

IM4DC

Action Research Report

SUMMARY

Researchers:

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School/Centre:

Centre for Mined Land Rehabilitation

University/Institutions:

Sustainable Minerals Institute,
University of Queensland

Key themes:

Community and Environmental Sustainability
Operational Effectiveness

Key countries:

The Philippines

Completion:

September 2014

Research aims:

This project focused on capacity-building initiatives in the area of environmental health issues associated with the mining sector and specifically the contaminant issues linked to elevated (and potentially toxic) metal and metalloid levels in waterways.

For further information on this action research:

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Building Environmental Sustainability in the Mining Sector of the Philippines Through Advanced Environmental Monitoring, Assessment and Management Programs

The purpose of this Action Research project was to initiate a research collaboration program that would provide the opportunity for the Centre for Mined Land Rehabilitation (CMLR) at The University of Queensland to support research staff from Mindanao State University-General Santos (MSU-GS), University of South-eastern Philippines (USEP), University of The Immaculate Conception (UIC) and Mindanao Development Authority (MinDA) in Mindanao in identifying current and future needs and issues related to environmental sustainability of the Mindanao region. The specific objectives of the project were to:

- Assist the development and application of an environmental research program that initially focuses on implementing new approaches for assessing specific components of the local aquatic ecology and the potential risks to such biota and human health through potential exposure to heavy metals in these environments
- Collate, analyse and assess any existing monitoring data on water and sediment quality in both pristine and impacted waterways in southern Mindanao to investigate the potential sources and pathways of contaminants in waters and sediments
- Initiate and develop opportunities for joint research projects with MSU-GS, USEP, UIC and MinDA in the areas linking geochemistry and aquatic toxicity in actual and potential mining-impacted environments.

The authors note that:

- There are research knowledge gaps and methodology deficiencies
- The existing environmental monitoring and assessment approaches do not include some fundamental and applied geochemistry aspects
- The current water quality guidelines in the Philippines do not include all the environmental indicators for an environmental assessment
- Baseline studies on arsenic levels in waters and sediments of the river catchments surrounding potential copper mining areas are needed
- In 2012, mercury use in small-scale mining was banned; however, although levels have dropped they are still far in excess of safe limits
- Two new collaborative research projects have been proposed; one to determine the pathways and residual amounts of mercury in the environment, and the other examining lead pathways in the environment