

ASGM Market Study: Key Findings from GOLD-ISMIA's Project Locations

Pursuant to its target at established market route for mercury-free gold, GOLD-ISMIA made an attempt to understand the market landscape of the sector by conducting a market study in 2020. Three key findings from the study are that: (i) local buyers have significant roles in the value chain; (ii) there are variations in the gold grade checking methods applied by the local buyers; and, (iii) local gold price is relatively similar to the price offered by the formal markets. These findings lead to one conclusion; that is the current system of local market in all project locations are not in favour of ASGM miners. This is a marketplace where the gold price that the miners receive is decided by the local buyers based on a non-transparent mechanism (re. gold grade checking). Based on these findings, Project strategized its supports to help create a fair and transparent gold market within the ASGM sector.

1. Introduction

Access to better paying markets is a key to increase the income of artisanal and small-scale gold miners. This insights is seconded by the Global Opportunity for Long-term Development – Integrated Sound Management of Indonesia's Artisanal and Small Scale Gold Mining (GOLD-ISMIA) Project.

Specifically, under Component 3, the Project 'aims at improved/established route to market for mercury-free gold'. To achieve this outcome, it is essential that the Project's strategy and activities are responsive to the reality of the market. Therefore, the Project conducted a market study to establish a baseline of knowledge of how the golds mined from ASGM are traded, including on the price mechanism and the market actors involved.

The data collection in the market study was conducted between April and August 2020 within the six (6) project

locations, namely: **Tatelu Village** (North Minahasa District, North Sulawesi Province); **Buwun Mas Village** (West Lombok District, West Nusa Tenggara Province); **Kalirejo Village** (Kulon Progo District, Yogyakarta Province); **Hulawa Village** (North Gorontalo District, Gorontalo Province); **Anggai Village** (South Halmahera District, North Maluku Province); **Logas Village** (Kuantan Singingi District, Riau Province). This fact sheet highlights key findings from the market study and incorporates updated information to reflect the developments taken place after the completion of the study. The next sections will present general information about the study, followed with the key findings from each project locations. The project supports and strategies responding to the key findings are presented in the subsequent section.

2. Situation Analysis

As the Project's first attempt to understand the ASGM market landscape, the study targets at answering the following questions:

- a. How is the gold value chain within the local market? Who are the market actors involved and how the price received by the miners are decided?
- b. How are the trend of local price, compared to the price offered by formal market?

Data were collected through both field observations and interviews with local contacts, consisting of ASGM miners, middlemen (usually called "daeng") and gold shop owners. Data collections were carried out during the implementation of social distancing policy re. COVID-19, so that most of the interviews were conducted by phone.

The market study has 2 main limitations related to the data collection. Firstly, the level of detailedness of the data collected for this market study varies depending on how close or friendly the relationship between the interviewers and the local contacts who tend to be more careful in sharing

information with outsiders or new persons. In most cases, they will give very limited information during the first and second attempts of interview and refused to talk in the next attempts. The social distancing policy added to the interviewers' difficulties to make personal approach to the hard-to-get respondents.

Secondly, most of the miners in all project locations don't keep record on their activities so that the information provided to the interviewers were often based on their personal collection of memories. This may impact particularly on the factuality of price data collected.

3. Key Findings from the fields

This section will present the key findings from each project location of GOLD-ISMIA. For notation, the traded gold observed in this market study refers to "bullion" which is the result of artisanal gold processing which needs further processing/refining before it is transformed into pure gold (99.99% carat).

a. Local buyers have significant roles in the value chain

In all GOLD-ISMIA project locations, local buyers take parts in the gold value chain to whom the miners directly sell their gold. As described in Figure 1, the local buyers act as middlemen intermediating the transactions between the miners and the larger-scale buyers and/or the gold shop owners. In some locations, they are known as "daeng", a local term in South Sulawesi from where most of the local buyers are originated.



Figure 1. The gold value chain scheme commonly applied in all project locations

Among these locations, only in Tatelu that a new scheme exists in which Koperasi Batu Emas¹ is linking the miners with PT. Antam Resourcesindo (ARI)², making the value chain is shorter compared to the usual one. This scheme is resulted from the signing of agreement between both parties with facilitation from the *Yayasan Emas Artisanal Indonesia* (YEAI).



Figure 1. A new value chain scheme initiated by YEAI

Cash buyers and investors

Buying the gold directly from the miners, the local buyers are responsive to the miners' needs for quick encashment. The local buyers make efforts ensuring that they are reachable whenever the miners want to sell their gold, often as soon as they have finished processing. In Tatelu, for example, there are approximately 20 *daeng* living in small cottages (temporary house) nearby the mining sites. In most locations, the local buyers will regularly visit to the mining sites and/or collect the gold from the miners, allowing the miners make minimal efforts to sell their golds.

The miners' need for cash and investment is also catered by the local buyers. In Anggai, the miners are able to receive cash advance from the local buyers with conditions that they have to sell the gold when the processing has been

¹ A miners' cooperative in Tatelu and holder of small-scale mining right or *izin pertambangan rakyat* (IPR)

² The subsidiary company of PT. Antam which is a state-owned refinery company and the only refinery in Indonesia holding LBMA certification for its pure gold (*logam mulia*) products.

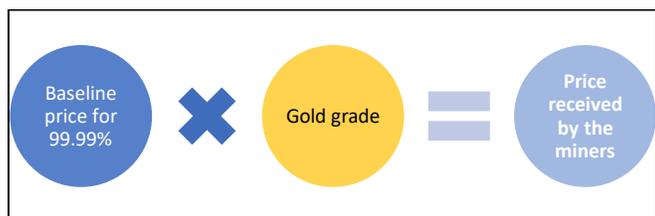
completed. The cash will be used to pay for operational cost (e.g., purchase of chemicals, ropes and sacks) or for daily needs.

Baseline price setters and grade decision makers

In all locations, the local buyers decide the baseline price for the gold sold by the miners. This baseline price for gold with 99.99% grade is agreed upon by the local buyers in that location at particular time; this price may change within one day. On the other hand, the miners have no bargaining power in the setting of this price. Most miners said that they don't usually question the price set by the local this is because they don't have enough information the gold price offered outside their respective locations to compare with.

The price received by the miners are calculated based on the gold grade³, as described in Equation 1. Similar to the baseline price, the local buyers are those deciding the gold grade; across the 6 locations, the grade range between 65% and 99%.

Equation 1. Price received by the miners



b. Variations in the gold grade checking methods

As mentioned above, the local buyers are the ones deciding the gold grade. The decision is made after the bullion is analysed by using certain methods commonly used in those locations, as described in Table 1.

Table 1. Methods commonly used by the local buyers in the project locations

No	Method	Locations ⁴				
		T	BM	K	H	A
1	Sulfate - processing with sulfate [Pic. 1]	✓				
2	Timbang air - to weight the gold inside water [Pic. 2]	✓		✓		
3	Jari-jari – the gold is scrubbed and then compared to the colour of gold sticks, each of which represents gold grade [Pic. 3]	✓			✓	
4	Pen – similar to timbang air [Pic. 4]		✓			
5	Silver and Nitric Acid 68% - to 'cook' the gold with silver and nitric acid [Pic. 5]					✓

Table 1 informs that each location has varied preference in the method used to check the gold grade. Only in Tatelu that there are 3 methods in use, with *jari-jari* is the most common method used by *daeng*, while *timbang air* and sulfate are usually applied by larger-scale buyers and gold shop owners. Information on the methods used in Logas is unknown because the local buyers refused to respond to the interviewer's question.

³ The grade in this paper refers to any mention in the location by both the miner and the local buyer indicating the purity of the gold traded on the spot. Miners and local buyers never use the term "gold recovery" for the purity of gold traded.

⁴ "T" = Tatelu; "BM" = Buwun Mas; "K" = Kalirejo; "A" = Anggai and "H" = Hulawa



Picture 1. Gold grade checking by using sulfate



Picture 2. "Timbang Air" method



Picture 4. Jari – jari method



Picture 5. Silver and HCl method



Picture 3. Jari-jari Method

c. The local price is relatively the same as the price offered by the formal markets

The gold price data collected in the project locations are presented in Table 2. For the analysis purposes in the market study, the local price of varied grade are converted to 99.99%⁵ pure gold.

Table 2. Gold local price in four project locations

Location	Date	Grade	Gold price offered by:		Conversion to the pure gold (99.99%)
			Gold shop owners	Local buyers	
Tatelu Village	30 Mar 2020	99%	817,000	-	825,252
	10 Apr 2020	70%	-	600,000	857,143
	14 Apr 2020	70%	-	600,000	857,143
	17 Apr 2020	70%	-	560,000	800,000
	27 Apr 2020	99%	-	780,000	795,837
	09 May 2020	90%	-	702,000	780,000
	20 May 2020	65%	-	514,000	790,769
	02 Jun 2020	60%	-	500,000	833,333
	02 Jun 2020	65%	-	504,000	775,385
	12 Jun 2020	70%	-	560,000	800,000
	01 Jul 2020	99%	-	805,000	819,689

It is, meanwhile, worth noting that:

- only very few miners who understand how these methods are operated, and that the miners will accept the grade of their gold decided by the local buyers;
- while making decisions on the gold grade, the local buyers don't take other minerals contained in the bullion (e.g., copper and silver), into consideration while these minerals still have economic value; and,
- specific to Tatelu, *daeng* set the maximum of gold grade at 99.20%; meaning that if the bullion sold has 99.20% - 99.99% grade, the miners will receive the price at 99.20% grade.

790,769; (c) compared to Antam BB's price = IDR 823,950 (USD 55.71); and (d) compared to the spot price = IDR 830,459 (USD 56.15) at the exchange rate of 1 USD = IDR 14,790

⁵ The conversion of the gold price is carried out as follows: (a) example the gold price at Tatelu on 20 May 2020 is IDR 514,000 for a grade of 65%; (b) conversion of the pure gold price to 100/65 x 514,000 = IDR

Location	Date	Grade	Gold price offered by:		Conversion to the pure gold (99.99%)
			Gold shop owners	Local buyers	
	21 Jul 2020	75%	-	595,000	793,333
	02 Aug 2020	65%	-	550,000	846,154
	14 Aug 2020	99%	-	1,057,000	1,067,677
Buwun Mas Village	21 May 2020	99%	-	800,000	808,081
	03 Jun 2020	99%	-	790,000	797,980
	11 Jun 2020	99%	-	785,000	792,929
	03 Jul 2020	99%	-	800,000	808,081
	26 Jul 2020	80%	-	750,000	937,500
	05 Aug 2020	91%	-	790,000	868,132
Kalirejo Village	14 Apr 2020	90%	-	700,000	777,778
	21 May 2020	90%	-	710,000	788,889
	03 Jun 2020	90%	-	700,000	777,778
	12 Jun 2020	90%	-	690,000	766,667
	03 Jul 2020	90%	-	670,000	744,444
Hulawa Village	May 2020	80%	-	760,000	950,000
	Jun 2020	80%	-	720,000	900,000
	Jul 2020	80%	-	710,000	887,500
	Aug 2020	80%	-	700,000	875,000

Tatelu Village

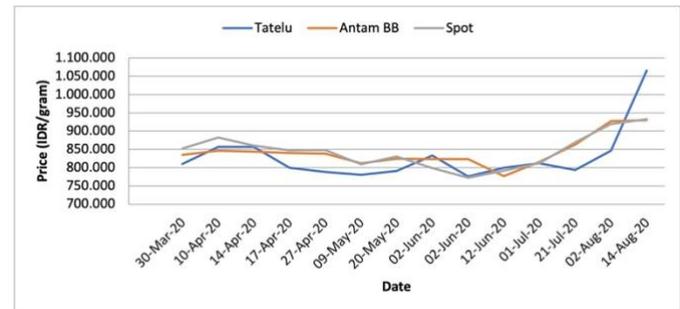


Chart 1. Gold price in Tatelu

Chart 1 informs that the local gold price in Tatelu fluctuated between March to August 2020, with the lowest price was at IDR 775,000/gram on 2 June 2020 and the highest was at IDR 1,065,524/gram. In general, despite that the gold price in Tatelu is below the prices offered by Antam and World Spot, but the local price is higher than 90% of Antam and Spot prices.

There are several days when the local prices were higher compared to either Antam’s or Spot’s. Based on an interview, this trend was due to the local buyers and gold shop owners gave higher prices to the miners (compared to Antam’s) who were worried that the miners would prefer sell their gold to ARI (through Koperasi Batu Emas). Both parties signed an agreement in early 2020.

Based on another interview, the high price in Tatelu at these dates was the result of increased demand from the gold shop owners who would processing the gold for gold jewelry making. This processing allows the shop owners made more profits from other minerals contained in the bullion (e.g., copper and silver).

Due to limitations mentioned in Point 2 – Situation Analysis (i.e., relationship factor and no records), the interviewers were unable to collect the detailed price data in Anggai and Logas; the respondents in these locations only provided price range.

To understand the trend between the local gold price with the price offered by formal markets, comparisons were made to the national/domestic price (in reference to “Antam Buy Back/Antam BB”) and the world spot price (in reference to <https://goldprice.org-price-history.html>). The price trends in Tatelu, Buwun Mas, Kalirejo and Hulawa are described in Charts 1 - 4.

Buwun Mas Village

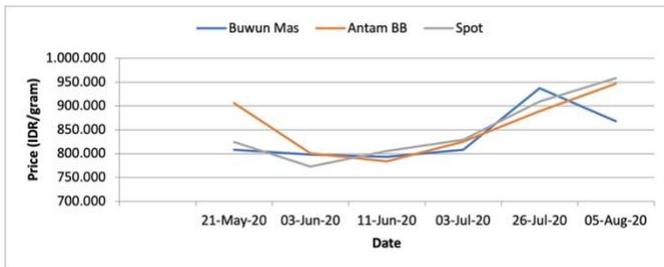


Chart 2. Gold price in Buwun Mas

From Chart 2, it is informed that during the time of data collection, the gold price in Buwun Mas is relatively stable at the price of IDR 800,000/gram and not too distant from the prices offered in the national and world markets. In the mid of July 2020, the local price increased by 5% and 3% compared to the domestic and world prices, respectively, but then decreased in August 2020. The COVID-19 pandemic was most likely the reason for this fluctuation.

Kalirejo Village

As illustrated in Chart 3, the gold price in Kalirejo is lower by 10% compared to both domestic and world markets. The reason for this low price offered by the local market was that unlike in other locations where the local buyers collected the gold from the miners, the miners in Kalirejo went to Purworejo, a nearby city, to sell their golds. Note that in Kalirejo only 1 mining cooperative which is also the IPR holder is operating resulting in low productivity in that location.

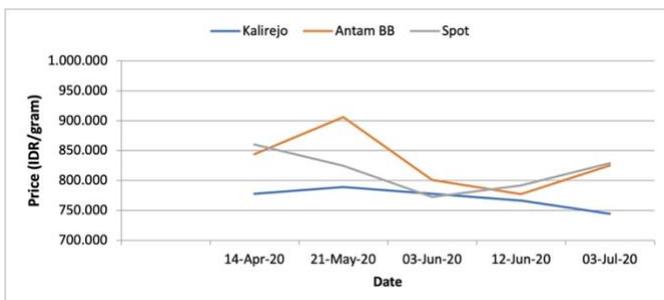


Chart 3. Gold price in Kalirejo

Hulawa Village

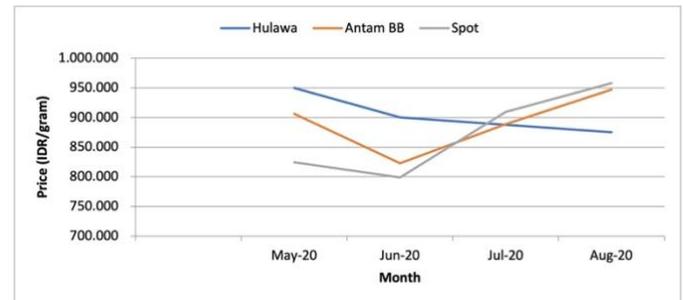


Chart 4. Local price in Hulawa

Chart 4 informs that between May and July 2020, the gold price in Hulawa is above both domestic and world prices but then drops towards August 2020.

Anggai and Logas Villages

The miners in Anggai were unable to provide continued data of gold price, but the respondents informed that the price during the time of data collection was between IDR 600,000 and IDR 800,000/gram with gold grade of 60% - 70%. In the early phase of COVID-19 pandemic, 5 kilograms of produced golds were unable to be shipped out of Anggai (located in Obi Island) because of disrupted sea transportation. This disruption also impacted on the cash circulation in the Island, resulting in the miners' difficulties to receive cash from the local buyers.

Likewise, the miners in Logas informed the interviewer that the gold price between July and August 2020 were in the range of IDR 800,000 – IDR 870,000/gram.

Price analysis across the project locations

As reflected in Table 2, the averaged local gold prices were below the prices offered by both domestic and world markets with deviation of (minus) within 10%. This trend applies in all project locations, except in Anggai where the deviation is more than (minus) 20% and in Hulawa where the deviation is (surplus) within 5%.

Table 3. Local gold price compared to the prices offered by Antam and World Spot

No	Locations	LP ⁶ (IDR)	AP ⁷ (IDR)	AP - LP Dev. ⁸	SP ⁹ (IDR)	SP- LP Dev. ¹⁰
1	Tatelu	829,187	842,643	98%	844,697	98%
2	Kalirejo	771,111	830,591	93%	815,640	95%
3	Buwun Mas	835,450	858,667	97%	849,992	98%
4	Anggai	700,000	887,000	79%	898,987	78%
5	Logas	835,000	887,000	94%	898,987	93%
6	Hulawa	903,125	891,250	101%	872,756	103%

These anomalies are perhaps due to: (i) the disrupted transportation in and out the Obi Island leading to oversupply of produced gold in Anggai, and, (ii) the price data provided by the respondents in Hulawa were on monthly basis so that the data may be unable to reflect the fluctuation.

4. Reflections and Project Strategies

As stated in Table 3, the deviation between prices at the local market and the formal markets are by minus 10% - surplus 5%. It means that the baseline price set by the local buyers are not too far from the prices offered by Antam and the world spot.

Nevertheless, the current local market in all project locations are still not in favour of ASGM miners. This is a marketplace where the gold price that the miners receive is decided by the local buyers based on a non-transparent mechanism (re. grade checking). Note that the grade checking methods are

mostly unknown by the miners and nor the current application of these methods are provenly accurate to check the gold grade.

The miners' limited capitals to meet the operational costs and daily needs has led to their need for quick cash. This limitation results in their preference to cash buyers whose often give less favoured option of prices. The cash-in-advance system, in which the local buyers agree to give cash with the promise that the produced golds are sold to them, has deepened the miners' reliance to these local buyers.

Building upon the key findings from the 2020 Market Study, the Project has strategized its supports for establishment of a more transparent and fair market which will allow the ASGM miners generate higher income. Starting from 2021, the Project have initiated the following initiatives:

i. To connect the miners with varied range of actors from formal markets

This strategy was initiated by YEAI by the signing of an agreement between *Koperasi Batu Emas* and ARI in early 2020. Through this agreement, on 24 February 2020 *Koperasi Batu Emas* sold to ARI a total of 519.74 gram of gold and no further transaction is made since then.

Likewise, the Project connected *Koperasi Batu Emas* with an ethical jewelry company based in Bali, Indonesia. In February 2021, both parties reached a business deal of 754 gram bullion with a premium price (i.e., above Antam BB price). Following this transaction, the company contributed a certain amount of money to give back to the local community. This contribution was utilised to set up a reading corner to 3 elementary schools in Tatelu targeting to nurture the reading habits within the mining community.

⁶ Local price (in average) which refers to the baseline price set in reference to the price of 99.99% of pure gold.

⁷ Antam BB price (in average)

⁸ Deviation between Antam and local prices

⁹ Spot price (in average)

¹⁰ Deviation between Spot and local prices

In January 2021, the Project initiated communications between *Koperasi Batu Api*, a IPR holder located in Talawaan, nearby Tatelu, with a newly established metals refinery company based in Jakarta. Both parties agreed to explore business opportunities in near future.

Moving forwards, the Project have planned to organize a business meet-up between the company with all mining cooperatives from the project locations. The connection between the miners and refineries will help the miners receive value addition from their produced gold; they can sell their gold in the form of pure gold instead of bullion. This event is scheduled for Q4 2021.

ii. To capacitate the existing mining cooperatives to be able to take roles in the gold value chain

The mining cooperatives within the project locations have yet to take part in the gold value chain. The cooperatives have thus far been intended as formal organizations through which the miners get access to legalization (the cooperative is the IPR holder).

The cooperatives shall be able to intermediate the transactions between the miners and other buyers. Taking this role, the cooperatives can utilize its capital fund to pay in cash the gold sold by their members, after which they will have a pool of gold stock and offer these to the formal markets. As a formal organization, these cooperatives are in a stronger position to negotiate better price with other market actors.

As part of the project supports, capacity building activities have been designed to equip the cooperative managers with necessary skills for engaging the formal market actors. These skills include: how to properly communicate and negotiate their conditions in a business deal, how to prepare a business agreement that can avoid them from any loss or inconvenience resulted from the transaction and how to promote their gold

products in formal markets. These activities are planned in Q4 2021.

Most importantly, the Project has been in discussion with several mining cooperatives within the project locations on the provision of a mini lab for gold grade checking with accurate and trustworthy methods. With this mini lab, the cooperatives will be able to confidently state the grade of the golds sold by the miners and offered to the formal markets. This mini lab shall also be accessible for the cooperative members who intend to check their gold. This is a small service from which the cooperatives can collect reasonable cost from the members.

iii. To initiate a responsible sourcing of gold mined from ASGM

Understanding the emerging demand for responsible sourcing of gold mined from the ASGM sector, under Component 3 the Project aims to support the formalization of 60 mining groups during the project lifespan of 5 years. Through these supports, the mining groups within the project locations are expected to have legal status for their mining and processing activities. With this status, the mining groups are bounded by the Law to carry out responsible mining practices, including to avoid the use of mercury.

In addition, the Project has collaborated with the Government of Indonesia¹¹ in establishment of a national standard for mercury-free gold mined from the sector. This initiative is expected to be completed by Q1 2022 and help transform ASGM in Indonesia into a responsible sector.

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¹¹ Represented by the Agency for the Assessment and Application of Technology (BPPT), the Ministry of Environment and Forestry, the

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FACT SHEET

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A GEF Initiative

Manager). The baseline data were collected by Mr. Supriyanto (GOLD-ISMIA Individual Consultant for Gold Market Analysis and Gold Certification for ASGM Sector).

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