and often characterized as relatively remote with poor access to safe drinking water, adequate sanitation and health care. While areas host to ASGM are generally covered by the peripheral health system, accessibility, acceptability and affordability of health care for artisanal and small-scale gold miners, their families and the broader communities are very context specific. To build a better understanding of health care systems in ASGM areas is a central element of the present study, and therefore no detailed description of the type of health care system in the study sites is provided here.

The health situation assessment to be conducted in [country name] has the overall aim of informing the development, by relevant government agencies (health and other), of the public health component of the NAP. In this context, the assessment seeks to describe the scope of ASGM-related public health problems, characterize artisanal and small-scale gold miners’ health-seeking behaviours, gain insight into the perceptions of miners and their family members of the health risks associated with ASGM, and assess the capacity of the local health systems to cope with the challenges imposed by ASGM.

The specific lines of inquiry (and supporting hypotheses) of the health situation assessment include the following:

[Please further develop this section by modifying the paragraphs above and adding your specific research questions and hypotheses.]

Example from Nigeria [delete in final version of your study protocol]:

To describe the health issues as reported by artisanal and small-scale gold miners and by health care providers living and working in ASGM areas:

* Hypothesis 1: There are differences between priority health concerns reported by artisanal and small-scale gold miners and the local (general) population as reported by health care providers and as reflected in local health statistics (where possible).

To describe health risk perceptions of artisanal and small-scale gold miners:

* Hypothesis 2: Artisanal and small-scale gold miners’ understanding and perceptions of the dangers of ASGM activities do not compel them to adopt safer or more environmentally friendly practices or pursue another activity.

To describe the access to health care, health-care-seeking behaviour patterns and challenges related with it:

* Hypothesis 3: Artisanal and small-scale gold miners, their families and the broader communities face challenges in accessing health care.

To describe the capacity and readiness of the health system and qualification of health care providers to address health problems specific to artisanal and small-scale gold miners, their families and the broader communities:

* Hypothesis 4: The health care system, in particular at the local level (near to ASGM communities), is insufficiently capacitated to address health problems specific to artisanal and small-scale gold miners. Regional and local differences in capacity might also exist.

The results of the above objectives will further inform the awareness and health protection activities specifically tailored to local needs. They will inform the type of advocacy needed at which level, the design and content of awareness-raising materials, the nature of potential outreach activities to be implemented, and the involvement and responsibilities of different stakeholders.

# 3. Methodology

## 3.1 Study design

The study is an observational study applying a cross-sectional design and using a mixed methods approach. To examine the interface between artisanal and small-scale gold miners and the health system, a combination of qualitative data from interviews and discussion rounds, quantitative data from the health sector (health statistics and HFAs) and direct observations will be assembled (Figure 1) *(9)*. Such a methodological triangulation, combining multiple forms of evidence and perspectives, is an important means to enhance the validity of a recommendation and is thus considered to be a robust methodology for use in the health situation assessment *(10)* (see Annex 1 to the step-by-step guide).[[1]](#footnote-1)

[Please adapt this section to your specific study design by modifying the paragraph above.]

Figure . Methodological triangulation



*Source:* Adapted from Winkler et al. *(9)*.

## 3.2 Study sites

[Please list here your selected ASGM study sites and describe the selection criteria and the most important features of the artisanal and small-scale gold miners, ASGM communities and the mining practices at each site.]

Example from Nigeria [delete in final version of your study protocol]:

The study will be implemented in Nigeria, a country that (a) has more than insignificant ASGM activities on its territory; (b) is currently in the process of developing a NAP; and (c) has nongovernmental organizations (NGOs), community-based associations and civil society organizations (CSOs) present.

The ASGM sector in Nigeria consists of informal small-scale miners who are unskilled. They employ rudimentary methods and processes to extract mineral resources. ASGM areas are typically located in rural, remote areas that are generally covered by the peripheral health system. To achieve the above-mentioned objectives, and in particular the objective related to health system readiness to address ASGM-related health issues, the nearest public, primary health centre and the associated first-level referral hospital in the selected ASGM areas (that is, the study sites) will be included. Of note, the primary care facilities could include health posts or health centres.

The final selection of sites is listed in Table 1.

[Example for table]:

Table . Potential sites to be investigated in [country name]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **State**  | **Local government area** | **Administrative post** | **Mines** | **Observations** |
| [Name]  | [Name] | [Name] | [Name(s)] | [Site 1] |
| [Name] | [Name] | [Name] | [Name(s)] | [Site 2] |
| [You may add more sites] |  |  |  |  |

These two sites were selected in line with the national ASGM baseline assessment studies being conducted in the country under the auspices of the Federal Ministry of Mines and Steel Development in collaboration with the Federal Ministry of Environment, and ratified by the National Steering Group for the execution of the National Action Plan on Mercury Use in the Nigerian ASGM Sector. Two of the key states for ASGM activities are Niger and Osun states. These specific sites were selected because they currently show ongoing mining activities.

The ASGM communities in these two sites are not well described, which is evidently one of the goals of the current study. In general, the communities are made up predominantly of subsistence farmers. They are well organized along traditional hierarchies and institutions, including a community head or leader, elders, and women and youth leaders. Many of the communities around the mining areas lack basic amenities such as pipe-borne water or educational and health infrastructure; where they do exist, they are often dilapidated. Miners are mostly young men, but children are occasionally involved in mining activities in some instances. Women are rarely involved.

The small-scale gold mining industry has a long tradition in north-western and north central states, such as Niger state. Niger is situated close to the Federal Capital Territory of Abuja in north-western Nigeria. Niger has enormous potential for mineral exploration, including gold. Gold extraction is at a subsistence level. It is an extremely strenuous and hazardous activity. Miners and artisans in the ASGM operations chain in Niger do not use personal protective equipment, which increases occupational health and safety risks. The estimated gold production rate was about 4391 ounces in 2016. ASGM operations take place mainly in outer areas several kilometres away from Minna, the state capital. Major gold mining communities include Gurmana in Shiroro local government area and Pandogari in Rafi local government area. Other sites include Zumba, Gwada, Galadima, Kogo, Tashibo, Garafini, Shikira, Kpmakpma and Kadaura Zazzaga.

Osun state in south-western Nigeria also has prospects for gold mining. Gold was first reported in September 1940 from the Owena River north of the Ife-Ondo road. Between 1941 and 1952 over 50 ounces of gold were recovered from the stream sediments *(11)*. Today mining of gold continues on a commercial scale in Osun state, and exploration is still in progress. ASGM operations take place actively in Atakunmosa West and Ilessa local government areas. ASGM operations in Atakunmosa West occur at Ibodi and Osu mining sites. In Osun state, some mine workers reside in locations far away from the mines.

## 3.3 Study population and sample size

In each ASGM area, key informant interviews (KIIs), focus group discussions (FGDs) and HFAs will be conducted. The participant groups for the different data collection methods are shown in Table 2.

[Example for table]:

Table . Target participant groups and target health facilities

|  |  |  |
| --- | --- | --- |
| **Key informant interviews** | **Focus group discussions** | **Health facility assessments** |
| Local government officialsLocal health authoritiesLocal environmental (health) authoritiesHealth care providers at peripheral health facilities in ASGM areasCommunity leaders ASGM community leaders CSOs working on ASGM-related issues | Artisanal and small-scale gold miners Family members of minersCommunity members in surrounding communities of ASGM sites (excluding leaders)Other potentially relevant community groups that will be identified at the local level (e.g. community health workers) | Nearest public, primary health care facilities serving ASGM communitiesReferral hospital for the primary health care facilities |

Participants of KIIs will be identified among the participant groups, primarily targeting the highest authority in each group, for example the district medical officer, district environmental health officer, community leader, ASGM community leader (or their superiors) or health facility manager. Other relevant key informants can be identified by the chain sampling method. The KIIs in each ASGM area will probably represent an exhaustive sampling including individuals from all participant groups (see Annex 2 to the step-by-step guide).

Participants for FGDs will be recruited by the interviewer and the local partner at the ASGM sites and in the associated communities in arrangement with the local community or ASGM community leaders and the community health worker. Only individuals that have been in the area for two seasons or more are eligible to participate in FDGs in order to guarantee that participants have had a certain exposure time to the local circumstances.

Care is taken to guarantee a random selection of participants in terms of type of work done (for example, digging ore, washing ore or working with mercury), the conditions (for example, seasonal versus annual workers, dayshift versus nightshift workers), or demographic characteristics (such as age). This will be achieved either through random walks or segment sampling. FGDs will comprise eight to ten participants, allowing for a participative discussion lasting 45–90 minutes. Both gender-specific and mixed gender FGDs will be conducted.

It is assumed that typically one or two public primary health care facilities (health post or health centre) serving the ASGM community in each site will be visited and subjected to an HFA. In addition, the first-level referral health facility for the primary health care facility or facilities will be included. The latter will be important, as this is where more complicated cases would be handled (thus constituting an important link in the referral system for ASGM).

For all participants of KIIs and FGDs, written consent will be sought. Individuals less than 18 years of age and individuals that are not fully judicious are excluded.

It is noteworthy that the FGD participants from the ASGM sites may have different sociodemographic characteristics (differences in nationality, migrant background or education) and occupational activities that could eventually confound the findings. The random selection of participants will reduce the possibility of introducing a selection bias in the study.

[Please adapt the paragraphs above to your study design. Mention the sample sizes you chose for each study site, and for each method (KII, FGD, HFA) separately.]

Example from Nigeria [delete in final version of your study protocol]:

Table 3 shows the estimated sample sizes per country, data collection method, site and participant group. In total, an estimated minimum of 16 KIIs, 12 FGDs and four HFAs will be conducted per country, assuming two ASGM sites in each country.

[Example for table]:

Table . Estimated sample sizes

|  |  |  |
| --- | --- | --- |
| **Participants** | **[Country name]:** | **Total** |
| **Site 1** | **Site 2** |
| **KII** | [Please adjust the numbers] | [Please adjust the numbers] |
|  | Government officials | 1 | 1 |  |
|  | Health authorities | 1 | 1 |  |
|  | Environmental authorities | 1 | 1 |  |
|  | Health care providers | 2–3 | 2–3 |  |
|  | Community and ASGM community leaders | 2–3 | 2–3 |  |
|  | Civil society organizations | 1–2 | 1–2 |  |
|  | **Total KIIs** | **8**–**11** | **8**–**11** |  |
| **FGD** |  |  |  |
|  | Miners | 2–3 | 2–3 |  |
|  | Family members of miners | 2–3 | 2–3 |  |
|  | ASGM community members | 2–3 | 2–3 |  |
|  | **Total FGDs** | **6**–**9** | **6–9** |  |
| **HFA** |  |  |  |
|  | Health facility assessments | **2**–**3** | **2**–**3** |  |

## 3.4 Community mobilization and sensitization activities

In the selected ASGM sites, community sensitization activities are required prior to the conduct of the study activities. Country-specific social mobilization plans will be developed in advance of carrying out the study based on the generalized social mobilization plan for all project countries (see Annex 8 to the step-by-step guide), with the support of the ministries of health. The social mobilization plan describes the process of (a) informing the community about the pilot project and involving community leaders and others; (b) explaining to the study population the necessity of undertaking the survey and how it will unfold (duration and period of investigation, participant selection process and survey tools); (c) creating a space for continuous exchange to engage with different community groups; (d) roles and responsibilities of different local stakeholders (such as community-based organizations and CSOs) as an entry point for a participatory approach to engage with the community; (e) how data will be gathered and used, safeguarding full confidentiality; and (f) strategies for disseminating the findings of the pilot project.

In order to carry out community mobilization and sensitization activities, the project team will work closely with CSOs as an entry point for a participatory approach, as follows.

In a first step, the project team will explore and identify at national, regional and subregional levels whether there are NGOs, associations or CSOs that are authentically representative of the study population in proposed study sites in [country name]. The organizations include [please list here the identified CSOs/NGOs].

[Describe here each NGO, including their focus, objectives, experience and expertise, involved in the social mobilization plan.]

Example from Nigeria [delete in final version of your study protocol]:

Geo-Mob Social Response Centre is an NGO working on water and sanitation and health promotion, especially as they concern communities with extractive industries. The joint community mobilizers’ team will be led by senior personnel of Geo-Mob. Geo-Mob has experienced health professionals serving as social mobilizers at the grass-roots level. The organization had worked extensively with local communities in conducting public health surveillance and monitoring across Nigeria. They also have a grass-roots-oriented mobilizer who speaks the local language of the ASGM population in Niger state. Geo-Mob will be working closely with the local communities and groups, the traditional rulers’ council, and other civil society coalitions in Niger state and the Federal Capital Territory of Abuja to ensure effective stakeholder involvement and social mobilization towards the survey.

In the same vein, the involvement and social mobilization of NGOs, professional associations, and religious bodies in Osun state will be strengthened by the participation of the indigenous NGO, the Initiative for Advancement of Humanity, which is a CSO dedicated to paralegal and public health intervention services. Its goal is to assist vulnerable populations through the law as an instrument of social engineering, thereby providing a 50% improvement in access to health care services, education and the human rights of women, youths and populations most at risk. The Initiative for Advancement of Humanity has programme staff experienced in managing stakeholders and implementing public health intervention programmes. The staff, who are indigenous to Osun state, will be engaged as social mobilizers.

Cerpmist Environmental Academy is a world-class innovative pan-African academy that delivers and promotes solution-oriented environmental and sustainable development education, research and advocacy in a way that empowers individuals, governments and communities. Cerpmist Environmental Academy is experienced in building networks with academic communities and coordinating logistics within the country. It will coordinate the engagement of academic communities for the study in the two project locations, including providing oversight support as an integral strategy for stakeholder engagement for the survey. It will also support the involvement of the University of Nigeria Centre for Environmental Management and Control.

**[End of example]**

In a second step, the project team will engage with identified CSOs to collect valuable information on how to conduct the study in a way in which potential harms can be reduced and how to approach the communities.

In a third step, CSOs will engage in a participatory approach with the communities to explain the study’s objectives and the risk and benefits associated with it. It will be particularly important to learn about community members’ fears of potential harm that the implementation of the study may cause. Due to their familiarity and legitimate engagement with the communities, these CSOs will be responsible for providing adequate information to the community regarding the survey activities, clarifying any fears or doubts the community may have about the subject and risks of being involved. They will also establish effective channels of communication and encourage community participation and involvement in the study.

In a fourth step, CSOs will work closely with community leaders and with the leaders of miners’ associations, as they have greater facility to enter into contact with the community and the target group of the study. Community leaders will be sensitized, explaining the whole process of the survey and the need for the active engagement of the community and the target group so that they can also participate as mobilizers in this process. Indeed, participation of a broad range of community stakeholders, including local community leaders ([name a few examples, e.g. religious/sheik, healers, pastors, Christ servants, ward bosses]), community groups ([name a few examples, e.g. youth organizations, women’s associations]), and other influential community members ([name a few examples, e.g. godmothers/godparents of initiation rites, teachers]), is very important for message acceptability and adherence to the study, and as a means to contribute to the study objectives and drive it forward (see also the social mobilization plan in Annex 8 to the step-by-step guide). The sensitization approach for the local communities will adhere to [mention here the protocols and practices the social mobilization plan will adhere to] and will include relevant stakeholders at all involved levels.

## 3.5 Data collection and tools

[For providing an overview of the methods and tools used for data collection in your study, please modify each subsection below.]

### 3.5.1 Document review

A review of available literature and reports produced on ASGM in [country name] will be carried out in the initial phase of the health situation assessment. This will also include information that has potentially already been collected by relevant government authorities as a requirement of the Minamata Convention. The literature review will not only constitute an important element of the evidence base of the assessment but will also inform the refinement of semi-structured questionnaires for conducting KIIs and FGDs at the local level, as described in the following subsections.

### 3.5.2 Key informant interviews

The interviews will follow semi-structured questionnaire templates from the WHO step-by-step guide that are specific to the different types of key informants consulted. The KII questionnaires are set out in Annex 6 to the step-by-step guide *(8)*. Adaptations to the local context will be made after document review and in collaboration with the local partner.

The total number of KIIs (in the range [8–11] per ASGM area) will be determined at the time of the study when the investigator feels that all questions asked in the survey tools have been answered with sufficient depth, representing all population groups of interest.

### 3.5.3 Focus group discussions

The interviews will follow semi-structured questionnaire templates from the WHO step-by-step guide that are specific to the different types of participant group targeted. The FGD questionnaire templates are shown in Annex 7 to the step-by-step guide. Adaptations to the local context will be made after document review and in collaboration with the local partner. The same topics as for the KII will be covered under the FGD using an open-ended questioning route. The questionnaires will be translated into and administered in local languages. Whilst the researcher will steer the FGD, the local partner and community health worker will support the translations.

Flipcharts will be used as an aid to address specific issues such as access to health care and exposure pathways to mercury and potentially other pollutants. The discussions will be left open after a question is posed, encouraging active and spontaneous participation. The questions will be translated into the local languages as needed. The total number of FGDs (in the range of [6–12] per ASGM area) will be determined at the time of the study when the investigator feels that all questions asked in the survey tools have been answered with sufficient depth, representing all population groups of interest.

### 3.5.4 Health facility assessment

At the level of health facilities (in the range of [2–3] per ASGM area), an HFA will be conducted for assessing the capacity and readiness of the health system to provide health services. This covers for example human resource capacity, protocols in place, availability and functionality of equipment and diagnostics, availability of medicines and infection control measures in place.

For this purpose, the HFA template provided in the WHO step-by-step guide will be employed. The template is an adapted and abbreviated version of the WHO Service Availability and Readiness Assessment (SARA) tool, with additional questions included on the basis of the WHO technical paper *Environmental and occupational health hazards associated with artisanal and small-scale gold mining (5)* to determine readiness to deal with common environmental and occupational health problems associated with ASGM. These include capacity to deal with poisonings, in particular mercury and cyanide poisoning, availability of basic occupational health services, and capacity to deal with trauma, including burns. Basic laboratory capacity available and referral protocols for dealing with ASGM-related health issues will also be considered. The HFA tool template is included in Annex 9 to the step-by-step guide.

During the KII with the health care provider and the HFA, statistics from the routine health information will be retrieved, with a specific focus on health conditions related to ASGM issues, such as frequency and types of accidents and injuries. Any health data will be collected in anonymous form. In addition, the coverage of respective ASGM sites by the peripheral health system will be mapped. Through the triangulation of HFA, KII and health statistics data a deeper understanding of the health burden, health-seeking behaviour and readiness of the health system can be gained.

### 3.5.5 Direct observation

Direct observation is another important means of data collection during the fieldwork activities. While a comprehensive assessment of work processes, exposure pathways and other aspects of the ASGM site is beyond the scope of this research, a rapid observational assessment will be conducted to the extent feasible. For this purpose, an observational “site walk-through” tool template provided in the WHO guidance will be used to describe ASGM working processes and conditions, access to drinking-water and sanitation, use of personal protection measures, means of transportation, public health outreach activities at ASGM sites and other important characteristics of the site. The tool is included in Annex 10 to the step-by-step guide.

### 3.5.6 Summary of data collection

Table 4 presents a summary of the study participant groups and related study tools (including the participant information), with annex numbers where available.

[Example for table]:

Table . Data collection summary table

| **Data collection activity** | **Study tool, data source** | **Annexa** | **Data type** | **Participants, groups** | **Analysis** |
| --- | --- | --- | --- | --- | --- |
| Document review |
| Scientific literature | Scientific literature | NA | Qualitative and quantitative | NA | NA |
| Grey literature | Grey literature | NA | NA | NA |
| Key informant interviews |
| Local government officials | Semi-structured questionnaire tool | Annex 6 | Qualitative | [X] per site ([X] in total) | Sorted by content meaning, similar ideas, and content interaction |
| Local health authorities | [X] per site ([X] in total) |
| Local environmental (health) authorities | [X] per site ([X] in total) |
| Local health care providers | [X] per site ([X] in total) |
| Community leaders | [X] per site ([X] in total) |
| ASGM community leaders | [X] per site ([X] in total) |
| Civil society organizations | [X] per site ([X] in total) |
| Focus group discussions |
| Miners | Open-ended questioning route | Annex 7 | Qualitative | [X] per site ([X] in total) | Sorted by content meaning, similar ideas, and content interaction |
| Family members of miners | [X] per site ([X] in total) |
| ASGM surrounding communities | [X] per site ([X] in total) |
| Health facility assessments |
| HFA | HFA questionnaire and tool | Annex 9 | Mostly quantitative | [X] per site ([X] in total) | Descriptive |
| Local health statistics | Registers of local health facilities | NA | Quantitative | NA | Descriptive |
| Direct observations |
| Direct observations | Site walk-through tool | Annex 10 | Qualitative | [X] per site | Descriptive |

a. The listed annexes are attached to the step-by-step guide *(8)*.

## 3.6 Data management

### 3.6.1 Data recording

Data from KIIs and FGDs will be directly recorded in the questionnaire in the field either (a) by paper-based hand-written recording of answers; or (b) by entering answers and keywords directly into a handheld device or laptop computer. In the case of notes by hand, answers will subsequently be entered into a computer. KIIs and FGDs will not be recorded on tape or transcribed.

[Please adapt the paragraphs above to your study. Additionally, mention here the sample sizes you chose for each study site, and for each method (KII, FGD, HFA) separately.]

### 3.6.2 Data protection and confidentiality

[Please describe here where the data will be stored, who has access and how the data are protected – through passwords, an encrypted server or similar.] No individual data will be given out to third parties. Names will only be obtained for the informed written consent and will not be associated with any of the data collected, including photographs. Names and signatures will not be shared or used. No names will be mentioned or appear in any documentation and dissemination of the research findings or photographs.

### 3.6.3 Data ownership and sharing

[Please provide here an overview of data ownership and possible agreements with national or international organizations regarding the ownership and sharing of the data.]

Example from Nigeria [delete in final version of your study protocol]:

Data are the basis for all sound public health actions and the benefits of data sharing are widely recognized, including scientific and public health benefits. Whenever possible, WHO wishes to promote the sharing of health data, including surveillance and epidemiological data. In this connection, and without prejudice to information sharing pursuant to the International Health Regulations and other legally binding instruments (such as the WHO Nomenclature Regulations 1967), by providing data to WHO, the Ministry of Health of Nigeria will sign an agreement that it:

* confirms that all data to be supplied to WHO hereunder have been collected in accordance with applicable national laws, including data protection laws aimed at protecting the confidentiality of identifiable persons;
* agrees that WHO shall be entitled, subject always to measures to ensure the ethical and secure use of the data, and subject always to an appropriate acknowledgement of the country:
* to publish the data, stripped of any personal identifiers, and make the data available to any interested party on request (to the extent that they have not, or not yet, been published by WHO) on terms that allow non-commercial, not-for-profit use of the data for public health purposes (provided always that publication of the data shall remain under the control of WHO);
* to use, compile, aggregate, evaluate and analyse the data and publish and disseminate the results thereof in conjunction with WHO’s work and in accordance with the Organization’s policies and practices *(12)*.

As per the contractual agreement between WHO and UNIDO: “All intellectual property rights related to the activities will belong to the recipient agency. The contributing agency and, if applicable, the relevant programme Government will enjoy a perpetual, royalty-free, non-exclusive and non-transferable licence.” Hence, UNIDO is not the executing agency for the research and does not own the data.

The Swiss Tropical and Public Health Institute hands over all data to WHO at the end of the study.

## 3.7 Data analysis

### 3.7.1 Data sets to be analysed

The following data sets will be analysed:

* semi-structured KII questionnaire
* semi-structured FGD questionnaire
* HFA tool
* health statistics
* observational data.

### 3.7.2 Data analysis and reporting

The analysis of the qualitative and quantitative data collected will consist of a systematic description of (a) the local health system (including physical health infrastructure, health system coverage, public health programmes); (b) social determinants of health (including general characteristics of ASGM communities, ASGM practices, health-seeking behaviour, gender issues, vulnerable groups, security concerns); and (c) environmental and occupational determinants of health, with an emphasis on relevant hazards (including chemical, biological and mechanical hazards).

The semi-structured questionnaires gather predominantly qualitative data, which will be sorted by content meaning, similar ideas and content interaction. Quantitative statistical analyses will be performed using [name of the statistical software you will use], which will perform a basic descriptive analysis of health statistic data from the local health facilities. Data from the HFAs will be summarized and tabulated. Hence, qualitative findings on health conditions and health-seeking behaviour of ASGM communities will be interpreted in combination with data from the routine health information system, literature review and direct observations.

The combined analysis of the data collected on health determinants and health conditions affecting artisanal and small-scale gold miners will then guide the formulation of recommendations on (a) addressing gaps in health system readiness related to ASGM issues; and (b) providing information on behaviour change in ASGM practices in order to make ASGM safer and healthier. These will cover the full range of potential health issues affecting ASGM communities, with mercury as an important health hazard.

[Please adjust the paragraphs above to fit your study objectives and design.]

# 4. Ethical considerations

## 4.1 Ethical conduct of study

[Describe here the process of seeking ethical approval, including the committees or institutions you need to apply to for ethical clearance. Please refer to the WHO ethical approval guidance document *(13)* for further information.]

Example from Nigeria [delete in final version of your study protocol]:

The study will be carried out in accordance with the present study protocol and with the principles enunciated in the Council for International Organizations of Medical Sciences (CIOMS) International Ethical Guidelines for Health-Related Research Involving Humans together with the Declaration of Helsinki, as well as all national legal and regulatory requirements *(14)*.

In a first instance, ethical approval was sought from the WHO Research Ethics Review Committee for the master study protocol. The study procedures and ethical considerations presented in the master protocol will be followed in all three study countries. Any fieldwork activities of the project will only be started once the study protocol, the participant information and consent forms, and other project-specific documents have been approved by the WHO Research Ethics Review Committee and the national ethics committees in each study country.

In a second instance, site-specific protocols need to be developed and ethical approval sought across the ministries of health or local institutional review boards in Nigeria.

The detailed field procedures are developed in close collaboration with the local partner institutions.

For this purpose, the following ethical clearance process will be followed:

* The site-specific protocol for Nigeria will be submitted to the National Ethics Committee together with the local partner institution, the University of Nigeria Centre for Environmental Management and Control.
* All additions and specifications made in the site-specific protocols will be resubmitted to the WHO Research Ethics Review Committee in the form of amendments to the master protocol for review approval.

## 4.2 Risk–benefit assessment and protection of participants

There are no direct physical risks associated with the present research study, as it involves questionnaire interviews only and no human biomonitoring or clinical trial activities. The potential risks for the participants of the study have been identified as follows.

1. The study team will observe and report on a person pursuing a mining-related illegal or high-risk activity. Disclosure of the person’s identity could result in the individual concerned losing their livelihood and even facing criminal prosecution. In addition, children are frequently involved in ASGM activities, which are hazardous and have characteristics that fit the definition of the worst forms of child labour as defined by the ILO Worst Forms of Child Labour Convention, 1999 (No. 182) *(15, 16)*. Furthermore, there may be a conflict of interest for the persons involved in data collection, having access to potentially sensitive data of ASGM workers and community members. This may further increase or expose the target population’s vulnerability. Hence, particular sensitivity of the study teams to this issue will be required, given its family orientation and associated levels of poverty.
2. By conducting the proposed study, the local and national authorities will become more aware of illegal and high-risk activities in ASGM sites. As a result, they may start to close the ASGM site where the study took place, which would be detrimental in terms of lost income or employment opportunities for the population concerned.
3. Participants in the FGD or KII may be stigmatized by the community or family members for having interacted with the study team and having disclosed confidential information.

[Please adjust and develop the above paragraphs further by outlining the risks you have identified for the participants of your study.]

To address the above-listed risks, ethical clearance will be obtained from [name of organization, committee or institution]. According to the community engagement and sensitization approach as described in section [3.4], the target populations will only be approached if the study is fully endorsed by all relevant authorities, stakeholders and service providers at provincial, regional, district and local levels. In a case where the research study and its activities are not accepted and endorsed at all levels, no study activities will be conducted.

Leaders and individuals have the right to decline participation and refuse access to ASGM sites. Since participation is entirely voluntary, refusal of or stopping participation will have no consequences. Consequently, through approvals gained at higher hierarchical levels, miners and their family members are not put at risk of losing their livelihoods or any other negative consequences or disadvantages through participation in this research study.

More specifically, the following precautionary measures were elaborated in view of their correspondence to the above-listed risks.

1. All the data collected by means of direct observations, KIIs and FGDs are fully confidential. Names will only be obtained for the informed consent and will not be associated with any of the data collected or shared without the participants’ consent. For this reason, professional interviewers, community-based associations and CSOs will be trained in the importance of privacy and confidentiality protection and will not pertain to any of the surveyed communities, ensuring their independence and avoiding potential conflict of interest. Furthermore, no names that allow identification of an individual pursuing any high-risk or illegal activity will be mentioned or appear in any documentation – including photo documentation – of the research findings (see also point 4 below). In addition, no georeferenced data will be collected that would allow tracing back specific locations where ASGM activities take place. Finally, all data will be kept strictly private and stored on a secure server at [name of institution], which is only accessible to the investigators.
2. The ASGM sites where the study will be implemented are well known sites. Usually, local and national authorities are fully aware of the illegal and high-risk activities that are widely practised in these sites. This reduces this risk considerably, because the study will not provide proof of something that could be used as legal documentation or that has not been known before, but will provide a systematic description thereof. Moreover, if authorities wanted to prohibit informal gold mining, they could do so at any time without the need for the study, as the environmental and human health externalities are well known.
3. The study team will be sensitized prior to the conduct of the study about potential signs of resistance or conflict in study participants or communities visited. These include aggressive behaviour, requests to leave the site or reluctance of individuals to participate in KIIs or FGDs. In such circumstances the study team is advised to not start, or to interrupt the data collection and proceed to another site. If sites are visited where artisanal gold mining activities are carried out, or that may include potentially illegal or high-risk activities, the study team, accompanied by one of their mobilizers, will first ask permission from the people present to visit the site. If permission is warranted, this will still give individuals the time to prepare or for those who prefer not to be present to avoid the day or hours of the site visit.
4. No photos will be taken unless the individuals present explicitly consent. Prior to visiting each site, permission to take pictures on the site will be sought from the local miners’ association. Each individual photographed will be required to sign an informed consent form (see Annex 13 to the step-by-step guide) prior to photo taking, giving consent for the picture to be taken and granting the investigators the option to use the photo for dissemination purposes. For individuals aged less than 18 years, the parent or legal guardian has the right to sign the informed consent form. No names will be disseminated together with the photograph.

Furthermore, to ensure that local workers are sufficiently informed about the nature of the investigation and the potential risks of participation, a participatory community engagement approach will be pursued throughout the research study (see section [3.4] on community mobilization and sensitization activities and Annex 8 to the step-by-step guide on the social mobilization plan).

[Please modify and develop the paragraphs above further by describing the precautionary measures that will be taken to respond to the risks identified in your study.]

In a case where a study participant presents with obvious health problems, they will be referred to the local health system. At the primary health care level, primary care providers such as nurses, community health workers and general family physicians may be the first point of contact for workers exposed to health hazards associated with artisanal and small-scale mining. These services will be strengthened as part of the larger NAP context, providing the necessary policy framing and services to adequately address the health situation and needs of the mining community.

In relation to potential benefits and participants’ potential expectations in terms of improved services becoming available in response to their specific health needs or any other constraints they face, it will be very important to specifically communicate the benefits of participating in the study, as well as what the study is not meant to do. Specifically, this means that the information will be passed that no direct benefits can be expected from the study, such as medical care or protective equipment.

There are however multiple expected benefits and impacts of this work.

1. Communities are more aware and have improved knowledge of the health risks associated with ASGM and receive support from their governments in introducing safer practices and reducing high-risks activities (eliminating whole ore amalgamation, open burning of amalgam or processed amalgam, burning of amalgam in residential areas, and mercury leaching in sediment).
2. The project will contribute to raising the capacity and awareness not only of the miners, but also of the health care workers and health care facilities as part of wider health promotion and community mobilization. This will enable the health services to have a better understanding of the health concerns related to ASGM exposure and to be able to detect health outcomes and point to risks.
3. In the medium term, as part of the public health strategy to be developed (NAP process), these facilities could be equipped with better services and treatments. While mercury exposure, and potential prevention thereof, will be a central feature of the health situation assessment, the full range of potential health issues affecting ASGM communities will be taken into account.
4. In the long term, the potential impacts and benefits of this work could be much wider. As part of the NAP process, the study could contribute to the political process of promoting alternatives to mercury in ASGM, creating linkages to other partners and stakeholders (such as different ministries) to encourage new mining sector laws and regulations (including formalization of ASGM) and to promote strategies for community outreach and stakeholder involvement. As a result of this process, national objectives in mercury reduction targets and a roadmap for reductions will be identified through the development of the NAP (in accordance with Annex C to the Minamata Convention).

Hence, the benefits to be expected by communities in the long term relate to a larger political process stimulated by the study findings that can help address the root causes and socioeconomic factors putting these communities at risk.

Through the assessment of public health challenges of ASGM communities and the local health system’s readiness to respond, the intent of the ensuing formulation of public health strategies as part of each NAP is to directly target identified gaps faced by ASGM communities in terms of inadequate knowledge or high-risk practices, inadequate access to quality health services, or weak and insufficient capacity of the health system to respond to and address identified health challenges of the ASGM communities. Hence, the benefits expected by miners and ASGM communities will draw from the health sector’s improved capacity to address issues of data collection and to capture information about mercury exposure or illnesses and injuries related to ASGM, to provide access to training for health workers to address the additional health concerns of ASGM populations, and to improve communication of risks and protection of vulnerable populations.

[Please modify and develop the paragraphs above by specifying the expected short-, medium- and long-term benefits of your study.]

The study team will make sure that they take the opportunity to explain to the ASGM communities the benefits of the survey activities and to repeat the messages under the dissemination strategy (see also section [3.4] on community mobilization and sensitization activities). After the completion of the survey, CSOs will present the key findings to the ASGM communities and will further explain how the data will be used thereafter to develop public health strategies (see also section [5.3] on community feedback).

Moreover, there may be potential benefits for the mining associations and mine owners, particularly through the establishment of a NAP. The NAP will lay out key factors to reduce the use of mercury. Strengthening the role, responsibility and incentives for the mining associations and mine owners and reducing their health, environmental and social impacts may further contribute to improved benefits for the ASGM communities.

[Please develop the last two paragraphs further by modifying and adjusting them to your social mobilization strategy.]

## 4.3 Participant information and informed consent

Participants will be informed in detail about the planned research, as well as risks and benefits of participation, and informed consent of all study participants will be obtained in writing (see Annexes 4 and 5 to the step-by-step guide). The information will describe the basic principles that guarantee the rights of participants in human research: voluntary participation, confidentiality and identity protection, benefits and risks, the amounts, methods, and timing of compensation, and the mechanism for communication of the results. The consent shall be administered by the fieldwork team before the application of the questionnaires. Participants will have the opportunity to raise questions, which will be answered by the field team. Participants have the right to withdraw from the study at any moment without any consequences, in which case the information already obtained is deleted.

[Please modify the paragraph above about how participants will be informed of the study procedure, including the associated risks and benefits, and how participants’ consent will be obtained.]

## 4.4 Amendments and changes

In a case where significant changes to the project plan are needed, the full study protocol will be resubmitted to the [name ethics committee] and [local and national institutions or ministries, depending on your requirements for ethical approval].

# 5. Reporting and dissemination

## 5.1 Reporting of results

The study results will be reported and communicated in multiple formats tailored to different decision-makers and stakeholders, as follows.

1. Members of the CSOs will report back to the project team during the mobilization phase of the sensitization activities. These feedback sessions will be held during the survey period on a regular basis according to weekly plans to ensure that the activities are carried out as intended. The same network of mobilizers will then be activated for disseminating the main findings of the study and will provide an outlook of resulting responses.
2. The study team will prepare a national report presenting the findings and a set of tailored recommendations for [country name], which in turn will be used to inform the development of public health strategies on ASGM as required under the Minamata Convention.

For the national report, findings of the rapid health situation assessments will be combined with the institutional capacity assessment, which forms a second axis in the overall project.

[Please modify, remove or add any step to give an overview of how your findings will be reported. If applicable, include the ministries or organizations from which approval needs to be sought in order to publish the national report.]

## 5.2 National stakeholder workshop

Findings and recommendations captured in the reports mentioned above will be presented in a one-day national stakeholder workshop that will be organized by [name the ministry or organization that will be responsible for the organization of the stakeholder workshop]. Stakeholders include representatives of [name all ministries, organizations, CSOs and ASGM associations that will send representatives].

In each country, a one-day meeting will be held after finalization of country reports and recommendations. Participants will be invited to the national dissemination meetings, which will involve decision-makers at national, regional and local levels in the domains of health, environment and mining (see Annexes 11 and 12 to the step-by-step guide).

Example from Nigeria [delete in final version of your study protocol]:

Findings and recommendations captured in the reports mentioned above will be presented in a one-day national stakeholder workshop that will be organized by the Federal Ministry of Health, Federal Ministry of Mines and Steel Development, Federal Ministry of Environment, National Steering Group for ASGM, representatives of state ministries of health and environment in the locations or sites of study, country staff of WHO, the United Nations Environment Programme (UNEP) and UNIDO, ASGM association leaders, Environmental Health Officers Association of Nigeria, CSOs engaged in ASGM areas and other relevant parties as identified during the study implementation.

## 5.3 Community feedback

The investigators will ensure that the results are returned to the study locations and shared in community meetings or at local community events where the survey activities took place through the network of community mobilizers in [name of states or regions where the study took place] (see also section [3.4] on community mobilization and sensitization activities). It is expected that this is an integral component of the public health strategy that will be developed (see Article 7 and Annex C of the Minamata Convention, as included in Appendices A and B to the present document). For this purpose, appropriate educational and communication materials will be developed and made available with the support of the ministry of health, and sufficient time will be allocated to facilitate open discussions around the results at dissemination events.

The joint community mobilizers’ team consisting of representatives or staff of [name of all CSOs involved] will work closely with community leaders and the community around the ASGM sites to facilitate inclusive feedback.

Additionally, the study team will strongly encourage [leading national authority on ASGM] to conduct open and continuous consultations with CSOs, artisanal and small-scale gold miners and mine owners to formulate feasible action plans, prioritize and develop intervention strategies based on the study findings, and monitor improvements.

As the ASGM sector is closely linked to complex economic development and poverty issues, the ASGM NAPs are envisaged as flexible, country-specific solutions. The entire NAP process relies on a stakeholder engagement and participation plan to make sure the envisaged solutions match the miners’ needs *(17)*. This inclusive process will provide CSOs and communities with the opportunity to find locally adaptive solutions to improving miners’ working conditions and mitigate risks, as highlighted in section [4.2] on risk–benefit assessment and protection of participants.

[Please modify and adapt the text under 5.3 in order to explain your strategy for achieving community feedback.]

## 5.4 Decision-making process and policy implications

The study findings will feed into the overall NAP development process, but especially into the development of a public health strategy on ASGM, in accordance with the Minamata Convention. The findings will guide health ministries in developing the needed public health strategies. The decision-making process and the political process should aim to ensure that steps are taken by governments to formalize ASGM activities and to ensure that the health and well-being of those persons dependent on it for their livelihoods are safeguarded.

The following two steps should be considered to facilitate a participatory decision-making process in the overall NAP development process.

1. Community participation should be ensured in the development of the NAP and in the creation of policy frameworks through iterative consultative processes with CSOs, artisanal and small-scale gold miners and other relevant stakeholders ([name relevant ministries]) in order to reduce exposure and the incidence of illness and injury related to ASGM and, importantly, to advocate cleaner production techniques.
2. In the development of the NAP and the creation of policy frameworks based on the research findings, community and civil society participation and multistakeholder engagement will be crucial in supporting and formalizing, to the extent possible, the ASGM sector to help the industry develop in an environmentally friendly and sustainable manner.

The NAP provides the opportunity to outline a clear and transparent basis for the support, development, and implementation of activities to reduce and (where feasible) eliminate mercury use, emissions and releases from ASGM at the national level. In the absence of a pre-existing institution to perform this role, an intersectoral working group will guide the NAP development through all its phases and ensure that there is proper project planning and management throughout the process. The working group will include members from different governmental ministries or departments (environment, mining, finance, trade and public health), including local government representatives, and will interact with other relevant agencies as appropriate. This intersectoral approach allows for shared accountability in promoting alternatives to mercury and formalizing the ASGM sector. Those engaged will include relevant members of civil society with experience and knowledge in the ASGM sector, including representatives of artisanal and small-scale mining groups and community organizations. This ensures that all aspects of ASGM are considered during the development of the NAP, and that the NAP accords with the activities or programmes of other ministries or departments. The relative roles and responsibilities of the members of the working group are clearly defined from the outset.

[Please modify this section to give a short overview of how the findings will guide the development of public health strategies on ASGM in your country and which steps will be taken to allow for a participatory NAP development approach.]

# 6. Study schedule

[Please present a detailed (month, year) study schedule with the key project milestones of both the institutional capacity and the rapid health assessments.]

The timeline and proposed sequencing of the activities are shown in Table 5. The timelines might be subject to minor changes.

[Suggestion]:

Table 5. Study schedule

[to be inserted]

# 7. Funding and support

[Please mention here in one paragraph the different sponsors of your study and the total budget available.]

# References

1. Hentschel T, Hruschka F, Priester M. Artisanal and small-scale mining: challenges and opportunities. London: World Business Council for Sustainable Development; 2003.

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4. Persaud A, Telmer K. Developing baseline estimates of mercury use in artisanal and small-scale gold mining communities: a practical guide (version 1.0). Victoria, British Columbia: Artisanal Gold Council; 2015.

5. 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).

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

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# Appendix A. Article 7 of the Minamata Convention: artisanal and small-scale gold mining

1. The measures in this Article and in Annex C shall apply to artisanal and small-scale gold mining and processing in which mercury amalgamation is used to extract gold from ore.
2. Each Party that has artisanal and small-scale gold mining and processing subject to this Article within its territory shall take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, such mining and processing.
3. Each Party shall notify the Secretariat if at any time the Party determines that artisanal and small-scale gold mining and processing in its territory is more than insignificant. If it so determines the Party shall:
	1. Develop and implement a national action plan in accordance with Annex C;
	2. Submit its national action plan to the Secretariat no later than three years after entry into force of the Convention for it or three years after the notification to the Secretariat, whichever is later; and
	3. Thereafter, provide a review every three years of the progress made in meeting its obligations under this Article and include such reviews in its reports submitted pursuant to Article 21.
4. Parties may cooperate with each other and with relevant intergovernmental organizations and other entities, as appropriate, to achieve the objectives of this Article. Such cooperation may include:
	1. Development of strategies to prevent the diversion of mercury or mercury compounds for use in artisanal and small-scale gold mining and processing;
	2. Education, outreach and capacity-building initiatives;
	3. Promotion of research into sustainable non-mercury alternative practices;
	4. Provision of technical and financial assistance;
	5. Partnerships to assist in the implementation of their commitments under this Article; and
	6. Use of existing information exchange mechanisms to promote knowledge, best environmental practices and alternative technologies that are environmentally, technically, socially and economically viable.

# Appendix B. Annex C of the Minamata Convention: national action plans

1. Each Party that is subject to the provisions of paragraph 3 of Article 7 shall include in its national action plan:
	1. National objectives and reduction targets;
	2. Actions to eliminate:
	3. Whole ore amalgamation;
	4. Open burning of amalgam or processed amalgam;
	5. Burning of amalgam in residential areas; and
	6. Cyanide leaching in sediment, ore or tailings to which mercury has been added without first removing the mercury;
	7. Steps to facilitate the formalization or regulation of the artisanal and small-scale gold mining sector;
	8. Baseline estimates of the quantities of mercury used and the practices employed in artisanal and small‑scale gold mining and processing within its territory;
	9. Strategies for promoting the reduction of emissions and releases of, and exposure to, mercury in artisanal and small-scale gold mining and processing, including mercury-free methods;
	10. Strategies for managing trade and preventing the diversion of mercury and mercury compounds from both foreign and domestic sources to use in artisanal and small-scale gold mining and processing;
	11. Strategies for involving stakeholders in the implementation and continuing development of the national action plan;
	12. A public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury. Such a strategy should include, inter alia, the gathering of health data, training for health-care workers and awareness-raising through health facilities;
	13. Strategies to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to mercury used in artisanal and small-scale gold mining;
	14. Strategies for providing information to artisanal and small-scale gold miners and affected communities; and
	15. A schedule for the implementation of the national action plan.
2. Each Party may include in its national action plan additional strategies to achieve its objectives, including the use or introduction of standards for mercury-free artisanal and small-scale gold mining and market-based mechanisms or marketing tools.

# Appendix C. Guide to annexes

This appendix lists the annexes to the *Step-by-step guide for developing a public health strategy for artisanal and small-scale gold mining in the context of the Minamata Convention on Mercury*. Those annexes provide templates for the various documents that will support the present research study to assess the public health challenges in artisanal and small-scale gold mining communities and the local health system’s readiness to respond in your country.

Please note that only the final versions of those annexes will be attached to your completed research study. The selection and numbering of the annexes will be tailored and amended according to the study requirements.

Annex 1. Institutional capacity assessment: methodological framework

Annex 2. Institutional capacity assessment: key informant interview questionnaires

Annex 3. Rapid health assessment: study protocol

Annex 4. Rapid health assessment: key informant informed consent

Annex 5. Rapid health assessment: focus group discussion participant informed consent

Annex 6. Rapid health assessment: key informant interview questionnaires

Annex 7. Rapid health assessment: focus group discussion questionnaires

Annex 8. Rapid health assessment: social mobilization plan

Annex 9. Health facility assessment: questionnaire and tool

Annex 10. Rapid health assessment: ASGM site walk-through tool

Annex 11. Sample agenda for the two-day national multistakeholder workshop

Annex 12. Sample template for public health strategy priorities

Annex 13. Informed consent form: photographs

1. The annexes to the step-by-step guide *(8)* are listed in Appendix C to the present document. [↑](#footnote-ref-1)