CLINN-GEM para sa Katawhan, Kinaiyahan, ug Kalambuan: A call for support and promotion of the Community-led Integrated Non-Cyanide, Non-Mercury Gold Extraction Method (CLINN-GEM)

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Abstract

This participatory action research describes the status, development, and impacts of Community-led Integrated Non-Mercury, Non-Cyanide Gold Extraction Method (CLINN-GEM) and the operations of the Integrated Gold-Copper Mineral Processing Pilot Plants (IGCMPPPs) in Barangay Del Pilar, Cabadbaran Caraga and Barangay Katipunan, Nabunturan Davao De Oro, Davao Regions. A multiple case study approach was adopted and mixed-methods were used in data gathering and analysis.

The results revealed that both IGCMPPPs have been turned-over to Department of Science and Technology (DOST) Caraga and Provincial Local Government Unit (PLGU) of Davao de Oro for operation and subsequent operation. Both recipients – DOST Caraga and PLGU Davao de Oro took several initiatives to optimize the technology and the operation of the IGCMPPPs. Further, the results of the field testing show that while CLINN-GEM is cost efficient, both IGCMPPPs have low gold recovery at 16.79% for Katipunan and 20.36% in Del Pilar. Aside from low recovery rate, the problems and challenges of the IGCMPPPs include less to no supply of ore for testing to optimize the technology, lack human and financial resource to fully operationalize the IGCMPPPs and comply with the health and safety standards. Despite all these, the IGCMPPPs can offer laboratory and mineral processing services up to flotation. Also, the field-testing project have contributed social and economic development in the barangays. The establishment of the IGCMPPPs in Davao de Oro and Caraga Regions post no harm in the environment as far as the present vegetation survey is concerned but the construction of the IGCMPPP Katipunan changed the surface topography and the effluent from the processing plant that was discharged to the tailings pond may still contain reagents and harmful substances that may affect the quality of water.

Thus, stakeholders are called to intensify and support efforts for the optimization of the IGCMPPPs while continuously monitoring their impacts. Lastly, stakeholders shall lobby for policies for the promotion and adoption of the technology such as provincial and barangay resolutions encouraging small-scale miners to submit samples for assaying and processing and their corresponding incentives.

Research results

The IGCMPPPs can provide laboratory and limited mineral processing services since CLINN-GEM needs to be optimized. Also, the technology was not yet adopted nor the services of the IGCMPPPs are availed by the small-scale miners but there are efforts for commercialization of its services.

The results of the field-testing show that while CLINN-GEM is cost efficient, both IGCMPPPs have low gold recovery at 16.79% for Katipunan and 20.36% in Del Pilar. However, both recipients took several initiatives to optimize the technology and the operation of the IGCMPPPs.

Table 1. Summary of field-testing result

Indicators	IGCMPPP, Del Pilar	IGCMPPP, Katipunan
Volume (ton)	0.800	4.75
Composite Assay (grams per ton)	10.13	1.12
Processing Time (hours)	26.5	91.78
Processing Cost (power)	6,735.70	6,381.00
Environmental Cost (Php)		
Overall Gold recovery	20.36	16.79%

Figure 1. The CLINN-GEM Technology Features

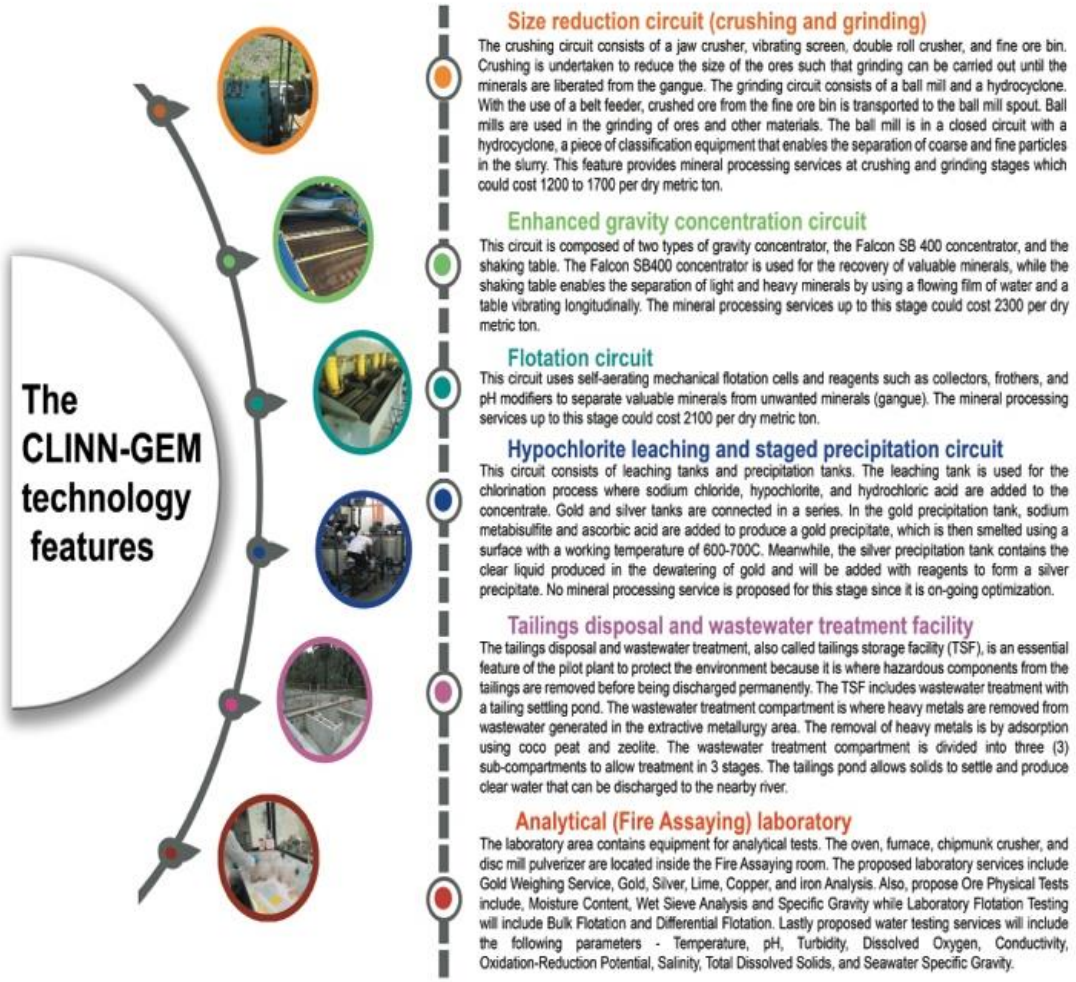


Figure 2. Social, economic, and environmental impacts of the IGCMPPPs in Barangays Katipunan and Del Pilar

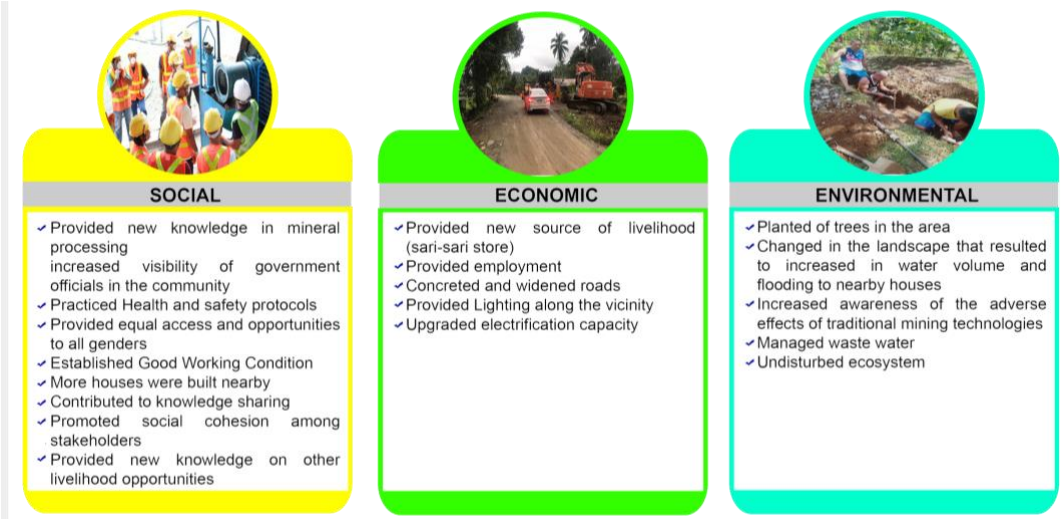
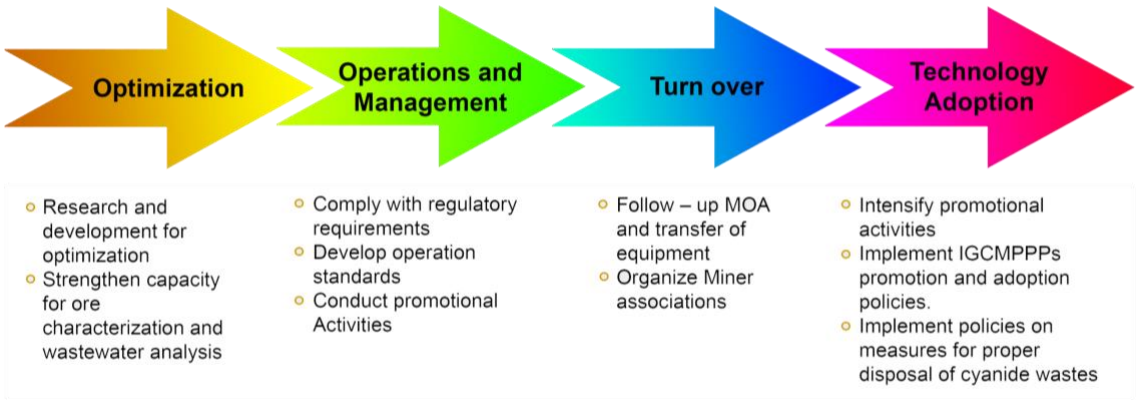


Figure 3. Strategic Actions for the Different Transition Phases



The social, economic, and environmental impacts brought about by the establishment of the IGCMPPPs are contributing to the development of the communities, more direct impacts of CLINN-GEM and the IGCMPPPs have to be known.

Policy recommendations / conclusions

- For the stakeholders to intensify and support efforts for the optimization of the IGCMPPPs specifically, recovery of gold and other minerals, improvement of laboratory equipment and procedures, compliance to pollution control and safety standards, and conduct of complete ore characterization.
- Develop programs and activities for information and education campaign to introduce the services and operations of the IGCMPPP to the small-scale miners and its stakeholders.
- Formulate policies for the promotion and adoption of the technology such as provincial and barangay resolutions encouraging small-scale miners to submit samples for assaying and processing and their corresponding incentives.
- Propose amendment to Sec 3 paragraph (a) of Republic Act 7076 also known as the People Small-Scale mining Act of 1991 on the definition of mineralized areas for the broadening of scope of the mineralized areas and inclusion of other minerals but not limited to lead, copper, iron, and zinc.

Acknowledgments

This project is funded by the National Research Council of the Philippines

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