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Half-Year Report 2014

UNIDO Project no.GF/RAF/12/001

Reduce the Use and the Harmful Impact of Mercury on Human Health and the Environment in the Artisanal Gold Mining Communities in Burkina Faso, Mali and Senegal

Grantee Name: Artisanal Gold Council
Name of the project: Reduce the Use and the Harmful Impact of Mercury on Human Health and the Environment in the Artisanal Gold Mining Communities in Burkina Faso, Mali and Senegal
Contract Number: 16002639
Country/Region: Burkina Faso, Mali, Senegal
Project Duration: 3 years
Official Start Date: Oct 12, 2012

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Reporting Period: January 2014-June 2014

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Submitted to: Ludovic Bernaudat, Project Manager, Water Management Unit
Date of submission: July 10, 2014

ARTISANAL GOLD COUNCIL

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Disclaimer:

The contents of this report are part of an ongoing investigation and process by the Artisanal Gold Council and should be considered preliminary. Further interpretation of data, observations, and analysis are to be carried out in the remainder of the year.

Introduction

This is the 2014 Annual Report submitted to UNIDO by the Artisanal Gold Council for the Project no. GF/RAF/12/001: *Reduce the Use and the Harmful Impact of Mercury on Human Health and the Environment in the Artisanal Gold Mining Communities in Burkina Faso, Mali and Senegal*. The contract was signed on October 12, 2012 and activities commenced officially that same month.

In this first half of 2014, extensive missions have been carried out by AGC in Burkina Faso, and one visit was made to Senegal. The purposes of the mission in Senegal were to finalize site selection and preparation, finalize the inventory, receive the mercury-free processing equipment, and continue working along the government to develop a National Action Plan (NAP). In Burkina Faso, the purposes were to continue the activities at the training centre, optimize the mercury-free system operations, and continue working along the government to develop a National Action Plan (NAP).

Earlier cost-sharing plans between the AGC's USDOS and UNIDO/GEF projects had planned for the selection of two pilot sites in conjunction with ARM. However, as a result of the project and project partner timelines becoming misaligned and delays in pilot site selection activities, the AGC made the decision to move ahead unilaterally with one site selection and intervention in Burkina Faso. This site fully supports AGC's obligations with UNIDO. In Senegal, ARM and AGC are moving ahead with a common pilot site selection.

It is important to note that due to political unrest, activities in Mali were not initiated under this current contract. We are awaiting final decision by all partners to officially cancel the activities in that country.

Project Context and Objectives

The overall objective of this project is to reduce the impacts of mercury on human health and the environment of artisanal gold mining communities in Burkina Faso, Mali and Senegal by promoting sound chemical management and by strengthening local and national capacity to effectively reduce mercury use, emissions and exposure. The operational goals for this project are to complete a scoping of ASGM in the three countries; to create national plans to promote adequate management of mercury in

ASGM in compliance with the Minimata Convention; and to carry out mercury reduction/elimination pilot projects (at least one per country).

Figure 1: General Time Schedule

Output	2012	2013				2014				2015			Status
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	
1.1 Scope of ASGM in the 3 countries evaluated and better understood				**	**	**	**						*Completed*
1.2 National strategy action plans to promote sound management of mercury in ASGM developed in all three countries													*Ongoing*
2.2 Mercury reduction/elimination pilot projects are implemented in Burkina Faso and Senegal, and expanded in Mali with local and national stakeholders. Overall mercury use, missions and exposure are reduced in pilot sites										**	**	**	*Ongoing*

** Amended to reflect current work schedule (see corresponding sections below)

Overview of results achieved for this reporting period

In Senegal:

1. Site inventory completed and mercury estimate revised
2. Site selection completed and its formalization near completion
3. Equipment for the mercury-free system received at the port of Dakar and stored until installation
4. Full analysis of the fiduciary context of LSM and ASGM completed
5. A draft of NAP recommendations completed and ready to present at the next regional COPIL
6. Third National Steering Committee meeting held in Senegal in May 2014 and attended by AGC's local consultant

*In Burkina (**according to AGC's current funding agreement with USDOS):*

1. Mercury-free system fully installed and operational on the pilot site of Dano
2. First grams of mercury-free gold produced by ASGM miners in Burkina
3. Training and optimization process near completion on the pilot site: 6 technicians and one foreman trained on operating the system
4. A draft of NAP recommendations completed and ready to present at the next regional COPIL
5. A strategy of replication developed and in progress for more systems to be installed in Burkina
6. First rounds of health professionals training completed in the region of Dano (details will be available in a different report later this year)

Activity 1- Identify/Map active ASGM sites, conduct risks assessments, and present data to government agencies in each country

Milestone 1.1 Collect information for mapping and baseline estimation

Final mapping and baseline information is being analyzed and will be completed within the next few months. A revised and final *ASGM activities in Burkina Faso and Senegal: Updated Inventory Report* will be produced and distributed at that time.

Senegal

The final inventory work in Senegal was carried out in May, 2014 in the Kedougou and Saraya areas. The aim was to develop an updated estimate of gold production, mercury use, ASGM sector population, and the economic scope and significance of the sector. These results are still being analyzed but preliminary estimations are available. The following estimates are based on over 80 semi-structured interviews with miners on 12 different sites over a period of two weeks; interviews with key informants and experts; measurements; physical counts; and direct observations.

This estimate is for the 2013/2014 mining season in Senegal, which for the most part takes place for 8 months, from November until July before stopping for the rainy season. Some sites work through the rainy season, but activity is very limited.

Miner Population (Directly mining)	66,000 – 87,000 men and women
Gold Production (Tonnes)	3.8 – 4.9
Mercury Use (Tonnes)	4.4 – 5.7
Value of gold production (millions of USD based on 75% of spot price)	$113 - $146

Estimations were made based on a triangulation of information obtained mainly from semi-structured interviews with individual miners, but also by way of observation and physical counting. On 8 out of the 12 mine sites that were visited, 10 semi-structured interviews were carried out randomly and opportunistically, speaking with individuals from different shafts that were willing to participate, but mainly shaft leaders.

Miner population numbers are based on the number of counted active shafts times the average shaft group size as identified in the 10 interviews. Due to uncertainty in these physical counts and also other factors that could limit or increase the amount of active shafts (water in shafts, more miners moving in, etc.) a range of shaft numbers were used.

To estimate mercury use, the common ratio of 1.3:1, which has been verified in many studies in West Africa and directly by the AGC in Senegal, was used against the production estimate on all primary sites. On alluvial sites 1.3 was used against 50% of the production estimate. This is based on our findings that alluvial sites only sometimes use mercury to extract gold.

The scope of the sector and its high degree of informality make such estimates difficult to be exact, and in all cases of uncertainty conservative inputs have been used for the extrapolation of data - this could mean that actual production could be much higher than the estimate presented here.

Finally, as part of AGC's efforts to increase national capacity for carrying inventory work in Senegal , 2 local staff (*animateurs* from AKAD) were thoroughly trained to perform this surveying work and are now available as an added capacity in Kedougou.

Burkina Faso

In Burkina Faso more than 45 sites have been visited and detailed baseline information has previously been reported.

The current estimate for Burkina Faso ASGM gold production is 27 tonnes per year using a conservative minimum. The estimate for Burkina Faso mercury use is 35 tonnes per year using a mercury to gold ratio of 1.3: 1.

Milestone 1.2 Compile and assess national data/ Milestone 1.3 Prepare and Present country reports

AGC plans to present, explain and distribute these results at the regional COPIL this year, with a clear emphasis on the fact that these results represent the current but non-definitive estimates for the sector and that they are meant to help guide actions. AGC encourage national government to refine these estimates and is committed to develop in-country capacity to do so.

Milestone 2.1 Present Mercury reduction policy recommendations and form national and local stakeholder groups in Burkina Faso and Senegal; assign roles and responsibilities

Engagement with the various levels of governments in Burkina Faso and Senegal continue and AGC regularly update its focal points at the Ministry of Environment.

In Burkina, the Ministry of Mines remains engaged and interested in the project and are eager to visit the pilot site to explore the possibilities of replication on a national scale. One national COPIL has taken place in December 2013 with AGC representation. It is unclear at this time when the second COPIL will take place.

In Senegal, the national Ministry of Mines unfortunately continues to be absent at most meetings and remains for the most part uninterested in meeting and discussing the project. However, AGC continues to attempt engagement and remains in contact regularly with the Kedougou regional office and its director, Mr. Lamine Sy. Three national COPIL have taken place, the latest in May 2013 with AGC representation. Please note that the Ministry of Mine did not attend this latest meeting.

Milestone 2.2 Develop and finalize National Strategic Action plans

Senegal: Political Context and National Action Plan

Recent political developments in Senegal aimed at forcing into compliance the ASGM sector will potentially make the implementation of NAP recommendations more challenging. In May 2014, Senegal declared a temporary closure of all non-formal ASGM sites for the rainy season and began heavily

enforcing this decision with gendarme, military and heavy equipment. To this date, our sources on the ground report that several large sites have been closed with wells being buried by bulldozers and miners forced to flee. It is too early to tell if these measures will affect ASGM activities in the region permanently, and if this will allow for the government to implement its plan of a system using a "couloir d'orpaillage" and "carte d'orpailleur".

Our focal point at the Ministry of Environment remains very interested in receiving recommendations to improve the NAP, but this may not be sufficient to reverse the trend. Indeed, the ministry responsible for the NAP, the Ministry of Mines, has been clearly reluctant to even meet with us from the onset of the project.

Nonetheless, a draft NAP recommendations for Senegal (see Annex 1) has been completed and is ready for dissemination at the Regional COPIL in September 2014.

Finally, AGC's local representative has produced a high quality analysis on the fiscality issues surrounding ASGM and LSM in Burkina. The draft report is currently being revised by AGC team and will be available for final review at the regional steering committee.

Burkina: Political Context and National Action Plan

Burkina's political context remains favourable for expanding positive changes to the ASGM sector. The Ministry of Mines is currently revising its mining code, and is eager to receive recommendations on the ASGM sector. A draft NAP recommendations (see Annex 1) is ready to be presented at the regional COPIL in September. The *Syndicat des Orpailleurs* also remains active in its dialogue with the government and awareness-raising activities for the miners.

Finally, AGC continues to pursue different avenues for potential pilot site replication. Burkina's context is excellent for rapid and nationwide project replication and capitalizing on this extraordinary potential remains AGC's top priority.

Activity 3- Implement mercury reduction/elimination projects (at least one per country)

Milestone 3.1 Design site appropriate interventions at each pilot site, including equipment need description

Senegal

The site of Bantaco, which had formally agreed to collaborate with AGC for a mercury-free system implementation, is pursuing its efforts to obtain an exploitation permit. Our consultant in Kedougou has

been following the topic assiduously with the Ministry of Mines both in Dakar and in its decentralized branch in Kedougou. The chemical-free processing centre components have all arrived in Dakar (last component arrived on June 2nd, 2014) and are currently being stored until the end of the rainy season when installation is planned to begin.

Burkina

As per our contracting agreement with USDOS, and as co-funding agreement with UNIDO, the AGC has terminated the installation, local technician training and process optimization of a mercury-free system on the site of Zopal in the Province of Ioba. The installation took place over four 3-weeks missions requiring the full-time work of 3 AGC staff and 7 local staff. At the end of the last mission, AGC produced the first grams of mercury-free gold from Burkina Faso. Details on the installation, technical issues and results of these missions are provided below.

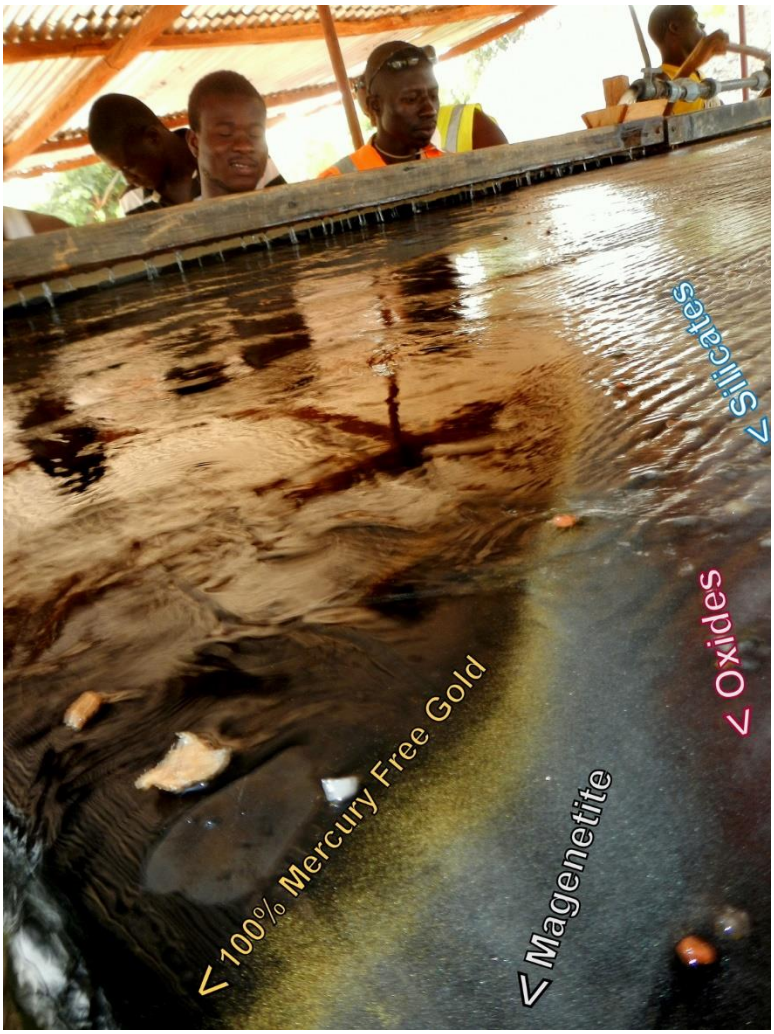

Figure 2: Shaking table used on the site of Dano producing first grams of mercury-free gold

3.1.1 Mercury-Free System and Training Centre

Three AGC staff, Ricardo Rossin, Kevin Telmer and Eric Negulic, travelled to Burkina Faso during the first half of 2014 on several occasions. During this period local workers were successfully trained to operate the jaw crusher and mill/sluice system. Shake table optimization was finalized leading to the initial production of mercury free gold. The crusher and mill/sluice system were left in operation under the supervision of trained local workers.

3.1.1.1 System Overview

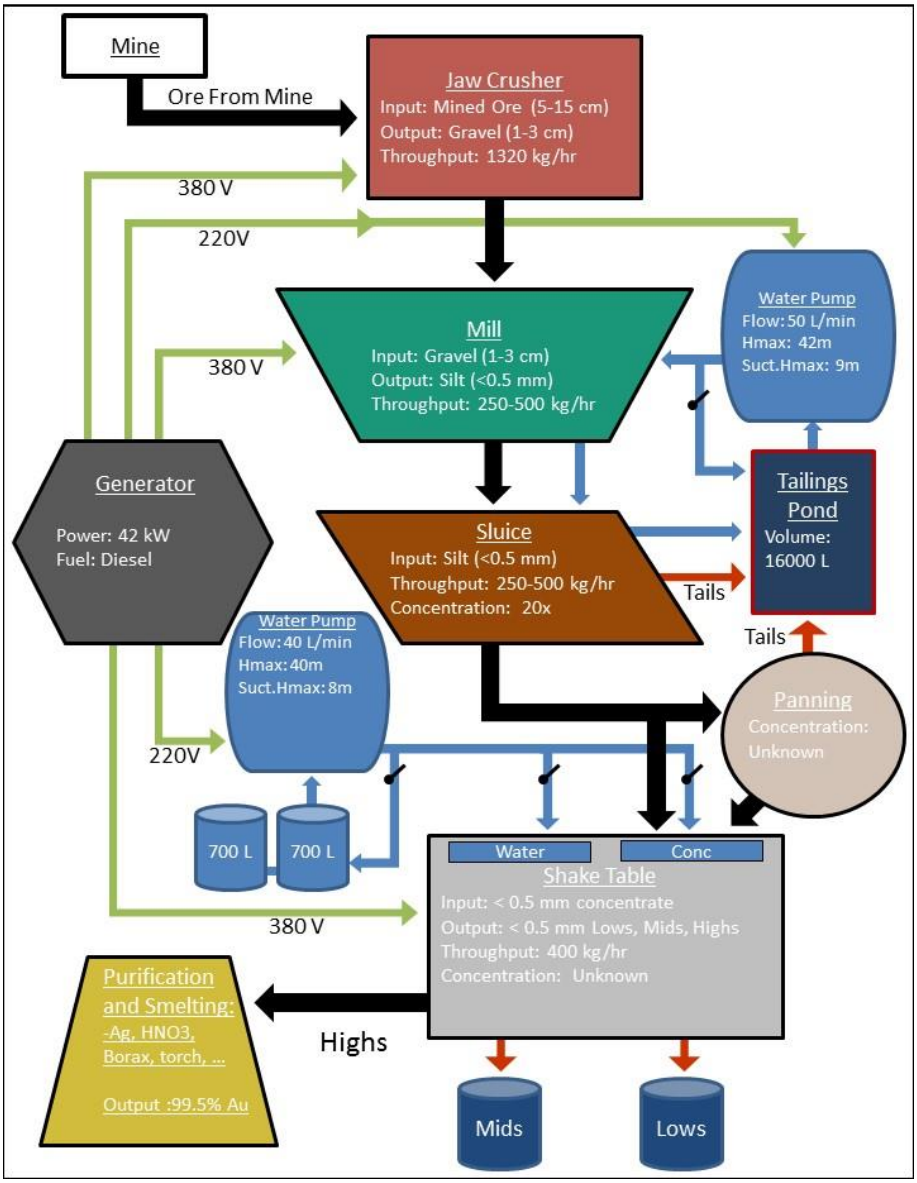

Figure 3: Gold refinement flowchart. Colored arrows show flow direction for ore (black), tails (red), water (blue) and electricity (green).

3.1.1.2 Crushing Procedure

The first step in the concentration process involves crushing the raw ore exiting the mine to a smaller grain size, as required for milling. This is done using the jaw crusher. Raw ore is delivered directly to the crusher site from the mine in ~125 kg ore bags. Raw ore grain size generally ranges from ~5-15 cm. The crusher can handle material up to 15 cm. If present, larger rocks must first be broken manually with a sledge hammer to meet this limitation. Ore is fed through the crusher by hand or by shovel and reduced to consistent 1-3 cm gravel. Six local laborers were trained to safely operate the crusher.

Figure 4: a) Worker hand feeding ore into the crusher. b) Close up view of jaws and weld. c) Side view of jaw crusher with safety fence protecting motor and belts.

Issues and Improvements

During operation the steel bar holding the exterior jaw of the crusher in position broke off (Fig.4b. weld). The bar was welded back in place without incident. However, this is the sort of issue that is likely to arise through the course of general usage, and if left unattended, could cause harm to machinery and/or workers. A plan of action and specific instructions on how to proceed in these cases will be developed and adopted.

The cement foundation of the crusher was identified as a common resting place for local workers, placing them dangerously close to the motor and moving belts of the crusher. To protect both workers and machinery a safety fence was erected around the crusher to keep workers a safe distance from the crusher's moving parts (Fig. 4c). To provide shade and to protect workers from extreme midday sun a shelter was built to cover the work areas of both the crusher and mill.

With steady crushing, crushed ore accumulates faster than it can be milled. Addition of a secondary crusher to further reduce grain size is an option; however, the single crusher is sufficient in reducing ore to a manageable grain size for the mill. Crushed ore is currently stored in ore bags to await milling. Filling bags is a time consuming and unnecessary step and could be eliminated by designating a crushed ore storage area.

3.1.1.3 Milling procedure

Following crushing ore is introduced to the mill/sluice system for further grain size reduction, ensure good gold liberation and to begin the concentration process (Fig. 5a). The mill/sluice system marks the onset of wet processing and significantly reduces dust production during milling when compared with the disk mills currently in operation on site (Fig. 5b). Ore entering the mill is ground to a uniform <0.5 mm grain size. It is fed directly from the mill to the sluices where concentration begins. Tails and excess water flow from the sluice into the tailings pond for settling and storage.

Material exiting the mill was filtered through a <0.5 mm screen to ensure consistent grain size (Fig. 6b). The 0.5 mm screen was selected to ensure good liberation of gold from other minerals in the ore. As the grain size of gold in the ore is unknown it is possible that a coarser screen would suffice. Allowing coarser material to exit the mill would result in faster milling and increased throughput; however that might reduce gold liberation and would have to be further evaluated. Six workers were trained to feed the mill.

Figure 5: a) Mill/Sluice system showing the mill to sluice to tailings pond flow. b) Dust cloud produced from the batch and disk mills currently used by workers on site.

Figure 6: a) Worker loading a shovel of ore into the mill. b) Mill showing screens controlling grain size of sediment deposited on the sluice c) small crack on mill roller.

Issues and Improvements

Ensuring a proper working volume is maintained in the mill is crucial to its successful and sustainable performance. During initial trials it was noted that workers struggled to maintain a consistent input rate, generally speeding up and introducing material too quickly. This resulted in the accumulation of excess material in the mill. A maximum input rate of 480 kg/hr (15 min/bag) was tested. The resistance the rollers met from the excess material in the mill resulted in overworking the motor, and in turn burning a breaker. A coarser screen allowing larger material to pass onto the sluices would increase mill throughput and allow a higher rate of input into the mill. However, this may jeopardize gold liberation and recovery. A better understanding of gold grain size is required to optimize screen selection and mill throughput rates.

Over accumulation of material in the mill bowl is problematic as the excess resistance from the extra material results in overworking of the mill motor or prevention of the mill from starting. When starting the mill with a working volume of material in the bowl material must be shovelled away from the front of the mill rollers prior to switching on the mill. The introduction of coarse material can also damage the mill. Mill input should be restricted to gravel smaller than 2 cm and the input rate should not exceed 1 bag (125 kg) each 20 min. Increased throughput is possible but needs to be carried out with caution and all other parameters optimized accordantly. While introducing material into the mill workers must pay close attention to the grain size and type of material they are feeding into the mill. The source of a large grinding sound heard coming from the mill wheels was found to be a large metal bolt accidentally fed into the mill. Additionally, a separate finger sized metal shard was found in an ore bag destined for the mill.

The mill bowl is likely working as a large concentrator with dense gold accumulating in the base. As only gold finer than 0.5 mm is able to pass through the screens onto the sluices any coarser gold is trapped in the mill. The mill bowl must be emptied and cleaned to recover coarse gold.

A safety fence was erected around the mill to keep people a safe distance from the mills moving parts. Workers on site are curious and often get dangerously close to the mill while it is in operation, sometimes leaning in to look inside. This is a serious safety hazard with the rollers rotating in the bowl. Inside the safety fence a tin roof was built to cover and protect the motor of the mill from the rain. A similar structure should be built to protect the motor of the crusher.

3.1.1.4 Sluicing Procedure

Slurry exiting the mill is deposited directly onto the sluices (Fig. 6b). An L shaped primary/secondary sluice configuration is used to ensure the best possible recovery of gold (Fig. 7). Water and slurry flow over both sluices. Heavy sediments become trapped, concentrating in the carpets, while lights are washed away as tails. Water and tails exiting the sluices flow into a large, 16000 L, settling pond where

tails accumulate for possible further treatment using chemical methods (cyanidation) by a professional and qualified entity.

Water flow and sluice angle need to be adjusted to optimize concentration and recovery. The goal is to obtain a 10-20 times concentration by the sluices. To achieve this concentration different sluice angles and water flow rates have been tested. At optimal angle, there is less material accumulation and increased gold concentrations in carpet concentrates. In addition, water flow was maximized in an attempt to increase the rate of milling and to further starve the carpets, maximizing gold concentration on the sluices. It was found that increasing water flow beyond a certain point resulted in a decreased milling rate as rather than settling at the bottom of the bowl for grinding, coarser material was held in suspension in the water, neither escaping through the fine mesh output or being reduced in grain size in the mill. The final result of increased water flow was increased accumulation of material in mill bowl.

Figure 7: Mill/Sluice system showing 90° sluice configuration, safety fence, tin roof protecting the motor and half blue barrel for washing of the carpets. Zoom inset shows a bicycle spoke clamp holding carpets in place.

Issues and Improvements

Carpets were found to slide along the sluices when water and slurry were introduced. To hold the carpets in place clamps were manufactured by bending bicycle and motorcycle spokes (Figure 7). Clamps are easily constructed, removed and replaced. This is a simple, cost effective method of holding carpets in place using locally available materials.

3.1.1.5 Panning Procedure

Sluice concentrates were panned to further improve concentration (Fig. 8). Panned concentrates showed a visibly higher concentration of gold than un-panned concentrates; however, due to the very fine grain size of the gold it is possible that some gold was lost during panning. It was noted that the primary concentrates yielded significantly more gold than secondary concentrates. This suggests that the primary sluice is effective in concentrating the majority of liberated gold reaching the sluices.

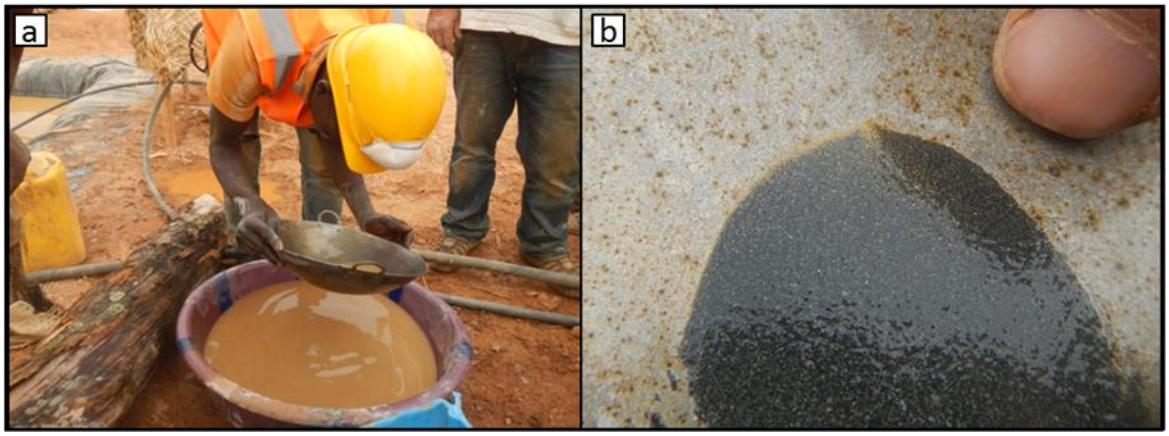

Figure 8: a) Panning of sluice concentrates. b) Panned concentrates showing fine gold along top edge of sediments.

3.1.1.6 Shaking Table Procedure

The shake table marks the final stage in the concentration process prior to smelting. Sluice concentrates may follow directly to the shake table, or may be panned first to further improve concentration prior to shaking. The shake table is operated wet, and has a water recycling system. Slurry and water are fed onto the shaking table through two troughs lining the top of the table, one for water exclusively, and one for a water/slurry mixture. The slurry trough is designed to control distribution and throughput rates. Holes along the length of the back of the slurry trough distribute material onto the table. Each hole is covered with a piece of wood and can be opened or closed to regulate the flow of slurry onto the table. Similarly, the water trough is lined with a series of valves which can be opened and closed to control water flow over various parts of the table. The surface of the table contains ridges (riffles) designed to separate heavies from lights during shaking. Material is shaken across the table, with riffles guiding heavies to one end and lights to the other. Material falls off the table into three collection troughs for low, mid and high density concentrates.

Figure 9: Shake table and associated water system showing table, polytanks, water inputs to the slurry and water troughs, and water return pipe.

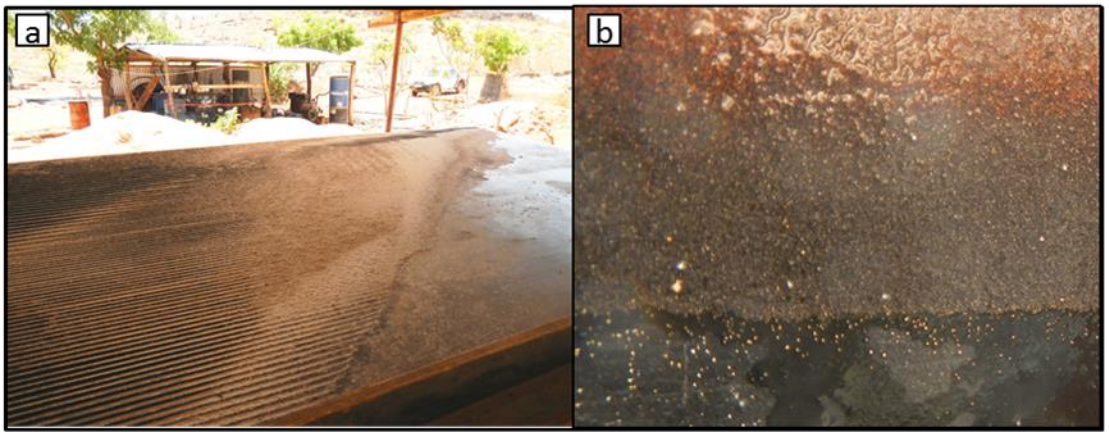

Figure 10: a) Shake table after shaking with material distributed over ~1/3 table. b) Heavies edge of shake table showing gradient from silica sand (top) to magnetite to gold (bottom).

Issues and Improvements

Different table angles and water flow rates were tested to optimize gold concentration. The final table configuration for optimized separation consisted of the steepest possible table angle and a high water flow rate, roughly evenly distributed half to the slurry distribution trough and half to the water distribution trough. This configuration is successful in separating the concentrate into silicates, oxides (hematite), sulphides, magnetite and gold respectively by increasing density. However, only ~1/2 of the

table's surface area is currently being used for separation. The current collection configuration separates the output into highs (primarily heavies including gold, magnetite, sulphides and oxides (hematite)), mids (mixed heavies and silicates) and lows (primarily silicates). Finally, a small cup held manually by a worker is moved as required to collect the stream of gold flowing off the table. This small cup yields the highest grade concentrate; however, the highs and mids also contain notable concentrations of gold.

3.1.2. Maintenance

Appropriate scheduled preventive maintenance of machinery is crucial for longevity of equipment. The frequency of maintenance required for each machine in the processing system is currently being analysed. Information on the durability of machines and maintenance requirements are currently being collected and a comprehensive maintenance schedule and manual will be produced once sufficient data exist.

3.1.3. Training

Six local workers have been trained to operate the gold processing system. To date the majority of the training has been focused on the jaw crusher and mill/sluice system. Further training with the shaking table and gold purification and smelting is currently being conducted. Throughout the training process emphasis has been placed on operation and preventative maintenance. In addition to the technical training required to safely operate the machines while processing ore, maintenance was stressed including attention to details such as sounds and smells, tightness of bolts, position and lubrication of moving parts and general mechanical wear and tear.

3.1.4. Production and Sampling

A sustainable milling rate of 20 min/bag was determined to optimize throughput and concentration while maintaining a consistent working volume in the mill bowl. On average a bag was found to contain 37 shovel loads of material. This translates to an input rate of ~1 shovel/ 32 seconds. Carpets needed to be washed after 8 bags (~1 tonne) of material are milled. Density measurements were taken for heads leaving the mill, slurry leaving primary sluice, and tails leaving secondary sluice.

The shaking table was tested and the primary sluice carpet concentrates yielded a distinct and continuous line of gold coming off the table at the leading edge of the heavies. The secondary sluice concentrates also yielded a line of gold, although it was notable less pronounced than that formed from the primary sluice concentrates. The table highs and mids from 8 bags of ore were collected as samples.

The grade and concentration of material through the different steps of the processing work flow will be assessed and data further collected during the next trip planned for July 2014.

4. Activities scheduled for the next period

The following priorities have been identified for completion on the next trip to Burkina, scheduled for July, 2014.

- Complete training of workers with table and gold purification and smelting;
- Leave plant fully operational under local workers supervision;
- Buy gold produced;
- Visit and identify potential future sites.
- Continuation of health activities as detailed in the Health Report, such as the development of a continuing education curriculum.

In Senegal, the following steps are scheduled for the next trip in the fall of 2014.

- Installation Phase of the mercury-free system on the site of Bantaco
- First rounds of health professionals training in the region of Kedougou/Saraya

Finally, the following activities are planned during the regional steering committee, scheduled in the Fall of 2014:

- Distribution and presentation of Inventory results for Burkina and Senegal
- Presentation of the recommendations for the NAP for Burkina and Senegal

ARTISANAL GOLD COUNCIL

Annex 1- Recommandations pour l'élaboration d'un Plan d'Action National sur l'utilisation du mercure dans l'orpaillage et l'exploitation minière à petite échelle au Sénégal.

Présenté au Gouvernement du Sénégal

Septembre 2014

Le but de ce document est de fournir des recommandations au gouvernement du Sénégal sur la création et la mise en œuvre d'un Plan d'action national (PAN) sur l'utilisation du mercure dans l'orpaillage et l'exploitation minière à petite échelle au Burkina Faso, conformément à l'article 7, annexe C, de la Convention de Minamata sur le mercure, instrument juridique contraignant récemment signé par le Sénégal (le texte de la Convention est disponible à ***http://www.mercuryconvention.org/Portals/11/documents/conventionText/Minamata%20Convention%20on%20Mercury_f.pdf***) .

Le financement pour le développement d'une étude initiale permettant la mise en œuvres de la Convention de Minamata (MIAS) pourrait aller jusqu'à un maximum de $ 200,000 et pour le développement de plans d'action nationaux (PAN) jusqu'à un maximum de $ 500,000. Ce financement sera disponible pour les gouvernements nationaux qui en feront la demande, à l'aide d'une application au Fonds Mondial pour l'Environnement (FME).

L'article 7 de l'annexe C exige que le gouvernement du Sénégal prennent des mesures pour réduire et, si possible, pour éliminer l'utilisation, les émissions et les rejets de mercure dans le secteur de l'exploitation minière artisanale et à petite échelle (EMAPE).

Puisque les activités d'orpaillage sur le territoire du Sénégal ne sont pas négligeables, le gouvernement du Sénégal devra:

a) Mettre en place un plan d'action national (PAN)

b) Présenter le plan au Secrétariat de la Convention

c) Fournir tous les trois ans une révision des progrès accomplis sur le PAN au Secrétariat

La Convention n'exige pas une interdiction complète de l'utilisation du mercure dans l'EMAPE. Elle prévoit plutôt une approche permettant une réduction progressive de l'utilisation du mercure. La Convention recommande cette approche en partie parce que l'interdiction stricte de l'utilisation du mercure dans l'EMAPE n'a pas produit les résultats escomptés dans de nombreux pays à travers le monde et a plutôt favorisé le développement d'un marché noir. Le gouvernement du Burkina Faso aura à évaluer et à mettre en œuvre des stratégies visant à faire respecter la loi entourant l'utilisation du mercure dans l'EMAPE. Cependant, il est également recommandé d'analyser les effets de l'application stricte d'une telle loi sur la marginalisation du secteur et le développement d'un marché noir pour le mercure.

L'application stricte de la loi peut devenir une étape nécessaire en due temps, après qu'une période de transition se soit écoulée et que des mesures de soutien adéquates aient été mises en place.

Recommandations générales

Les 8 recommandations qui suivent concernent les lignes directrices du PAN:

1. Une interdiction progressive et graduelle de l'importation et de l'utilisation du mercure au Sénégal
2. L'établissement d'un nombre croissant de sites pilote de traitement du minerai sans mercure
3. L'accompagnement systématique des interventions techniques dans les sites d'EMAPE par des programmes d'éducation et de sensibilisation sur les technologies sans mercure, meilleures pratiques environnementales, sociales, et sanitaires
4. Un processus de formalisation simplifiée
5. Une communication améliorée entre toutes les parties prenantes
6. L'amélioration de la prestation de services de soutien aux communautés d'EMAPE
7. Le message principal de toute campagne de sensibilisation auprès des orpailleurs devrait mettre l'emphase sur la possibilité de meilleures revenues pour ceux-ci, ainsi que l'amélioration des conditions de travail, de santé et de leur environnement.
8. Le Plan d'action national doit être simple et devrait prendre en compte la réalité des communautés d'EMAPE au Sénégal

Recommandations spécifiques

La section suivante présente 26 recommandations spécifiques pour la phase initiale (3 ans) d'un PAN pour le Sénégal. Les objectifs devraient être revus à chaque 3 ans.

Annexe C de la Convention de Minamata: Extraction minière artisanale et à petite échelle d'or- Plans d'action nationaux	***Recommandations spécifiques***
1. Chaque Partie soumise aux dispositions du paragraphe 3 de l'article 7 fait figurer dans son plan d'action national :	
a) Des objectifs nationaux et des objectifs de réduction;	1- Une réduction de 25% de l'utilisation du mercure dans l'EMAPE au Sénégal 2- La formalisation de 50 nouveaux sites d'EMAPE au Sénégal 3- L'enregistrement (carte d'orpailleur) de 30,000 orpailleurs, incluant des étrangers 4- L'entrée d'une tonne d'or artisanal produite légalement dans la chaîne d'approvisionnement légale de l'or
b) Des mesures visant à éliminer : ***i) L'amalgamation de minerai brut;***	5- L'installation de 5 systèmes de traitement du minerai sans mercure ou autres

ii) Le brûlage à l'air libre d'amalgames ou d'amalgames transformés; ***iii) Le brûlage d'amalgames dans des zones résidentielles; et*** ***iv) La lixiviation au cyanure de sédiments, minerais et résidus auxquels du mercure a été ajouté, sans en avoir au préalable retiré ce dernier;***	technologies alternatives visant la réduction de l'utilisation, et ce dans 25 sites d'EMAPE au ***Sénégal*** 6- En collaboration avec les mines industrielles ou l'entreprise privée, favoriser et établir un programme d'achat des rejets/résidus de provenance artisanale
c) Des mesures pour faciliter la formalisation ou la réglementation du secteur de l'extraction minière artisanale et à petite échelle d'or;	7- Établir un programme d'enregistrement des orpailleurs, à travers des comptoirs régionaux d'achat d'or et réglementer par un bureau d'achat national 8-Décentralisation du Service du Cadastre Minier, avec support administratif pour l'application et le renouvellement des permis miniers artisanaux 9-Dispositions permettant au gouvernement l'octroi de permis d'exploitation minière artisanale sur des permis de recherche inactifs, lorsque les deux parties prenantes ne peuvent s'entendre sur les transferts des droits (accommodation) 10- Le renforcement des droits des orpailleurs lors de conflits avec des applications de permis industriels
d) Des estimations initiales des quantités de mercure et des pratiques utilisées sur son territoire dans le secteur de l'extraction minière et de la transformation artisanales et à petite échelle d'or;	11- Donner des séances de formation sur la réalisation d'un inventaire technique de l'EMAPE (quantité de mercure utilisée, techniques utilisées) pour chaque partie prenante, incluant les gouvernements régionaux 12- Procéder à un inventaire annuel des sites d'EMAPE dans chaque région 13- Établissement d'un système de déclaration obligatoire des résultats des inventaires annuels
e) Des stratégies pour promouvoir la réduction des émissions et rejets de mercure et de l'exposition à cette substance dans le secteur de l'extraction minière et de la transformation artisanales et à petite échelle d'or et, en particulier, des méthodes ne faisant pas appel au mercure;	14-Interventions techniques en parallèles avec des formations sociales, environnementales et sanitaires sur 25 sites d'EMAPE au Sénégal
f) Des stratégies visant à gérer les échanges commerciaux et à empêcher le détournement	15- La mise en œuvre d'une enquête sur la chaîne d'approvisionnement en mercure au Sénégal, avec un plan d'action pour son

de mercure et composés du mercure provenant de sources étrangères et nationales destinés à être utilisés pour l'extraction minière et la transformation artisanales et à petite échelle d'or;	interdiction graduelle, ainsi qu'une méthode de mise en application de celui-ci
g) Des stratégies visant à impliquer les parties prenantes dans la mise en œuvre et l'amélioration continue du plan d'action national;	16- Établir un forum national concernant le développement du PAN et favorisant le dialogue entre acteurs, incluant le gouvernement, la société civile, les leaders des EMAPEs, les représentants des associations de mineurs ou d'entrepreneurs, et les représentants des compagnies minières industrielles 17- Mettre en place une revue annuelle obligatoire concernant les progrès dans le développement du NAP, et ceci par région
h) Une stratégie de santé publique relative à l'exposition des mineurs travaillant dans l'extraction aurifère artisanale et à petite échelle et de leurs communautés au mercure. Une telle stratégie devrait prévoir, entre autres, la collecte de données sanitaires, la formation du personnel des services de santé et la sensibilisation par l'intermédiaire des établissements de santé;	18- La formation des professionnels de la santé sur les problèmes sanitaires spécifiques à l'EMAPE, et ce dans chaque région où l'EMAPE est présente. 19- La formation des communautés sur les problèmes sanitaires spécifiques à l'EMAPE, la santé et sécurité au travail, et les méthodes préventives pour améliorer la santé. 20- La création d'un système de surveillance de la santé des orpailleurs et de leur communauté, et l'instauration d'un système de déclaration obligatoire des données sanitaires, et ce annuellement et par région.
i) Des stratégies visant à prévenir l'exposition des populations vulnérables, notamment les enfants et les femmes en âge de procréer, en particulier les femmes enceintes, au mercure utilisé dans l'extraction minière artisanale et à petite échelle d'or;	21- Le développement et la mise en œuvre d'interventions sanitaires auprès de 25 sites d'EMAPE, visant à sensibiliser au danger que le mercure pose pour les enfants et femmes enceintes. 22- La création de centres d'amalgamation dans chaque communauté d'EMAPE, respectant des standards d'hygiène et de santé au travail, et qui éliminent les risques d'exposition au mercure pour les populations vulnérables. La mise en application de ces centres et des mesures de santé au travail devrait être faite de façon graduelle.
j) Des stratégies pour informer les mineurs travaillant dans l'extraction aurifère artisanale	23- La création d'un système d'information par SMS accessible par les communautés d'EMAPE et incluant au minimum l'information

et à petite échelle et les communautés touchées;	suivante : le cours international de l'or, des informations sur la santé et sécurité au travail dans l'EMAPE. 24- La création d'une stratégie de communication et diffusion de l'information relatives à la sensibilisation sur les meilleures pratiques dans l'orpaillage, les dangers du mercure pour la santé, ainsi que les services gouvernementaux disponibles pour les EMAPE.
k) Un calendrier pour la mise en œuvre du plan d'action national.	
2. Chaque Partie peut faire figurer dans son plan d'action national des stratégies supplémentaires pour atteindre ses objectifs comme, par exemple, l'utilisation ou l'introduction de normes relatives à l'extraction minière artisanale et à petite échelle d'or par des procédés ne faisant pas appel au mercure et de mécanismes reposant sur le marché ou d'outils de marketing.	25-La revue du système de taxation relatif à la production et l'exportation de l'or produite artisanalement afin de supporter l'entrée de l'or artisanal dans la chaîne d'approvisionnement légale du Sénégal 26-Un support continue pour le développement des mesures de formalisation reliées à la transparence et à la bonne gouvernance des chaînes d'approvisionnement de l'or au Sénégal (voir l'OCDE- Due Diligence process)