International Mercury Treaty Enabling Activities Program (IMEAP)

Following the signing of the Minamata Convention on Mercury (the 'Mercury Treaty') in 2013 and the release of the IPEN Minamata Declaration on Toxic Metals, IPEN expanded its Mercury-Free Campaign and developed a broad program of treaty-enabling activities to be implemented in conjunction with IPEN Participating Organizations (POs). The International Mercury Treaty Enabling Activities Program (IMEAP) is geared toward raising awareness about the mercury treaty while generating data on key thematic elements of mercury pollution to help enable countries to implement the Minamata Convention.

IPEN launched IMEAP in early 2014 and continues to mobilise resources for IPEN POs to conduct activities that support implementation of the mercury treaty[1].

The key objectives of the IPEN IMEAP are:

1. *Preparing for Treaty Ratification & Implementation:* Creating synergies between NGOs in developing countries with ongoing UN agency or government-led mercury activities and NGO priority-setting.

2. *Enabling Activities to Prepare Countries for Treaty Ratification & Implementation:* Support to NGOs to carry out national and thematic mercury treaty activities.

3. *Communication of Issues Related to Mercury and Treaty Ratification & Implementation:* Global dissemination of project results & south-south collaboration.

The following project forms part of the overall IMEAP activities and contributes to the greater global understanding of mercury pollution issues while providing information that may contribute to Minamata Initial Assessments (MIA) and raise public awareness in preparation for early ratification of the Minamata Convention on Mercury.

[1] IPEN would like to acknowledge the financial contributions from the governments of Germany, Sweden and Switzerland, and the Swedish public development co-operation aid through the Swedish Society for Nature Conservation (SSNC) and other donors. The views herein shall not necessarily be taken to reflect the official opinion of any of these donors, including SSNC or its donors.

IPEN Mercury Treaty Enabling project: Republic of Cameroon

Name of the NGO: Centre Optionnel pour la Promotion et la Régénération Economique et Sociale Secteur Afrique (COPRESSA)
Date: April 28, 2015 (IMEAP: 2014 Phase)
Title of project: Investigating Management of Mercury and its Wastes in Artisanal Gold Mining in the Benue National Park in the Republic of Cameroon

Summary

The mercury hotspot and mercury waste study in the artisanal gold mining location in the Benue National Park in Cameroon, conducted by the NGO COPRESSA, has identified that primary mercury mining in the form of cinnabar and mercuric chloride takes place at the mining camps in the study area. However, elemental mercury is not often used for amalgamation at the mining camps, but trading in elemental mercury is conducted by gold traders in the larger towns nearby. Exposure to mercury during primary mercury and gold mining may be endangering miners who already suffer diseases and fatalities from poor working conditions. A survey by COPRESSA also provided important details of the demographic breakdown of miners and trends driving artisanal small-scale gold mining (ASGM) in the study area, including gender dynamics.

This project was useful in raising awareness of the Minamata Convention at the remote local level in Sakjé and Mboukma, and it assisted in educating miners on safety issues and the importance of the formalization of the sector. Many authorities and artisanal gold mining workers' leaders participated in this project. Awareness-raising campaigns on mercury pollution and training on the use of personal protective equipment was carried out directly with miners. Educational materials were also produced and distributed to the artisanal gold mining workers. The workers were educated and oriented about the mercury toxicity and the importance of avoiding its use and minimizing exposure when mining. A major outcome of the project was the formation of an association of artisanal gold mining workers from the two study areas. Members of the new association accepted and signed the protocol of non-utilization of mercury amalgamation in the artisanal gold mining for the 2 sites.

Describe the scale of ASGM in your project area (large scale and widespread or isolated to certain areas):

The Republic of Cameroon is composed of 361 subdivisions of which Tcholliré is a part. This subdivision harbors one of 13 national parks of Cameroon. The project was implemented in the Benue National Park situated in the North Region of the Republic of Cameroon. The Benue National Park, created in 1968 and recognized as a Biosphere Reserve in 1980, has an area of 180 000 hectares. It is a part of the Mayo Rey Division. The geographic coordinates of the Benue National Park are 7°55 and 8°40 North latitude and 13°33 and 14°02 East longitudes. Inside this park live about forty species of mammals including lions, elephants, hippos, buffalo, and various species of antelope, hyenas and over 300 species of birds.

The Benue National Park is surrounded by 8 localities with which it forms a vast zone of 800,000 hectares. Between the 8 localities, 2 are the artisanal gold mining sites. These

localities are Mboukma in the NE and Sakjé in the SW of the Benue National Park. The area of Mboukma is 50,072 ha and that of Sakjé 39,552 ha. Their populations are 7,299 and 2,000 inhabitants respectively.

The ASGM sites of Mboukma and Sakdjé are about 72 kilometers apart. The Mboukma site has 13 active camps where gold mining activities are actually practiced and the Sakdjé site has 8 camps. A survey conducted by us in January 2015 showed that in 2014 at least 7 people had died in the Sakdjé mining site from a mining pit collapse. The week our survey was done, a woman died in the same site of the gallery collapse. The population of these 2 villages is more than 2000 and they essentially live off gold mining. That is why we can say that the scale of artisanal gold mining is large and widespread in these 2 sites.[2]

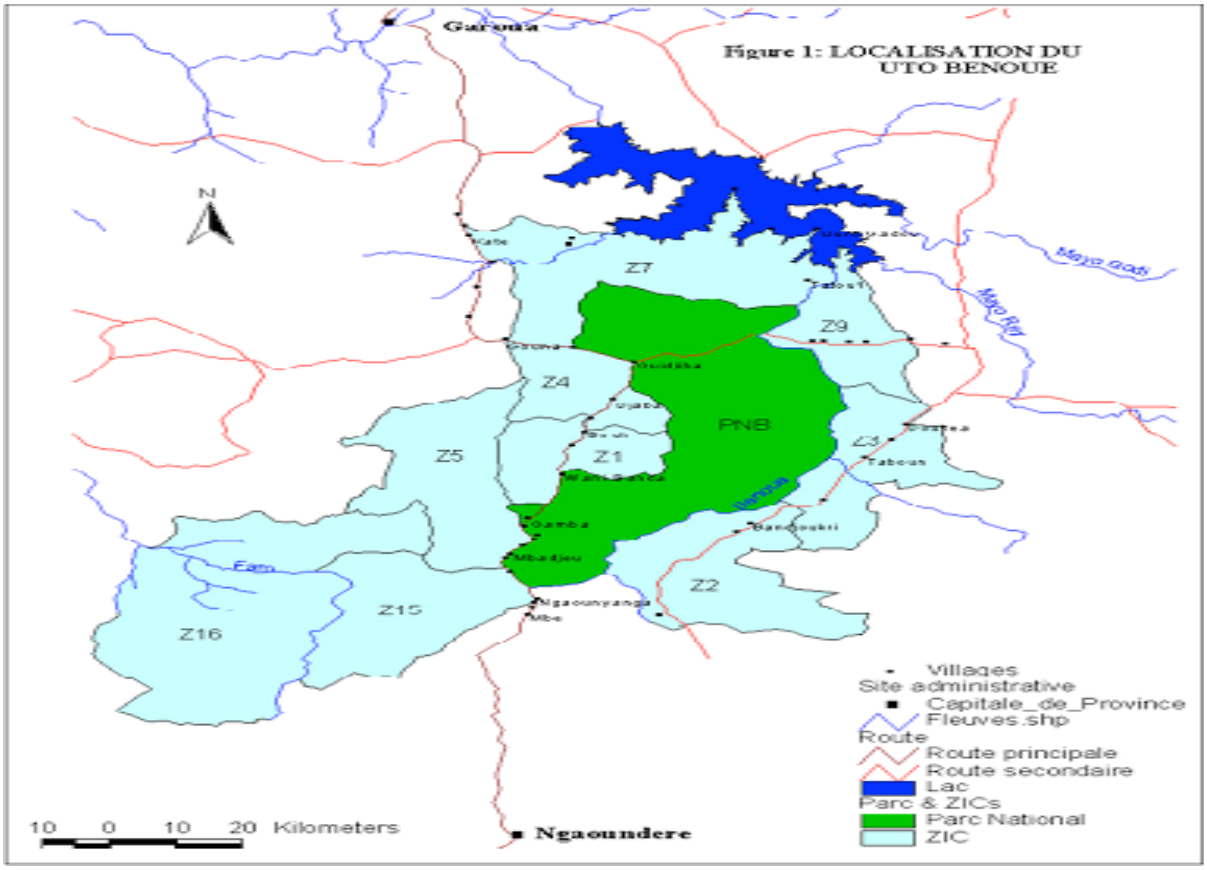


Figure 1: Map of the Benue National Park and surrounding localities. (Z1: Locality of Sakdjé, Z9: Locality of Mboukma)

COPRESSA heard about mercury mining/use at the artisanal gold mining sites when working a few years ago in the zone. In partnership with IPEN, they decided to implement a project having the following main objectives:

- Objective 1: to situate and register the gold mining sites,
- Objective 2: to sensitize the gold miners on the dangers related to exposure to and use of mercury on human health and environment,

[2] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 129.

- Objective 3: to train the gold miners on the best practices to avoid mercury use and manage mercury wastes in the gold mining sites,
- Objective 4: to create the cooperatives of gold miners in the Mboukma and Sakdjé localities, and
- Objective 5: to inform gold mining leaders of the regulations related to gold mining in Cameroon.

The project was set up in a participatory manner based on iterative exchanges between the project proponent (COPRESSA), the miners, and the focal point of IPEN.

The methodology for implementation included:

- Intensive preparatory work to operate the project and harmonize the understanding of all project axes;
- An outreach visit with local authorities coupled with an inventory of mining sites at Mboukma and Sakdjé;
- Designing a survey guide which would benefit from the validation of the miners' leaders in Mboukma and Sakdjé;
- The piloting of a survey of 150 randomly selected miners in Sakdjé and Mboukma;
- The assessment of Mboukma survey data;
- The return of survey results to Mboukma and the choice of themes for awareness-raising guidelines;
- The design of the awareness-raising pamphlet on the dangers of mercury;
- The design of the dissemination of brochures on the current regulations on the extraction of mineral resources;
- The design of a giant poster display;
- The awareness-raising campaign and dissemination in Mboukma and Sakdjé;
- The moderation of the General Assembly of the miners of Sakdjé and Mboukma in Sakdjé;
- Signing of the protocols agreement against the use of mercury; and
- The reporting and translation.

Explain the recent history of ASGM in your project area. (Trends over time, increasing or decreasing, factors affecting these trends):

The activity of gold mining began in Sakdjé in the early 1980s and in Mboukma at the beginning of 2000. The mining trends are actually increasing in the 2 sites. The factors that are boosting the trends are mainly the growing poverty that is affecting the entire rural population in Cameroon. The poverty acts at 2 levels:

Firstly it constrains the rural population, whose livestock and crops production are constantly lessening, to find another source of income. Therefore the artisanal gold mining seems to be the best solution for them, because this requires little investment. Another reason is that these mining sites are close to their villages.

Secondly, the gold price is higher than the price for crops. That provokes the migration of skilled artisanal gold workers from others regions of Cameroon (Adamawa and East) and neighboring countries (Chad, Central Africa Republic) to the Sakdjé and Mboukma sites.

Report on the methods you have used to estimate the scale of ASGM activity (industry or government databases, mercury import data, anecdotal information, media reports etc):

The method used to estimate the scale of artisanal gold mining activity is a survey among the artisanal gold mining workers in the Mboukma and Sakdjé sites in January 2015. On the field we also collected anecdotal information from the artisanal gold mining workers.

Describe the nature of ASGM activity in your project area (legal, illegal, traditional, basic or well developed, combination of the above):

Sakjé and Mboukma sites are in the Benue National Park and according to the Cameroonian laws, it is prohibited to practice mining in the protected areas. So, the gold mining activities are traditional, but illegal in these sites and it has a negative effect on the environment and human health.

Describe the environmental and human health impact of mercury use in ASGM in your project area (provide pictures, data, media reports, sampling, surveys or other evidence if available):

The use of mercury in artisanal gold mines has an influence on both human health and on the natural environment. In the area investigated, primary mercury mining occurred in the same mining galleries for gold but elemental mercury was not used at the campsites (amalgamation was conducted elsewhere).

The evidence of the environmental impact of mercury use for amalgamation in the mining camps was not identified by this project. But the environmental impact of artisanal gold mining in the 2 areas is catastrophic, as shown by these pictures taken in the field.

Figure 2: Environmental destruction and water pollution

Figure 3: Gold mining is practiced by men and women

The human health impact of mercury use in the artisanal gold mining in the Sakdjé and Mboukma localities:

Our survey shows that the workers extracted two mercury compounds in the Mboukma and Sakdjé sites . They identified two different mercury compounds: the white mercury that could be the monoxide of mercury or chloride of mercury and the red mercury. The latter is most likely cinnabar or mercury sulphide[3]. It is known that mercury salts can be very toxic and corrosive. The velocity with which the human body absorbs the inorganic mercury salts is higher than the absorption velocity of the metallic mercury. If the mercury salt contacts the skin, the body can absorb it at a rate of 10% equivalent of the same quantity swallowed. That can damage different parts of the central nervous system[4].

The results of a survey COPRESSA conducted in the field in February 2015 show that there is a great suspicion that the mercury mining is impacting the health of artisanal gold mining workers in the Sakdjé and Mboukma because of two main reasons:

- A high proportion of artisanal gold mining workers acknowledge being in frequent contact with red mercury and white mercury.

[3] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 44

[4] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 18

- The main symptoms that affect the miners align with symptoms of mercury intoxication[5]: stomach ache (36.2%), fatigue/tiredness (18.1%) and respiratory problems (8.1%).

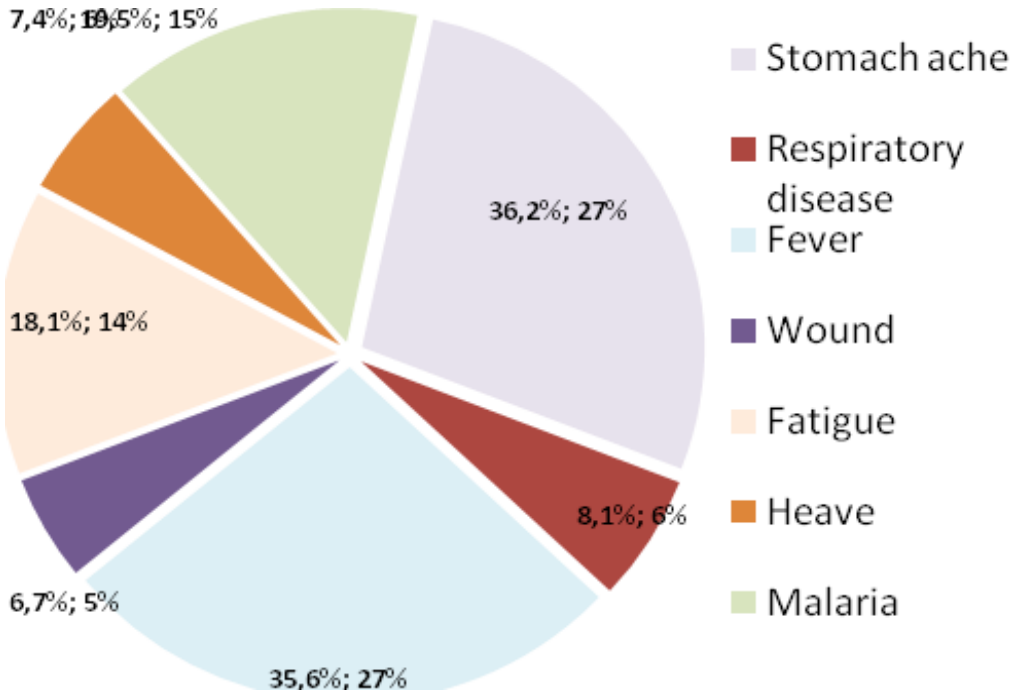


Figure 4: Frequency of gold miners having suffered from diseases

Describe the supply chain and availability of mercury to workers in the ASGM operations:

Because of the fact that the mercury used in the artisanal gold mining in the Benue National Park did not occur in the Mboukma and Sakdjé sites, but in the big towns like Garoua, Ngaoundéré and other towns of other countries (Chad, Niger, Nigeria, CAR), this project did not identify the supply chain and availability of metallic mercury to workers in ASGM. Nevertheless, it seems that the mercury used to purify and concentrate the gold produced by artisanal gold mining in Sakdjé and Mboukma sites comes from smuggling, as in other countries in the world[6]. In this case the amalgamation is not conducted at the mining camps but in the towns mentioned above. However, the ASGM workers at the camps are exposed to mercury from primary mercury mining.

Provide detail on the manner in which mercury is utilised in the ASGM activity (ball mills, whole ore amalgamation, panning, concentrate amalgamation etc):

At Mboukma and Sakdjé sites, the workers practiced ore mining and processing. They rarely use mercury in any stage of these processes. However, during their activities they found the inorganic mercury compounds that they called “white mercury and red mercury”. They extracted these compounds without any protective equipment, despite the fact that these

[5] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 132

[6] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 132.

inorganic mercury compounds are more susceptible than metallic mercury to cross through the skin barrier. Moreover, they are very toxic and corrosive. The miners sell the compounds to the gold buyers based in the big towns. The gold dealers or their clients were those who used metallic mercury in the gold amalgamation process[7]. But the metallic gold process was not often conducted in the Sakdjé and Mboukma sites.

The following photos show infrequent use of mercury for the purification of gold at these sites:



Contaminated water and soil (cloudy color)



Rubble mixed with mercury burnt to find some nuggets

<u>Characterise the techniques used to minimise mercury exposure to workers and their families and /or recycle mercury (retorts, fume hoods etc).</u>

Neither the gold and mercury mining workers nor the gold collectors and all the other users of mercury in the gold supply chain use any technique to minimize mercury exposure to themselves or their families.

[7] IPEN (2014) An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury (French version) at page 119.

Describe the level of awareness of mercury toxicity among ASGM workers and their families in your project area:

The level of awareness of mercury toxicity is very low: our survey result shows that less than 1% of gold workers were aware of mercury toxicity.

Describe the demographic of ASGM workers in your project area (such as roles of men and women/children. education and poverty levels.) Also provide information on workers employment arrangements and organisation (e.g. indentured/poorly paid or independent):

The artisanal gold mining workers were not organized, so they had no leader. The artisanal gold mining was practiced by men (75.8%) and women (24.2%). More than 75% of workers were less than 36 years old.

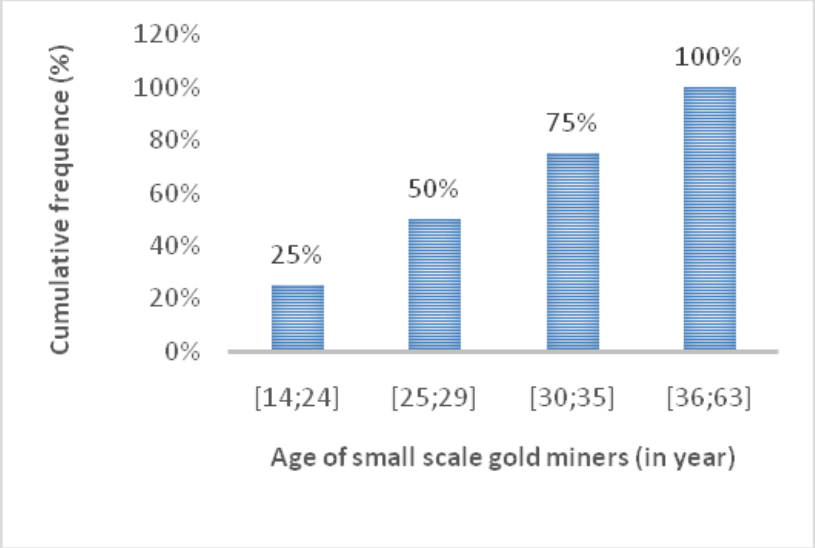


Figure 5: Evolution of age of artisanal gold miners in Sakdjé and Mboukma

This classification considered only the owners of the gold wells, but practically, the whole family of gold miners were involved in the artisanal gold mining sector.

Example: On the field the husband came with his wife and his young boys. The wife came with her baby and young children that could not stay at home alone or with teenage girls who did not go to school anymore. Then, children of all ages, teenagers, parents and cousins (in short, all family members) were found on the field.

Even though the majority of artisanal gold miners came from Cameroon (77.8%) and Chad (18.8%), there were also natives of CAR, Niger and Mali. Almost the entire range of artisanal gold miners worked independently (94.6% worked for themselves).

The artisanal gold miners encompassed persons having different marital status: widows (1.3%), single (28.9%) and married (69.9%); half of artisanal gold miners worked with at least one family member: wife (22.1%), husband (22.1%), men more than 18 years of age (5.4%) and others (1.4%). Half of men >18 years were single.

The Cameroonian gold miners were native from 5 regions: East, Adamawa, Far-North and North. But, nearly 80% came from 2 regions (Far-North and North).

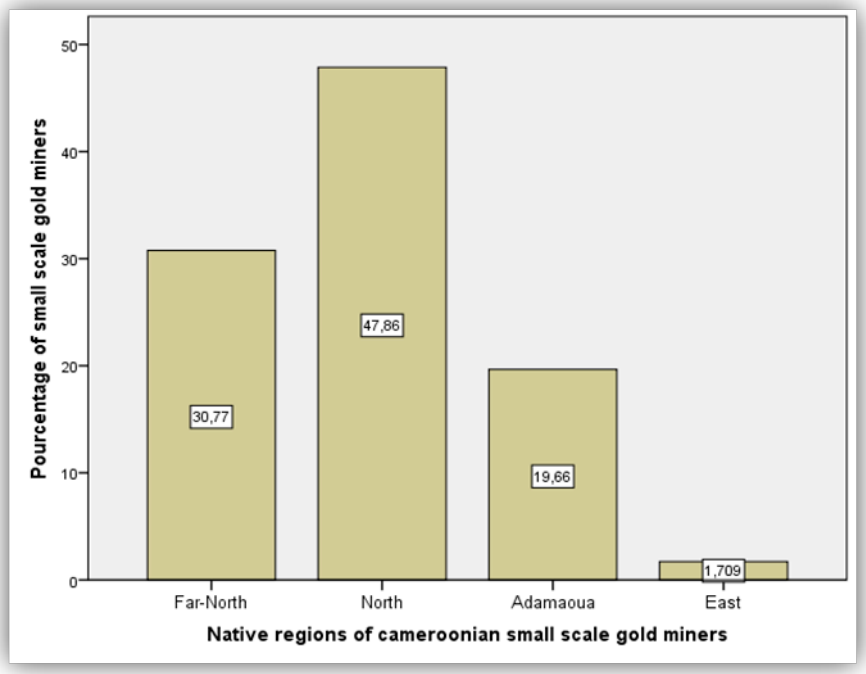


Figure 6: Regional distribution of Cameroonian artisanal gold miners

The fact that the Cameroonians represented nearly 80% of the total number of gold miners and the natives of North are the most numerous could be explained in 2 ways: the Cameroonian minister in charge of gold mining decided in the middle of 2014 to prohibit artisanal gold mining in Cameroon because of the corruption that the stakeholders of gold mining used to avoid taxes. The consequence of the repressive phase of the fight against corruption in gold mining was that foreigners massively abandoned this activity. Because of their knowledge of the field, the natives practiced gold mining on the land where foreigners previously operated.

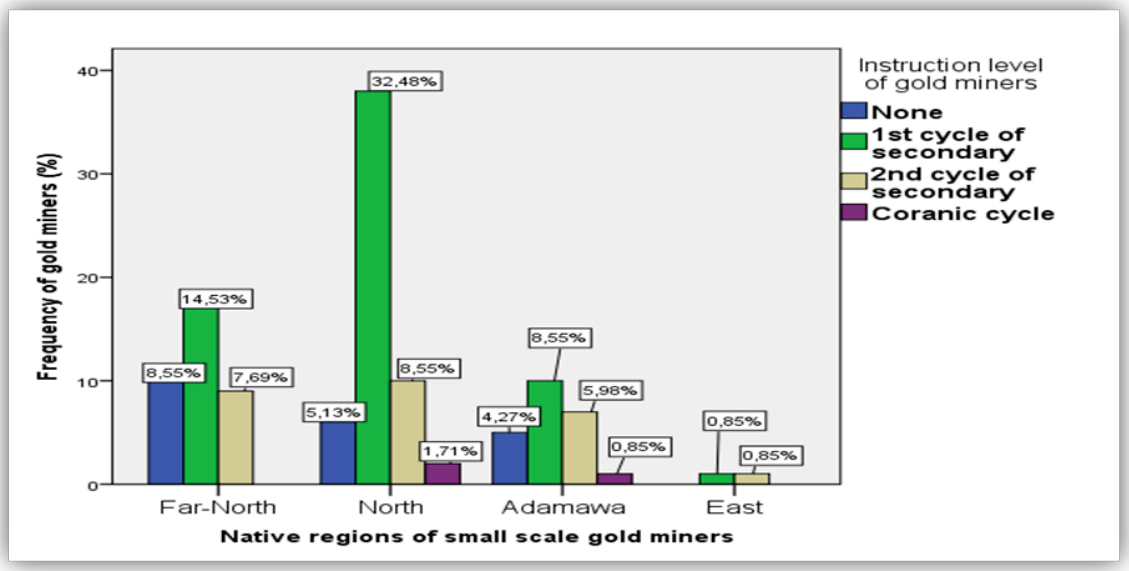


Figure 7: Education level of artisanal gold miners in the regions

Depending on the native regions, the level of education of gold miners varied largely: the highest (41.0% and 14.5% of whom reached the secondary level) coming from Far-North and North respectively.

At the mining sites, the population carried out activities that could be classified into 2 categories: the main activities and the secondary activities. The main activities were the mining activities and the secondary activities were agriculture, livestock or trade.

On the field, the gold mining activities began from the detection of prospective sites and ended with collecting gold by digging, carrying, pulling, winnowing, washing and selling. The intermediate activities (digging, carrying, pulling, winnowing, and washing) were done only by the Cameroonians.

Table 1: Native countries of artisanal gold miners and their activities

Activities		Native countries of gold miners				
		Cameroon	Chad	Central African Republic	Niger	Mali
Secondary	Agriculture	74.7	22.7	2.7	0.0	0.0
	Livestock	100.0	0.0	0.0	0.0	0.0
	Trading	78.9	15.8	0.0	0.0	5.3
Main	All stages of gold mining except collecting	77.1	19.4	2.1	0.7	0.7
	Digging/indoors gallery carrying/Pulling	100.0	0.0	0.0	0.0	0.0
	Winnowing	100.0	0.0	0.0	0.0	0.0
	Outdoors carrying/Washing	100.0	0.0	0.0	0.0	0.0
	Collecting	100.0	0.0	0.0	0.0	0.0

For the Cameroonian artisanal gold miners, the activities differed in function to their native regions. Rearing livestock was practiced only by natives of Far-North and North Regions. That indicated that the natives of these 2 regions were the most stable in the gold mining localities.

Table 2: Percentage of workers in each activity in function of region

Activities		Native regions of gold miners			
		Far-North	North	Adamawa	East
Secondary	Agriculture	41.4	43.1	13.8	1.7
	Livestock	20.0	80.0	0.0	0.0
	Trading	33.3	53.3	13.3	0.0
	All stages of gold mining except collecting	32.1	48.2	17.9	1.8

Main	Digging/indoors gallery carrying/Pulling	0.0	0.0	100.0	0.0
	Winnowing	0.0	100.0	0.0	0.0
	Outdoors carrying/Washing	0.0	0.0	100.0	0.0
	Collecting/	0.0	0.0	100.0	0.0

The specific tasks were done by persons who had small material wealth. Each person brought what one needed in exchange for labor.

Examples: The young persons from Adamawa who had no materials made association with others working in major galleries. The natives of the Adamawa Region's roles were to dig, carry the rubble in the galleries or pull it out. Winnowing was done only when the soil was dry, otherwise the rubble was directly carried to the river for washing. In the same way as digging/pulling, river washing required a few pans and energy so this task was for persons having few materials such as immigrants from Adamawa.

Albeit women and men did nearly all activities in the artisanal gold mining sector, it seemed that when the workers did specific tasks, there was a differentiation between women's and men's tasks.

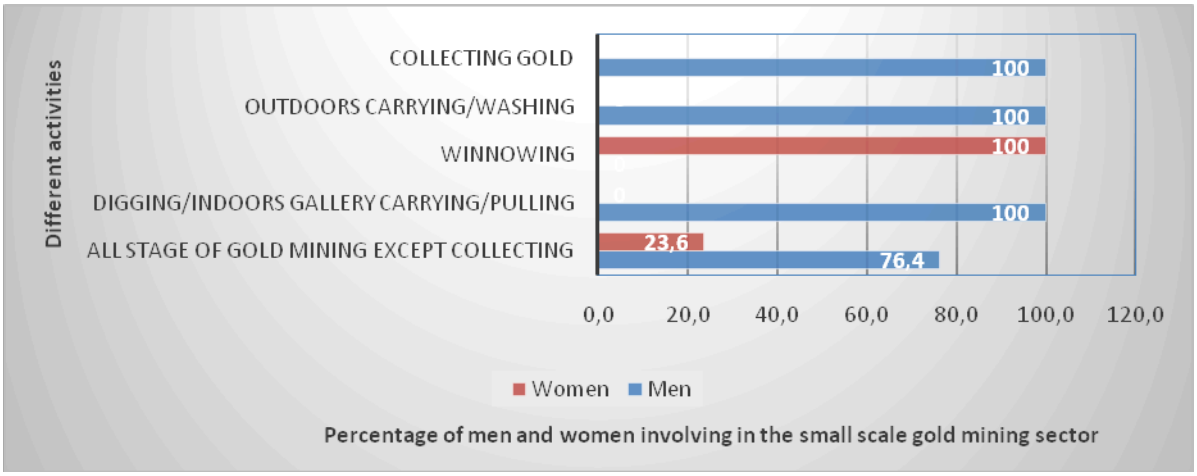


Figure 8: Different activities done by men and women in the artisanal gold mining sector

Winnowing is the only task done only by women. These women were from the North Region and they just helped their husbands. That is why they did the part of work that necessitated little energy.

Collecting gold was a business for either the ancient gold mining men who accumulated enough money or for traders from the big towns. The gold collectors were from Adamawa or North Region and they lived in the field or in Garoua and Ngaoundéré.

Specify the factors driving ASGM in your project area (e.g. poverty, conflict, criminal activity, gold rush):

The main factors driving the artisanal gold mining in the Sakdjé and Mboukma sites are:

1. Poverty: The artisanal gold mining workers were poor people living on their lands and practicing gold extraction with archaic materials.
2. The gold rush

The majority of young Cameroonians did not have a job. So, a rumor of the presence of gold somewhere provokes a flux of people expecting that the gold discovery would change their lives.

Describe the methods of engagement with and impact on Target Groups:

The methodology consisted of a survey to establish the real state of artisanal gold mining in the two sites and organizing the campaigns of sensitization and training, during which the sections of lectures and discussions, training and counsels, and personal protective equipments and flyers were given to the artisanal gold mining workers. The outcomes of this project were very hopeful: the artisanal gold mining workers were aware of the mercury toxicity and the importance of knowing laws and regulations ruling their activities.

Describe the substance of the information and key message you want to intentionally transmit to the target audience and the method used to achieve this:

To sensitize the gold miners on the dangers related to exposure to and use of mercury on human health and the environment through organizing the campaigns of sensitization and training. Numerous support materials (pictures, posters, flyers and reports) were developed to communicate the key message and results of the project to the public and gold workers.

Report the result of the activity and specifically the impact on targeted policies:

Many authorities and artisanal gold mining workers' leaders participated in this project, culminating in the formation of an association of artisanal gold mining workers. Once created, its members accepted, before sensitization, to sign the protocol of non-utilization of mercury in the artisanal gold mining in the 2 sites.

Photographs of project activities.

A sensitization session in the artisanal gold miners' camp and villages

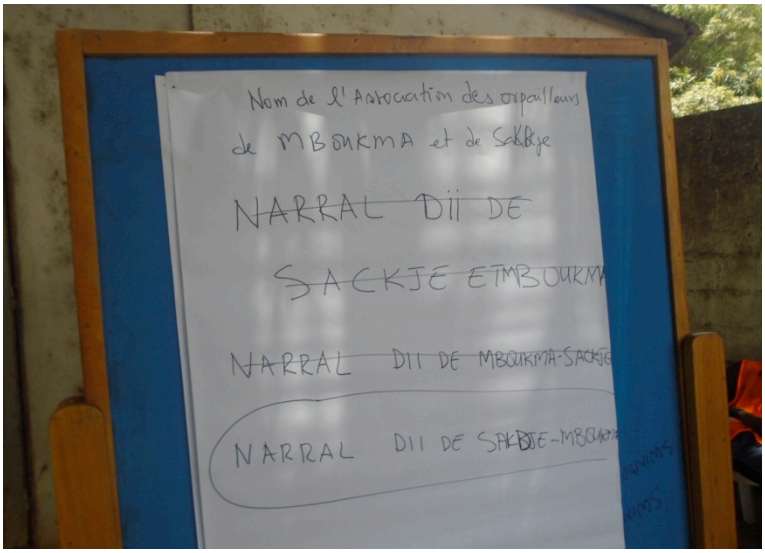
A Questions-Answers time in the Sakdjé Chief Palace

Gold miners in the minimum protection outfits

A couple of gold miners with normal work outfits

Sites Chiefs and leaders of artisanal gold mining workers in "huis clos"

Board members of the new artisanal gold miners' association established at the COPRESSA workshop



Board showing the final name of the miners' association "NARAL DII DE SADJE - MBOUKMA" established at the meeting with COPRESSA

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