



**UNIVERSITY OF THE PHILIPPINES
OPEN UNIVERSITY**

DOCTOR OF COMMUNICATION PROGRAM

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**Communicating Risk: Analysis of the Communication Materials on the Risks of
Using Mercury in Small-Scale Mining**

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31 July 2018

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Acceptance Page

This dissertation titled Communicating Risk: Analysis of the Communication Materials on the Risks of Using Mercury in Small-Scale Mining is hereby accepted by Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Doctor of Communication (DCOMM).

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Joseph A. Laroscain lives in Davao City with his wife, Mahalia Sol G. Laroscain and their three children. When not working, Joseph Laroscain enjoys spending time with his three sons, Seth Joseph, Ethan Luke and Lee. He considers himself a film enthusiast and loves producing short films and documentaries featuring the culture and traditions of Mindanao.

Abstract

This study entitled *Communicating Risk: An Analysis of the Communication Materials on the Risks of using Mercury in Small-Scale Mining*, examines the communication materials produced by Department of Environment and Natural Resources (DENR) and Ban Toxics highlighting the risks of using mercury in artisanal and small-scale mining. The study makes use of Norman Fairclough's Critical Discourse Analysis (CDA) in the assessment of the communication materials, and the Transtheoretical Model of Behavior Change (TTM) by Prochaska and DeClemente, in the evaluation of the small-scale miners' response to the communication materials. Through textual analysis, interviews, and focus group discussions (FGDs), the study reveals the linguistic patterns used in the textual materials, the discourses, and the discursive practices behind the production and consumption of the communication materials. The study also narrates the response and experiences of the small-scale miners after being exposed to the communication materials. Lastly, the study reveals that the small-scale miners' decision to accept or reject the message of the communication materials does not solely depend on the linguistic patterns, content, visual images, and other textual properties of the communication materials. And finally, the study recommends that concerned government and non-government agencies should revisit, re-assess, and review their approach, methods, and policies in producing development communication materials on the risks of using mercury in small-scale mining to properly address the needs of the intended audience.

Acknowledgement

I would like to acknowledge and express my heartfelt gratitude to the following people who have supported me throughout my dissertation journey.

First, I am deeply indebted to my dissertation adviser, **Dr. Grace Alfonso**, her patience, guidance, and professional expertise enabled me to hurdle the most difficult and challenging part of my dissertation journey. This study would not have been possible without her support and encouragement.

I would like to express also my deep appreciation to the rest of the members of my dissertation committee, **Dr. Arminda Santiago**, and **Dr. Melinda Lumanta**. Their valuable comments and suggestions and extensive professional guidance, helped me a lot in improving the content of this study.

I also owe a great debt of gratitude to my classmate in high school, and current municipal board member of Tboli, South Cotabato, **Hon. Sarse Atam Jr.**, for helping me identify the respondents of this study.

I am also grateful to **Mr. Willie Loyola**, Pollution Control Officer of the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR), Region XII for granting my request for interview without any hesitation.

I am also expressing my heartfelt gratitude to my friend, **Mr. Denzell Santos**, for his valuable help and support during data gathering stage of my dissertation.

To my colleagues in Ateneo de Davao University, **Christine Faith M. Avila, Dr. Judith D. Dalagan, Dr. Rhodora Ranalan, Dr. Pamela Castrillo**, for your friendship and words of encouragement during difficult times.

To my parents, **Mr. Romeo Laroscain(†)** and **Estrella Laroscain**, and siblings, **Romella Hallarsis, Ruth Estacio, Julius Laroscain, and Estrelleta Laroscain**, for your unconditional love and support.

Completing this dissertation would have been more difficult were it not for the support of my family, to my wife, **Mahalia Sol G. Laroscain**, thank you for your love, support, and understanding, you and our kids, **Seth Joseph, Ethan Luke, and Lee** have given me so much inspiration.

And finally, I would like to thank **GOD** for giving me strength, and wisdom to complete this challenging and difficult journey.

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LIST OF ABBREVIATIONS

ASGM – Artisanal and Small-Scale Gold Mining

CDA – Critical Discourse Analysis

DOH – Department of Health

EMB – Environmental Management Bureau

EO – Executive Order

DENR – Department of Environment and Natural Resources

FDA - Foucauldian Discourse Analysis

IARC – International Agency on Research for Cancer

NGO – Non-Government Organization

NTRC – National Tax Research Center

TTM – Transtheoretical Model of Behavior Change

UNEP – United Nations Environmental Programme

WHO – World Health Organization

Chapter 1

INTRODUCTION

BACKGROUND AND RATIONALE

Mercury is a naturally-occurring element, it is commonly known as quicksilver or asoge, it was reported that the earliest use of mercury was in Spain around 2700 B.C., where the compound was used primarily for extracting gold and silver in mining. It was in the 1860's when the use of mercury for gold extraction through amalgamation method was popularized and used widely by the people involved in the gold-mining industry (EMB-DENR, n.d.).

The usage of mercury is not only limited to gold-mining, it has been utilized in different fields of medicine and science and technology. It has been used as an important element in the production of the materials that we still use today; thermometers, fluorescent lamps, electrical and electronic switches, batteries, antiseptics, catalysts, dental amalgam fillings, and etc. For years, mercury has been utilized as one of the most important compounds used by the medical and industrial sectors of our society.

However, despite the many significant contributions of mercury to the medical and industrial sector of our society, it is still considered as a highly toxic compound. Based on the evaluation conducted by the International Agency for Research on Cancer (IARC, 1993), Mercury was considered as a neurotoxicant, these are substances capable of causing adverse effects in the central and peripheral nervous system, the sense organs, as well as the developing brain. Pregnant women are

considered to be high risk in mercury exposure because it could cause serious cardiovascular disease on both the baby and the mother, the baby exposed to mercury may show symptoms of delayed speech and motor skills, cerebral palsy, and altered muscle tone.

The study of Christian Beinhoff entitled "*The Effect of Mercury Emissions from Diwalwal Small-Scale Gold Mining Operations to Environment and Health*" proved the adverse impact of mercury usage in small-scale mining. Beinhoff's study found out that fair amount of workers from Diwalwal showed severe symptoms that could be related to mercury intoxication. The respondents of the study reported about fatigue, tremor, memory problems, restlessness, loss of weight, metallic taste, and sleeping disturbances. Experts found that the respondents of the study experience intentional tremor, described as fine tremor of eye lids, lips and fingers, ataxia, and sensory disturbances as well as bluish discoloration of the gums.

Since the shutdown of mercury mining industry in the province of Palawan in 1976, the country's mercury supply relied mainly on import. The United States, European Union, Saudi Arabia, Italy, Kyrgyzstan, and Algeria, are the Philippines' known sources of mercury for gold mining. According to EMB-DENR and UNEP, some of the supply of mercury enters the country legally, however, most of the imported mercury flask reaching the miners do not reveal the sources or where it came from, raising suspicion that the hazardous compound may have been shipped to the country without proper permits and documentations from regulatory agencies.

On 10 October 2013, during the Diplomatic Conference of the Plenipotentiaries in Kumamoto, Japan, former DENR Secretary Ramon J. Paje, in behalf of the Philippine government, signed the Minamata Convention on Mercury along with other 86 countries, in a global effort to reduce mercury pollution from anthropogenic sources in the world. The Minamata Convention on Mercury is an international instrument designed to protect human health and environment from the adverse effects of mercury (EMB-DENR, n.d.). All member countries are mandated to assess their readiness to comply with the provisions and obligations of the convention. Minamata Convention was named after the city of Minamata in Japan where a huge-scale of mercury poisoning happened in the 1950's, when an acetaldehyde factory released their wastewater containing methylmercury into the Minamata bay. More than 900 people died, and almost 2,265 people suffered from Minamata disease after consuming mercury-contaminated fish and shellfish from the Minamata Bay. The Minamata incident led to the creation of an international effort to reduce mercury and mercury-containing wastes in the global market (UNEP, 2014).

In the Philippines, mercury has been utilized as the primary element used for gold extraction. For the most part of the century, mercury has been used in the recovery of free gold by artisanal and small-scale gold mining (Calvez, n.d.). As a matter of fact, Mercury was used in more than 70 countries to extract gold in artisanal and small-scale gold mining (Steckling, 2016). The usage of mercury in small-scale mining is considered illegal, but there were at least 20 provinces in the country that still use mercury as their main method of separating gold from the mined ore employing the amalgamation method of processing (Israel & Asiro, 2002).

Artisanal and small-scale gold mining is an activity that relies mainly on hard labor and uses simple equipment and methods to recover gold from ore (Israel & Asiro, 2002). The high demand for gold and the lack of employment opportunities in the countryside had driven many Filipinos, mostly, from the largely itinerant, poorly educated populace to practice artisanal and small scale mining activities (Calvez, n.d.). This form of livelihood has been widely practiced in the different regions of the country since the 1980's. Based on the 2007 data of Department of Environment and Natural Resources - Mines and Geosciences Bureau, there were fifty-seven (57) locations of major operations and proposed metallic mines in the country. It generally occurs in mountainous areas of the country, particularly; in the Cordillera of Northern Luzon, the Northeast corner of Mindanao and the Southeast corner of Mindanao (Holden, W., & Jacobson, R., 2012).

The artisanal and small-scale gold mining operations in these areas contributed significantly to the overall gold production of the country. It was considered to be vital contributor in the Philippine economy because it provides jobs to at least 200,000 to 300,000 miners and produced about 80% of the country's gold supply (National Strategic Plan for the Phase-out of Mercury in Artisanal and Small-Scale Gold Mining in the Philippines 2011-2021). It was believed that mining industry generates hundreds of thousands of jobs and help spur development in the rural areas such as; improved infrastructures and other livelihood opportunities (Neri, 2005).

However, though considered as a significant contributor in the Philippine economy, the artisanal and small-scale gold mining sector in the country has been a subject of strong opposition in recent years, mainly because of the harmful health and

environmental side effects of the usage of mercury in artisanal and small-scale mining (Israel & Asiro, 2002).

According to a study conducted by the United Nations Environment Program (UNEP), the Artisanal and Small-Scale Gold Mining (ASGM) was the single largest mercury-emitting sector in the world. The Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) estimated the annual mercury discharge from the small-scale mining sector in the country at around 70 metric tons. The effects of this irresponsible usage of mercury has been affecting the local residents of different regions in the country.

The government of the Philippines is mandated by the constitution to protect and preserve the right to health of every Filipino citizen, article II, sections 15, and 16 of the Philippine Constitution states that;

Section 15: The State shall protect and promote the right to health of the people and instill health consciousness among them.

Section 16. The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

Republic Act 6969 or "An Act to Control Toxic Substances and Hazardous and Nuclear Wastes, Providing Penalties for Violations Thereof, and for other Purposes" was passed by the congress to manage the toxic substances and hazardous nuclear wastes of the country. This legislation mandates the control and regulation of the import, manufacture, processing, handling, storage, transport, sale, distribution, use and disposal of chemical substances (EMB-DENR, n.d.).

The Department of Environment and Natural Resources also released an Administrative Order No. 29 Series of 1992, detailing the implementing rules and regulations of Republic Act 6969. The Administrative Order 29 was promulgated to provide detailed rules and requirements to ensure the proper management of hazardous wastes in the country. Mercury was classified as hazardous waste under the category "inorganic chemical wastes" in the Administrative Order 1992-29 of the Department of Environment and Natural Resources.

To further reinforce the need to regulate the hazardous impact of mercury to human health and the environment, an Executive order was released by former President Benigno S. Aquino III. Executive order 79, series of 2012 is about "Institutionalizing and Implementing Reforms in the Philippine Mining Sector, Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources". This Executive Order, categorically prohibits the use of mercury in small-scale mining;

*SECTION 11. Measures to Improve Small-Scale Mining Activities.
To improve and address issues on small-scale mining,
the following measures shall be undertaken:*

*e) The use of mercury in small-scale mining shall be
strictly prohibited; and,*

But despite the presence of these laws and regulations, concerned agencies governing the small-scale mining sector in the country admits that majority of the small-scale mining operators are still actively using mercury in their daily operations.

The efforts of various government and non-government organizations such as the Department of Environment and Natural Resources (DENR), and Ban Toxics, in developing campaign materials to educate, inform, and persuade the small-scale miners to stop using mercury in their mining operations were deemed inadequate and ineffective, due to the fact that miners still continue to use mercury in their gold-mining operations despite the presence of the communication materials in their local community.

This gap prompted the researcher to pursue this study. Utilizing Norman Fairclough's Critical Discourse Analysis Model, the researcher was able to understand the discourses behind the text used in the communication materials, the discursive practices involved in the production and consumption of the texts, and the social practices to which the communicative event belong. Another model was utilized by the researcher to bridge the gap between the text (communication materials) itself and the response of the small-scale miners to the communication materials. With the use of Prochaska and DeClemente's Transtheoretical Model of Behavior Change (TTM), the researcher was able to uncover the logic behind the decision of the small-scale miners to accept or reject the message of the communication materials.

This study established the fact that, the text, and the process of production of text, as well as the social practices involved in the production of texts, affect or does not affect the response of the intended recipients of the message.

Objectives of the Study:

A research study designed to assess and evaluate through Critical Discourse Analysis the communication materials produced by government and non-government organizations on the risks of using mercury in artisanal and small-scale gold mining, and analyze the response of the small-scale miners to the communication materials through the lens of Transtheoretical Model of Behavior Change.

Specific Objectives:

- To assess and evaluate through Critical Discourse Analysis (CDA) the communication materials on the risks of using mercury in small-scale mining produced by Department of Environment and Natural Resources (DENR) and Ban Toxics.
- To uncover the response of the small-scale miners to the communication materials produced by Department of Environment and Natural Resources (DENR) and Ban Toxics using the Transtheoretical Model of Behavior Change (TTM).
- To determine the factors that contribute to the small-scale miners' acceptance and rejection of the message of the communication materials produced by Department of Environment and natural Resources (DENR) and Ban Toxics.

Research Questions:

Specifically, this study posed the following questions:

1. What communication materials are used by government and non-government agencies in communicating the health risks of using mercury in artisanal and small-scale gold mining?
2. How do government and non-government agencies present mercury as a health hazard in their communication materials?
3. How do small scale-miners respond to the communication materials on the health risks of using mercury in artisanal and small-scale gold mining?

Chapter 2

REVIEW OF RELATED LITERATURE

This section discussed the relevant literatures in establishing the problem and provided possible lenses for analyzing the data. It included discussions on history of traditional small-scale mining in the Philippines, the health and environmental implications of using mercury in small-scale gold mining, local studies on the adverse effects of mercury to the human health, and the concept of risk communication.

Gold-Mining in the Philippines

The Philippines is considered as the 5th top gold producer in Asia. The artisanal and small-scale gold mining sector of the country alone produces almost 80% of the country's total gold production. Gold mining activity in the Philippines could be traced back thousand years ago, it was divided into three time periods, first, was the Chinese period from as early as 500 B.C. to the 1500s; second, the Spanish period from the early 1500s to 1898; and the third, the American period from 1898 to 1941 (Caballero, 1996).

Our country is rich with natural resources, our land was endowed with bountiful metallic and non metallic elements, the Mines and Geosciences Bureau of the Department of Environment and Natural Resources (DENR) estimated that, as of 2012, the country has an estimated 840-billion-dollar worth of untapped mineral wealth (Chavez, 2012). Our country is located inside the so-called "Pacific Ring of Fire", this was a vast pacific region where most of the earthquakes and volcanic activities occur.

Because of these volcanic activities, the country was well endowed with ore deposits created through epithermal mineralization (Lopez 1992; Mitchell and Leach 1991). Though the mineral deposits in Philippines were not exceptionally high-grade deposits, there tend to be a number of mineral deposits located throughout the archipelago. There are abundant deposits of gold in Cebu and Mindanao; Chromium could also be found in Luzon, Samar, and Mindanao regions while nickel could be found in the islands of Mindoro, Palawan and Mindanao (Lopez, 1992).

The World Health Organization (2016), described the process of gold mining in 5 steps; extraction, processing, concentration, amalgamation, burning, and refining.

Extraction:

Small-scale miners acquire hard-rock deposits through surface excavation or tunneling. Mined ore were then transported from actual mining site to the processing site.

Processing:

In this step, the gold was liberated from other minerals. The methods used for processing can vary depending upon the type of deposit. Gold particles in alluvial deposits were often already separated and required little mechanical treatment. While for hard rock deposits, crushing and milling were required. Primary crushing can be done manually, for example using hammers, or with machines. Mills were then used to grind the ore into smaller particles and, eventually, into fine powder (World Health Organization, 2016).

Concentration:

In some cases, gold was further separated from other materials by concentration. Different methods and technologies (e.g. sluices, centrifuges, vibrating tables, etc.) may be used to concentrate the liberated gold. The density of gold compared with other minerals in the ore was often higher. Therefore, many techniques utilize gravity for concentration (United Nations Environment Programme, 2012).

Amalgamation:

Elemental mercury was used to obtain a mercury-gold alloy called an "amalgam" (roughly equal parts mercury and gold). There were two main methods used in ASGM for amalgamation: whole ore amalgamation and concentrate amalgamation. In whole ore amalgamation, elemental mercury was added with little prior comminution and concentration. Large quantities of mercury were often used (between 3-50 units per unit of gold recovered) and most was released as waste into the mine tailings because of the resulting inefficiency of this process (Sousa et al., 2010; United Nations Environment Programme, 2015).

In concentrate amalgamation, the mercury was added only to the smaller quantity of material ("concentrate") that results from the concentration step. As a result, considerably less mercury was generally used. Excess mercury could also be recovered. (United Nations Environment Programme, 2015).

Burning:

The amalgam was heated to vaporized the mercury and separate the gold. In "open burning", all of the mercury vapor was emitted into the air. Open burning of

amalgam or processed amalgam was, therefore, also considered an “action to eliminate”. The gold produced by amalgam burning is porous and referred to as “sponge gold” (United Nations Environment Programme, 2015).

Refining:

Sponge gold was further heated to remove residual mercury and other impurities.

Artisanal and Small-Scale Gold Mining Sector

The Minamata Convention on Mercury defined the artisanal and small-scale gold mining as “gold mining conducted by individual miners or small enterprises with limited capital investment and production” (United Nations Environment Programme, 2014). The World bank (2013) on the other hand, detailed the economic and social effects of artisanal and small-scale mining as “largely a poverty driven activity, typically practiced in the poorest and most remote rural areas of a country by a largely itinerant, poorly educated populace with little other employment alternatives”. These definitions simply illustrated the conditions of the people involved in this sector.

Artisanal and small-scale gold mining was carried out in over 70 countries by approximately 10-15 million miners including approximately 4-5 million women and children (United Nations Industrial Development Organization, 2006b; Telmer & Veiga, 2009). While ASGM activities occur all over the world, they were most prevalent in South America, Africa and Asia (Hinton, 2006; Böse-O'Reilly, World Health Organization, 2013a, 2014).

The traditional small-scale mining communities in the country were not given enough attention by the government prior to the 1980's. However, this changed during the middle and late 1980's because of the rapid growth of the gold-rush areas in the Philippines (Caballero, 1996).

Small-scale gold mining covered a total claim area of about 4, 939 hectares in 1992. The largest claim areas were in CAR, Region XI and Region XII. Region VI had the smallest claim area followed by Region X and Region IV. There were 135 small-scale gold mining sites, the most number of which were found in CAR, Region V and Region XI while the least number were found in Region III, Region I and Region VII. The largest sites in terms of claim area were in the provinces of Sultan Kudarat, Davao del Norte and Nueva Ecija while the smallest were in Agusan del Norte, Ilocos Sur, Bohol, Surigao del Norte, Agusan del Norte and Cebu (Israel and Asiro, 2002)

The exact number of people involved in small-scale mining in the Philippines was totally unknown, however, according to Bayle (1995) there were at least 250,000 people all throughout the country, who were directly involved in the small-scale mining activities. Most of the small-scale gold mining in country are operating illegally and did not have proper permits from the government, making it difficult on the part of the government to closely monitor the accurate gold production levels of small-scale gold mining operators in the country.

The estimated gold production output of the small-scale gold mining sector of the country from both seasonal and continuous operations, excluding alluvial gold

panning, was at 6, 826 kilograms. This simply means that the underground or the unregulated small-scale gold mining operators contributed around 25 percent of the total gold production of the country (Israel and Asiro, 2002).

Studies conducted by foreign researchers reveal much higher production levels for small-scale gold mining in the country. Stewart (1995) estimated that from the period of 1985 to 1986, about 10,000 tons of gold were produced by small-scale gold mining operations. Israel and Asiro (2002) asserted that about 150 tons of gold were produced by the local small-scale mining, however, only 25 to 26 tons of these were reported to the Central Bank because of the pilferage into the black market. Since most of the local small-scale gold mining operators did not have proper license to operate, their production outputs were not closely monitored and accounted for by the government.

Mercury Usage in Small Scale Mining

The practice of using of mercury in small-scale gold mining in the country has been left unregulated for years, despite the order of the government to totally ban the use of mercury in small-scale mining through executive order 79 series of 2012. It became so popular specially in small-scale gold mining operations because the overall process was considerably cheap yet very effective in capturing and separating gold from ore.

The illegal practice was still widespread and has been recorded in at least 13 provinces in the country namely: Benguet, Camarines Norte, Negros occidental, Zamboanga del Norte, Zamboanga del Sur, Bukidnon, Agusan del Norte, Agusan del Sur, Surigao del Norte, Davao del Norte, Compostela Valley, South Cotabato, and Sultan Kudarat.

The amalgamation method of gold processing started with the crushing of mined ore, the loosed parts were then classified into different particle sizes and then fed into a facility for grinding called ball mill. Water and lime were added to the ore and then the grinding commences, after few hours, mercury was added to the fine ore, grinding would resume again for several hours to complete the process of separating gold from ore (Israel and Asiro, 2002).

The use of mercury in artisanal and small-scale mining was so prevalent because of variety of reasons. Local small-scale miners prefer to use mercury in their daily operations because it produced quick money. It was also accessible and cheap. Other reasons cited are the lack of awareness of the risks of using mercury as well as the inadequacy of the local miners to use the mercury-free method of gold mining.

Mercury released from the ASGM sector in the Philippines was estimated at 70 metric tons per year, making the industry the single largest emitter of mercury pollution in the country. Mercury use in the sector also posed great danger to the life of the miners, their families and communities living in the affected regions (National strategic plan for the phase-out of mercury in artisanal and small-scale gold mining in the Philippines 2011-2021).

The unregulated use of mercury in the artisanal and small-scale gold mining posed great risk not only on the environment but most especially on the health of the people involved. The usage of mercury in ASGM became so rampant according to Telmer and Stapper (2012) due to the following reasons; It was so easy to use and produced quick results, it could be used by one person independently, it effectively extracts gold in most field conditions, it was cheaper than most alternative techniques, it facilitated precised transactions, and allowed custom processing of small individual ore batches.

Mercury was considered to be one of the most toxic chemicals known to man, it was considered highly dangerous because of its potential harmful effect on human health. According to Israel and Asirof (2002) there were few ways by which the indiscriminate use of mercury in artisanal and small-scale mining cause mercury pollution. First, when mercury was accidentally spilled into the ground because of careless handling, and another, when mercury was disposed into unsuitable tailing ponds which eventually made its way on the major waterways and into the rivers. The process of burning the mercury in order to extract the gold would vaporize the mercury and would be spread into the atmosphere, the harmful element would eventually be inhaled by the person doing the refining process.

In the case of water pollution, mercury indiscriminately discharged into the rivers and waterways was transformed into methylmercury and eaten by aquatic species and in turn consumed by people. Due to its greater lipid solubility,

methylmercury was more easily absorbed into the bloodstream via the gastrointestinal tract than elemental mercury. Absorption of methylmercury was usually in excess of 90% (World Health Organization, 1990). When circulated throughout the body, methylmercury crossed the blood-brain barrier and accumulate in the central nervous system. The peripheral nervous system and kidneys could also be affected. Symptoms of neurologic disease associated with methylmercury exposure include tingling in the extremities, headaches, ataxia, dysarthria, visual field constriction, blindness, hearing impairment, and psychiatric disturbance, muscle tremor, movement disorders, paralysis and death (Gibb & O'Leary, 2014).

Once inside the human body, mercury could trigger neurological disturbances as well as problems in the reproductive and other body organs (Viega 1997a). The likely symptoms were visual constriction, numbness of the extremities and the impairment of hearing, speech and gait (Israel and Asirof, 2002).

In the 1950's, communities living in Minimata, Japan was affected by the minimata disease otherwise known as the Chiso-Minimata disease. According to Harada (1995) and Ekino et. Al., (2007), people living near the Minimata bay in Japan were affected by the disease after consuming aquatic species highly affected by methylmercury, disturbances in motor and mental development ranged from very severe-newborns with profound psychomotor impairment, personality impairment epileptic seizures and neurological symptoms were recorded affecting the people.

According to the World Health Organization (1990), health effects could vary depending on the dose ingested and the frequency and concentration of the exposure.

Pregnant women were considered to be high risk in contracting minimata disease because methylmercury crosses the placenta easily, and could result in cord blood concentrations, methylmercury was carried to the developing nervous system where it interfered with the normal brain cell migration from the core to surface areas of the brain.

The study conducted by Christian Beinhoff entitled "*The Effect of Mercury Emissions from Diwalwal Small-Scale Gold Mining Operations to Environment and Health*" categorically proved that exposure to mercury particularly the usage of it in the artisanal and small-scale mining operations had an adverse effect to the human health.

The study found out that fair amount of workers from Diwalwal, a small-scale mining community in the province of Compostela Valley, Philippines, showed severe symptoms that could be attributed to mercury intoxication. 55% of the Ball-mill workers and 61% of the amalgam smelters were tested with an elevated internal mercury burden which exceed in many cases toxicological threshold limits. Chronic Mercury intoxication was also identified in high percentage of the population in Mt. Diwata area, ball-mill workers in approximately 65% (36 out of 55) and amalgam smelters in 85% (35 out of 41). These were the participants who were in direct contact to either mercury fumes or inorganic mercury.

The respondents of the study reported about fatigue, tremor, memory problems, restlessness, loss of weight, metallic taste, and sleeping disturbances. The experts found intentional tremor, mainly fine tremor of eye lids, lips and fingers, ataxia, and

sensory disturbances as well as bluish discoloration of the gums. This study simply proved that the usage of mercury in small-scale gold mining operations had an adverse impact on the human health.

The adverse impact of mercury to the human health was also the focal point of the case study conducted by Edilberto L. Arreza in 2003 entitled "A Case Study on the Diwalwal Problem". The result of Arreza's (2003) study supports the findings of Christian Beinhoff research entitled "*The Effect of Mercury Emissions from Diwalwal Small-Scale Gold Mining Operations to Environment and Health*". Arreza's study found out that several people in Mt. Diwalwal had mercury level in their bodies above the normal level. These included the school children that were examined by Dr. Nelia C. Maramba. Dr. Maramba's findings showed that out of 1,500 school children that were examined within the province, 705 were subjected to testing from 1996 to 1998. One hundred two (102) were found to have high level of mercury in their bodies. Mercury intoxication was high among the amalgam smelter and ball millers. This simply proved the point that mercury used by miners in Diwalwal was already affecting human lives (Arreza, 2003).

There is a need therefore to communicate the adverse impact of mercury to the small-scale mining sector of the country. Communicating risks is quite complex undertaking, because we, human beings, are not that good at understanding risks.

Risk Communication

World Health Organization (2009) defined risk communication as any purposeful exchange of information about risks between interested parties. It included the range of communication capacities required through preparedness, response and recovery phases of a serious public health event to encourage informed decision making, positive behavior change and maintenance of trust.

Today, risk communication was recognized as the two-way and multi-directional communication and engagement with affected populations so that they can take informed decisions to protect themselves and their loved ones. It could and should utilized the most appropriate and trusted of channels of communication and engagement. It needed to brought together a diverse range of expertise in the field of communication, social sciences (mass media, emergency and crisis communication social media, health education, health promotion, communication for behavior change, etc.) and systems strengthening techniques in order to achieve public health goals and emergencies (Gamhewage, 2013).

Risk communication aimed to share valuable information vital for saving life, protecting health and minimizing harm to self, and others; to change beliefs; and/or to change behavior (US Department of Human Health and Human Services, 2011).

Gamhewage (2014) laid down the purposes of risk communication, accordingly, risk communication may serve to:

- Raise awareness;

- Encourage protective behavior;
- Inform to build up knowledge on hazards and risks;
- Inform to promote acceptance of risks and management measures;
- Inform on how to behave during events;
- Warn and trigger action to impending and current events;
- Reassure the audience (to reduce anxiety or manage outrage)
- Improves relationships (build trust, cooperation, networks);
- Enable mutual dialogue and understanding;
- Involve actors in decision making.

However, it was always vital to conduct monitoring and evaluation of the outcomes on changes to knowledge, behavior and practice, and all activities related to risk communication, because, without it, risk communications become mechanical, meaningless, and do not help manage and control a public health emergency (Gamhegawe. 2014).

The two complex issues that determine the success and failure of risk communication were the Perception of Risk, and the Trustworthiness of the Information and Advice.

Perception of Risk

Sandman's explanation of the perception of risk (as cited in Gamhegawe, 2014) noted that, for experts, the risk is considered great when the hazard is great, and is a

function of the exposure to that hazard and the vulnerability of the exposed population. While, for the public, the risk is great when their sense of emotional engagement is great-fear, anger, outrage.

Gamhegawe (2014), pointed out that the understanding of perception and communicating risk becomes more critical and challenging in times of emergency. Experts believed that public outrage is greater when hazards are:

- Unfamiliar and/or new (like new disease, radiation, new drug)
- Involuntary (When risks are forced on the public such as in compulsory immunization program.)
- Affects future generations (causing or being perceived as causing infertility)
- Cannot be seen or otherwise sensed (radiation, germs)
- Catastrophic in consequence (death, disability, major economic or environmental loss)
- Unfair in the distribution of harm and benefits (affects one group like children, or women).
- Potentially fatal (could lead to death).

Trust in Information and those Providing it

Risk communication scholars have identified a number of factors related to trust, including confidence in the government's preparedness, honesty, willingness to disclose information, dedication and caring.

The US Centers for Disease Control and Prevention described trust as function of the following audience perceptions and advised risk communicators to shape their communications keeping these factors in mind:

- Expertise: High knowledge on the content of the risk communication material.
- Good Character: Truthful and reliable.
- Identification: You can relate with others.
- Good Will: Prioritize the welfare of others above your own.

Trust plays an important role in any risk communication material. The intended recipient of the communication material considered the expertise, good character, identification, and good will of the source of the message before fully complying with the objectives of the risk communication material.

Small-scale gold mining was considered as a major contributor in the Philippine economy. This sector provided livelihood to the mostly impoverished, poor, residents of the remote regions of the country. It was considered as a major economic activity that supported more than a million people as well as thousands of small-scale enterprises involved in mining, processing, and jewelry manufacturing. The continued increase in the price of gold and pressure for alternative sources of livelihood contributed to the proliferation of gold mining areas in the country (Artajo, 2015).

It is noted that the country's gold deposit was estimated at 5.02 billion tons and ranked third in the world (NTRC Tax Research Journal, 2015). It was estimated that 75% of the miners in the country were engaged in subsistence mining, 15% of whom

were individuals or small family businesses and remaining 10% were established commercial mining firms. (Alternate Forum Research in Mindanao, 2012). It was also estimated that, there were 500,000 small-scale gold miners in the Philippines which operate in 30 to 80 provinces (NTRC Tax Research Journal, 2015).

Most of the small-scale mining operations in the country used mercury in their gold-mining activities. Mercury was widely used because it was so easy to use and required only relatively low investment (Israel & Asiro, 2002). Mercury was a highly toxic compound, according to Viega (as cited in Israel & Asiro, 2002), once inside the human body, mercury could trigger neurological disturbances as well as problems in the reproductive and other body organs, the likely symptoms are visual constriction, numbness of the extremities and impairment of hearing, speech and gait.

The harmful effect of mercury to the human health was proven and highlighted in the studies conducted by Christian Beinhoff and Edilberto L. Arreza. Both studies found out that workers from Diwalwal, particularly those who were directly involved in mercury handling, such as ball-mill operators and amalgam smelters, showed severe symptoms that could be attributed to mercury intoxication. The respondents of the study reported about fatigue, tremor, memory problems, restlessness, loss of weight, metallic taste, and sleeping disturbances. The experts found intentional tremor, mainly fine tremor of eye lids, lips and fingers, ataxia, and sensory disturbances as well as bluish discoloration of the gums. This study simply proved that the usage of mercury in small-scale gold mining operations has an adverse impact on the human health.

Recognizing the possible harmful impact of mercury to the people, the Philippine government prohibited the usage of mercury in small-scale gold mining through an executive order. Executive order 79, series of 2012, was released by former President Benigno Aquino III, prohibiting the use of mercury in small-scale mining. Executive order 79 was about "Institutionalizing and Implementing Reforms in the Philippine Mining Sector, Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources." Section 11, e, categorically states that "the use of Mercury in small-scale mining shall be strictly prohibited." But despite the presence of this executive order, concerned agencies governing the mining sector in the country admit that majority of the small-scale miners are still using mercury in their gold-mining operations.

Government agencies and non-government organizations such as DENR and Ban toxics initiated programs aimed to educate and inform the small-scale miners on the adverse impact of mercury to the human health. Communication materials such as, leaflets/primer, and posters were produced in order to educate, inform, and eventually persuade the small-scale miners to stop using mercury in their gold mining activities.

The literatures and research studies reviewed in this chapter highlighted the artisanal and small-scale mining situation of the country. The negative impacts of mercury to the environment and the well-being of a person was thoroughly discussed in this chapter. The legislations and executive orders issued by the government in response to the international agreement signed by our country in 2013, the Minamata Convention, was also discussed in this section.

However, no research has been conducted yet to assess the communication materials on the risks of using mercury in small-scale mining. This study aimed to address that gap. The study focused on the assessment of the communication materials produced by the Department of Environment and Natural Resources (DENR) and Ban Toxics employing Norman Fairclough's Critical Discourse and Prochaska and DeClemente's Transtheoretical Model of Behavior Change.

Chapter 3

THEORETICAL, CONCEPTUAL, AND OPERATIONAL FRAMEWORK.

This study employed Norman Fairclough's Critical Discourse Analysis in analyzing the communication materials on the risks of using mercury in small-scale mining produced by Department of Environment and Natural Resources (DENR) and Ban Toxics. Fairclough's model of Critical Discourse Analysis (CDA) was used in investigating the linguistic patterns, discursive practices, and social practices behind the production and consumption of the communication materials, the Transtheoretical Model of Behavior Change developed by Prochaska and DeClemente was also utilized by the researcher to further understand the response of the small-scale miners to communication materials.

Foucaultian Discourse Analysis

Michel Foucault's Foucauldian Discourse Analysis (FDA) was a big influence on the development of Norman Fairclough's concept of Critical Discourse Analysis (CDA). Unlike Fairclough's Critical Discourse Analysis which focus mainly on textually oriented discourse analysis, the concept of discourse analysis and theoretical work of Michel Foucault was not restricted to the field of linguistics or other sciences of language use, instead it was already widely regarded as part of the theoretical body of social sciences like sociology, social history, political sciences and social psychology (Diaz-Bone, et al., 2007).

Many researchers have become more aware that the socio-historical analysis of Foucault and his methodical considerations about archeology and genealogy have laid the groundwork for new methodical area for empirical research that conceives itself as a form of scientific and self-reflexive practice (Diaz-Bone, et al., 2007). These pioneers of discourse analysis cite Foucault as an influence, but they developed their own approaches and models of Critical Discourse Analysis (CDA).

Fairclough's Critical Discourse Analysis

Norman Fairclough (1993), defined Critical Discourse Analysis (CDA) as the process of systematically explore often opaque relationships of causality and determination between (a) discursive practices, events, and texts, and (b) wider social and cultural structures, relations and process: to investigate how such practices events and texts arise out of and are ideologically shape the relations of power struggles over power: and to explore how the opacity of these relationships between discourse and society itself a factor securing power and hegemony.

By employing Norman Fairclough's Critical Discourse Analysis (CDA), it allowed the researcher to carry out more systematic analysis of text and language. Guided by linguistic expertise, CDA revealed more precisely how speakers and authors used language and grammatical features to create meaning, persuade people to think about events in a particular way, sometimes even to seek to manipulate these people, while at the same time concealing their own intentions (Hansen & Machin, 2013).

Theoretical Framework

Norman Fairclough's three-dimensional model for Critical Discourse Analysis primarily asserts that language use is a communicative event consisting of; a text, a discursive practice, and a social practice.

Fairclough's Model of Critical Discourse Analysis

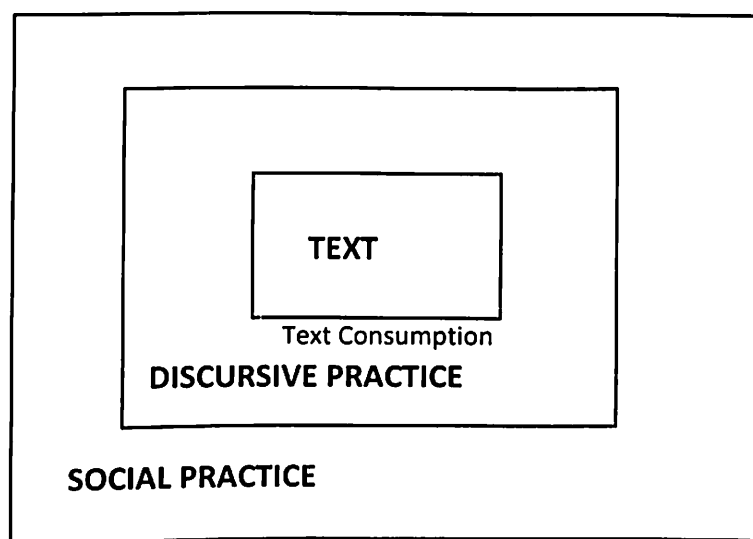


Figure 1: The Three Dimensions of Discourse according to Fairclough.

This framework argues that all three dimensions should be covered in understanding a communicative event. To understand the discourse in its entirety accounts for an in-depth analysis of (1) the linguistic features of the text (text), the way it was produced or consumed or the (2) processes relating to the production and consumption of the text (discursive practice); and the link it has on the (3) wider social practice to which the communicative event belongs (social practice).

The researcher utilized the first dimension of Fairclough's Critical Discourse Analysis (CDA) model in the identification of the linguistic features of the text, speech, or visual images, specifically, analyzing discourse in textual level. Text analysis focused on the formal features such as, Lexical Analysis, Naming and Reference, Suppression, Presupposition, Modals, and Rhetorical Tropes.

In this study, the researcher conducted a close-textual analysis on the communication materials of Department of Environment and Natural Resources (DENR) and Ban Toxics and examined linguistically and visually how the two agencies constructed the communication materials on the risks of using mercury in small-scale gold mining. The researcher focused on the description of the text as well as the juxtaposition and the layout of the visual images and how it contributed inevitably to the analysis of the discursive practice.

Conceptual Framework

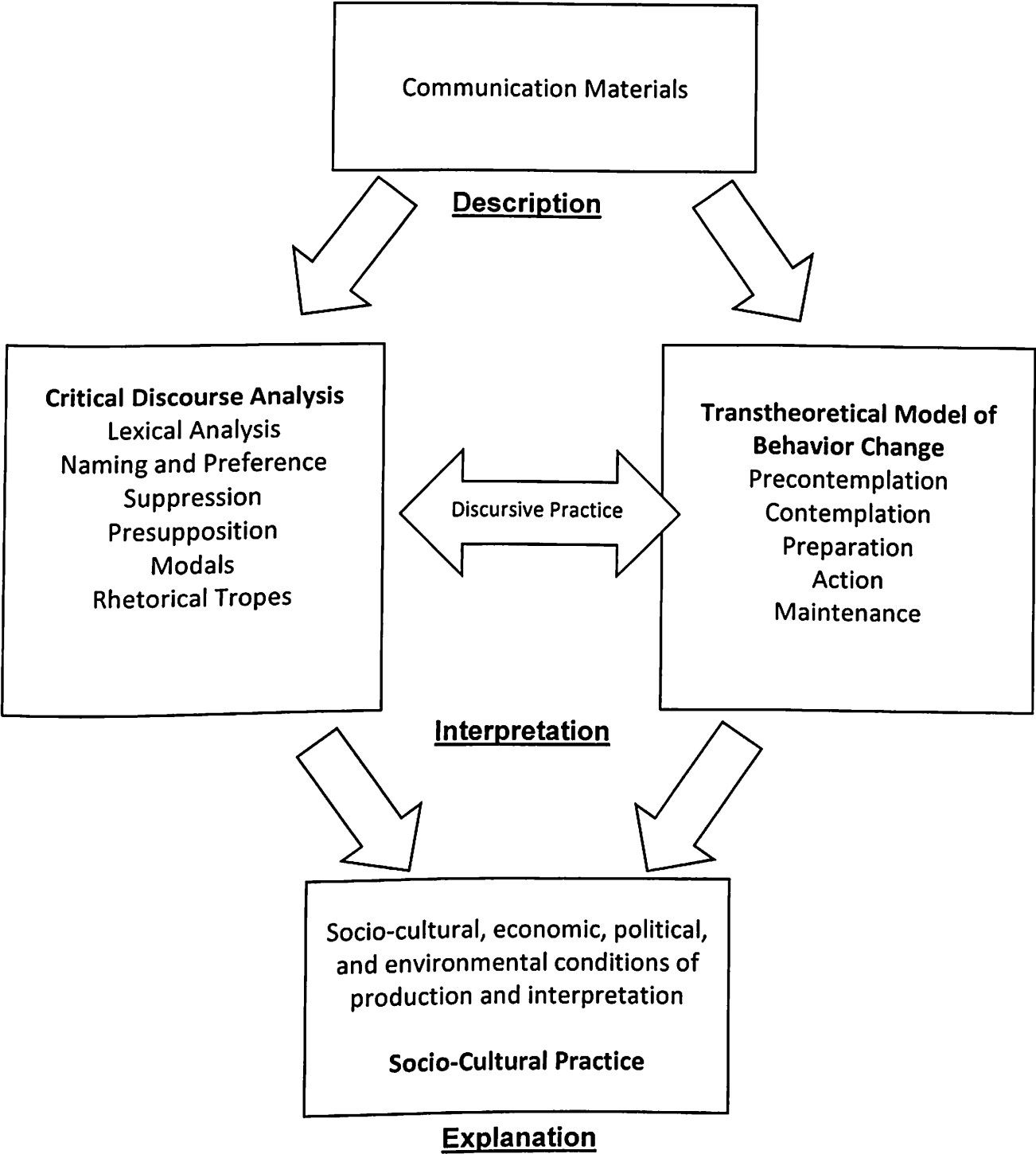


Figure 2. Researcher's Conceptual Model for the Study

Figure 2, the researcher's conceptual model for the study, served as a blueprint in understanding the discursive practice between the production of the text and consumption of the text. The conceptual diagram showed the discursive practice that exists between the producers of the communication materials and the recipients (small-scale miners) of the message.

The second dimension, discourse-as-discursive practice, was utilized by the researcher to further understand the discursive practices involved in the production and consumption of texts. The text was perceived as something which involves the production of discourse and consumption of discourse. The analysis of discursive practice focused on how the authors of texts draw on already existing discourses to produce or create a text. This dimension also analyzed how the recipients of the text or visual images applied available discourses in the interpretation and consumption of texts through the lens of Prochaska and DeClemente's Transtheoretical Model of Behavior Change.

Transtheoretical Model of Behavior Change

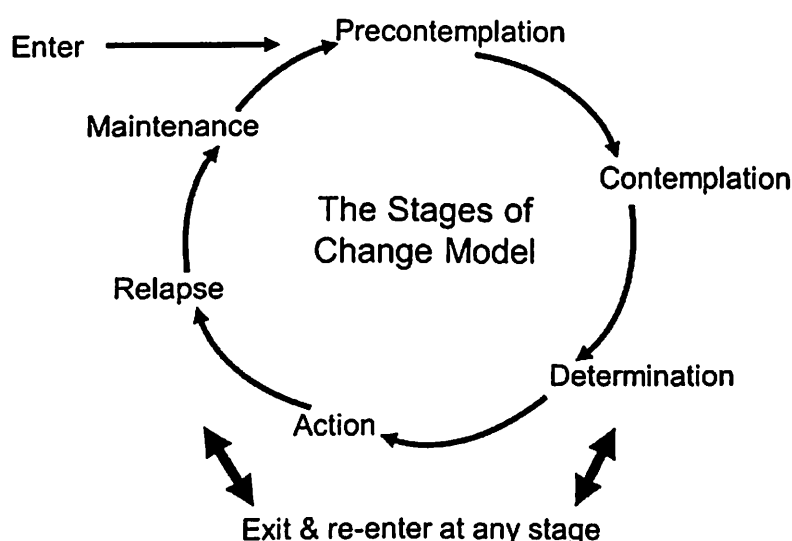


Figure 3. The Transtheoretical Model of Behavior Change according to Prochaska and DeClemente (Velicer, et al., 1998)

Source: <https://www.ncbi.nlm.nih.gov/pubmed/10170434>

The Transtheoretical Model of Behavior Change (TTM) focused on the decision making of the individual and was a model of intentional change. TTM assumed that a person undergoes six stages of change: Precontemplation, Contemplation, Determination, Action, Relapse, and maintenance. The TTM operated on the assumption that people do not change behaviors quickly and decisively. Rather, change in behavior, especially habitual behavior, occurred continuously through a cyclical process.

The researcher utilized this model in examining the response of the miners to the communication materials of Department and Environment and Natural Resources (DENR) and Ban Toxics. The Transtheoretical Model of Behavioral Change helped the researcher understand the response of the miners as they go

through the process of change through cognitive, affective, and evaluative processes.

In this study, Fairclough's model of critical discourse was utilized to explore the three dimensions to every discursive event. The visual and text itself, the discursive practice which include the production and interpretation of the texts and visual images, and the relation of this to the wider society. The Transtheoretical Model of Behavioral Change by Prochaska and DeClemente was utilized to explore the responses of the local small-scale miners to the communication materials of Department of Environment and Natural Resources (DENR) and Ban Toxics on the risks of using mercury in artisanal and small-mining.

Operational Framework

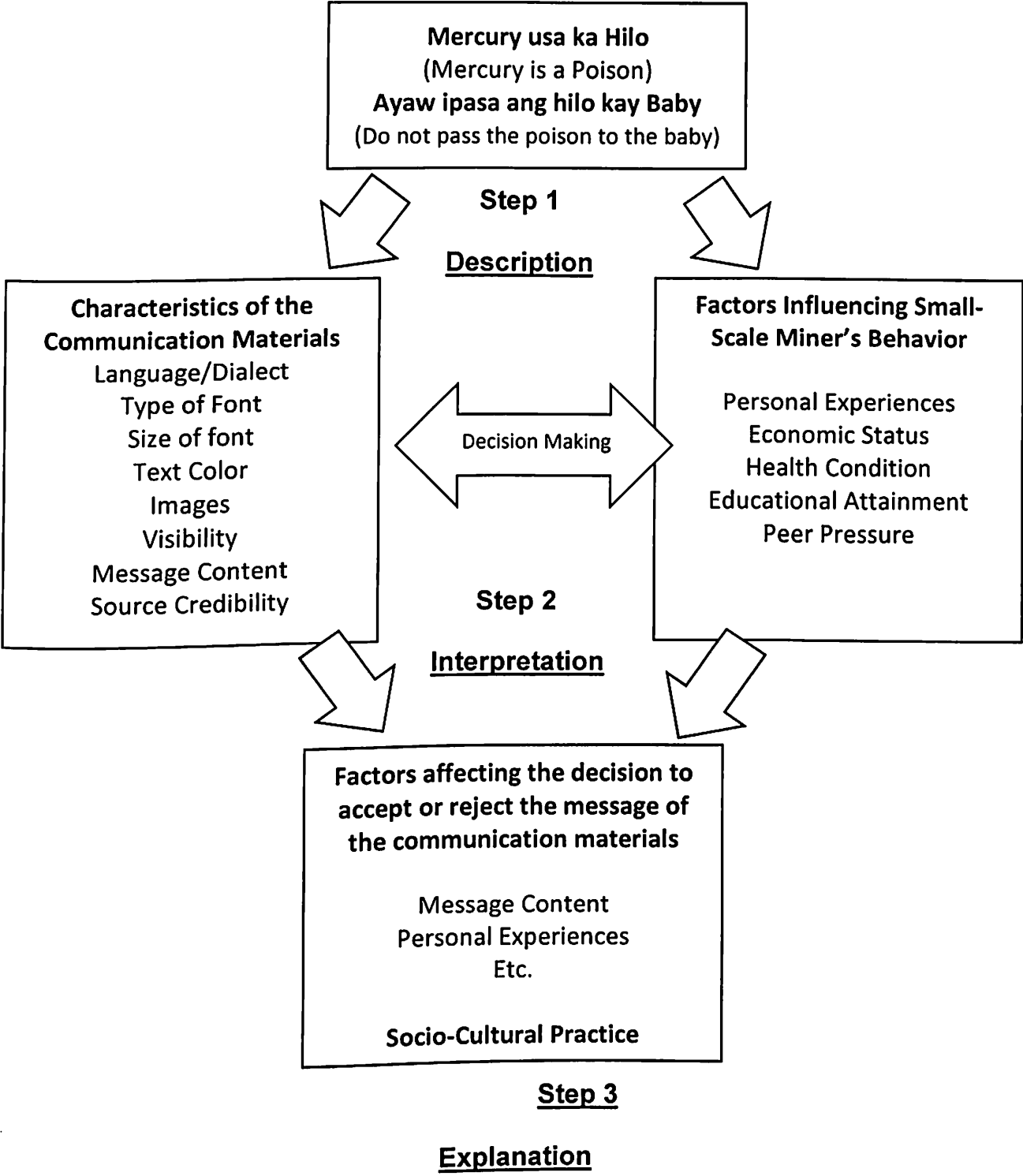


Figure 4. Researcher's Operational Framework

Figure 4, showed the detailed operational framework of the study. The operational framework helped the researcher interpret specifically how Norman Fairclough's Critical Discourse Analysis (CDA) would be applied in the study.

Step 1, the researcher identified the type of communication material produced by Ban Toxics and Department of Environment and Natural Resources (DENR) in communicating to the small-scale miners the risks of using mercury in small-scale mining.

Step 2, the researcher assessed and evaluated the communication materials produced by Department of Environment and Natural Resources (DENR) and Ban Toxics. The communication materials were analyzed based on the language/dialect used, the type and size of font used, the color of the text, the images used as a background, the general content of the message, the visibility of the communication material to the small-scale miner's locality, and the credibility of the source of the communication materials. Then, in order to determine the discursive practices involved in the production and consumption of the text, the researcher considered the response of the small-scale miners to the communication materials by recognizing the factors that influence the acceptance of the small-scale miners such as; personal experiences, economic and health status, educational attainment, and peer pressure.

Step 3, revealed the factors affecting the decision of the small-scale miners to accept and reject the message of the communication materials. The decision of the small-scale miners to accept and reject the message reflects the wider social

practice to which the communicative event belongs (social practice).

Chapter 4

METHODS AND PROCEDURES

This chapter detailed the methods used in collecting and analyzing the corpus. It was composed of the Research Design, Data Gathering Procedure, Data Analysis, Validity, Limitations, and Ethical Considerations.

Research Approach:

This study employed qualitative research approach using Critical Discourse Analysis (CDA) as a method of analyzing the communication materials used by Department of Environment and Natural Resources (DENR) and Ban Toxics in communicating the health risks of using mercury in artisanal and small-scale gold mining.

The Transtheoretical Model of behavior Change developed by Prochaska and DeClemente was also utilized in this study in order to find out the responses of the small-scale miners to the communication materials on the risk of using mercury in artisanal and small-scale mining produced by Department of Environment and Natural Resources (DENR) and Ban Toxics.

Research Methods:

The researcher observed the following steps in collecting the data for this study:

A. Document/Textual Analysis

The researcher visited the regional office of the Department of Environment and Natural Resources – Mines and Geosciences Bureau (DENR-EMB), Region XII, and secured a copy of the communication materials. The communication materials obtained were posters from Ban Toxics and a Leaflet/Primer produced by Department of Environment and Natural Resources (DENR).

B. In-Depth Interview

In-depth interview with the representative of Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) was conducted by the researcher to find out how the agency used language, texts, and visuals create meaning in their communication materials.

C. Focus Group Discussion

Focus Group Discussion with the local small-scale miners was conducted by the researcher to find out their response to the communication materials produced by Department of Environment and Natural Resources (DENR) and Ban Toxics.

Research Instruments:

Textual analysis Chart was used in analyzing the communication materials of Department of Environment and Natural Resources (DENR) and Ban Toxics, this

instrument was used to find out how exactly the features of language, text and visual images, have been used to communicate to the small-scale miners the risks of using mercury in small-scale gold mining.

For the Key Informant Interview, the researcher utilized interview guide. The researcher gave the questions to the resource person in advance so that the resource person could prepare the data and information needed for the interview.

For the Focus Group Discussion (FGD), the researcher also utilized interview guide. After obtaining the information sheet of all the participants, the researcher conducted the interview in the actual mining site of the small-scale miners. Questions were contextualized and asked using their own dialect to ensure that the miner-respondents understood the questions.

Data Construction:

The study analyzed the communication materials of Department of environment and Natural Resources (DENR) and Ban Toxics using Fairclough's model of Critical Discourse Analysis.

To identify the linguistic patterns used by Department of environment and Natural Resources (DENR) and Ban Toxics, the communication materials were analyzed using textual analysis which concentrated on the following variables:

- Description of the formal features of text such as the Lexical Patterns

Through Lexical Analysis, it would be much easier to understand the connoted and denoted meaning of words used in any textual materials. All types of words, but particularly nouns, adjectives, verbs, and adverbs carry connoted in addition to denoted meanings (Richardson, 2007).

- Naming and Reference

Fairclough (2003) and Kress (1989) laid out that the manner that people were named in a text or speech could have a compelling impact on how they were viewed by the masses. It was further supported by Hansen & Machin (2013), when they specified that we have a range of naming choices that we can make when we wish to refer to a person, and these allow us to place people in social world, to highlight certain aspects we wish to draw attention and to silence others.

- Suppression

Suppression was also one way of analyzing texts. Fairclough (2003), defined suppression as a process of looking at what was missing from a text, because such absences were clue to what the author wished to hide from its readers.

- Presupposition

Presupposition according to Hansen and Machin (2013), was the style of the producers of the text to use concepts in theirs

statements without really mentioning or saying what they specifically mean. The producers of the text use this style frequently to appear that they have taken it for granted but the reality was they have not.

- Modals

What modals do was set up a relationship between the author and authors representations – in other words what we commit ourselves in terms of truth. Modals expressing high degrees of certainty might be used in order to convinced people (Hansen and Manchin, 2013).

- and Rhetorical Tropes

Richardson (2007), in his book, *Analyzing Newspapers*, highlighted that journalists do not often provide reports of events that were entirely true and objective, instead, they employ rhetorical strategies in order to convince its readers to adopt the same point of view.

Through textual and visual analysis of the communication materials, the researcher was able to draw out the linguistic patterns that contributed to the discursive practice of text. The analysis of discursive practice focused on how DENR and Ban Toxics draw on already existing discourses in order to create their communication materials and on how the small-scale miners also applied the available discourses in the consumption and interpretation of DENR and Ban Toxic's

communication materials.

The response of the the small-scale miners was analyzed using the Transtheoretical Model of behavior change developed by Prochaska and DeClemente. It was classified and grouped under the five stages of behavioral change namely, Precontemplation, Contemplation, Determination, Action, and Maintenance. The Transtheoretical Model of Behavioral Change helped the researcher understand the behavior of the miners as they go through the process of change through cognitive, affective, and evaluative processes.

Validity:

To establish the trustworthiness of this study, the researcher employed Habermas's four validity claims as a standard for Critical Discourse Analysis. Cukier et al. (2009), identified the four validity codes that researchers employed to establish the legitimacy of their studies, these are; Comprehensibility, Truth, Sincerity, and legitimacy.

Comprehensibility referred to the legibility, accuracy, and viability of the study. In order to establish the comprehensibility of this study, the researcher made sure that all information included in the study were clear and void of any confusion. The researcher simplified complex and undefined concepts to sufficiently intelligible terms in order for the readers to easily understand the study.

Truth referred to the propositional content of what was said is factual or true

(Cukier et al., 2009). The researcher made it a point that all information included in this study were all based on actual facts and the truth. The researcher made it a point that the reasoning and the evidence presented in the study were all sufficient to avoid misrepresentation.

Sincerity referred to the impartiality and reliability of the claims of the study.

The researcher made it a point that all the discussions were consistent to the actual findings of the study. The researcher did not give false assurance to the readers and committed to be sincere and honest to the results of the study.

And lastly, *Legitimacy* referred to what was appropriate in the light of existing norms or values (Cukier et al., 2009). The researcher made sure that the outcome of the study was not be taken out of context by taking accountability and equally representing competing logics.

To establish the validity of the Transtheoretical Model of Behavior Change (TTM), the researcher utilized the Decisional Balance Method developed by Janis and Mann (1977). Decisional Balance Method is one way of validating the decisions of the miner-respondents to accept or reject the message of the communication materials.

Through Decisional balance method the researcher was able to determine the response of the miners about their plans to change or not to change their behavior towards mercury usage in small-scale gold mining.

Limitations:

This study focused only on the communication materials on the risks of using mercury in artisanal and small-scale mining produced by Department of Environment and Natural Resources (DENR), and Ban Toxics. These communication materials were the posters produced by Ban Toxics and Leaflet/Primer produced by DENR.

The study was limited on identifying the communication material's linguistic patterns in relation to their discursive practices, how DENR and Ban Toxics presented mercury as a health risk, and the ideologies culled from the texts. As to the linguistic patterns, the communication materials were analyzed based on the formal features of text such as the lexical patterns, naming and reference, suppression, presupposition, modals, and rhetorical tropes. The discursive practice was limited to reported speech and explanations of the producers of the text and on how the linguistic patterns affected the consumption and interpretation of communication materials.

Fifteen (15) small-scale miners of Tboli, South Cotabato, were interviewed in this study.

Ethical Considerations:

The researcher complied with the ethical demands of conducting a research by securing first a permission from the Department of Environment and Natural Resources (DENR) before using and analyzing their communication materials.

The Formal and Prior Informed Consent (FPIC) from all the research participants was done *viva voce* before the conduct of focus group discussions and in-depth interviews.

The names of the all the research participants (local miners) were not revealed and would remain anonymous throughout the course of the research.

Sampling

The miner-repondents came from Brgy. Kematu, Tboli, South Cotabato. The Municipality of Tboli, in the Province of South Cotabato was considered to be one of the major contributors of gold production in the country. As of 2011, Brgy. Kematu had a total population of 6,825 and a total of 1, 365 households were involved in gold mining operations. 85% of this number was involved in artisanal and small-scale mining operations, while the remaining 15% was employed in the large-scale mining operations.

The researcher chose the local small-scale miners of Kematu, South Cotabato as main respondents of this study because most of the local small-scale

miners in the area use mercury in their gold-mining operations.

The miner-respondents were chosen through Snowball Sampling (Chain Referral Sampling), Snowball sampling is often used if the researcher does not have sufficient or enough number of respondents with the same characteristics. Through snowball sampling, the researcher would be able to find more respondents by asking for referrals from the current respondents. Snowball sampling was the appropriate sampling method for this study because some of the miners are still hesitant to admit that they are using mercury in their small-scale mining operations.

The indicator in choosing the respondents was, every respondent should have direct experience in using mercury in the artisanal and small-scale mining. Their actual experience made them credible respondents for this study.

Chapter 5

RESULTS AND DISCUSSION

This chapter discusses the analysis of the communication materials on the risks of using mercury in small-scale mining produced by Department of Environment and Natural Resources (DENR) and Ban Toxics. The communication materials composed of two (2) posters from Ban Toxics and one (1) leaflet/primer from Department of Environment and Natural Resources (DENR) were analyzed using Norman Fairclough's Critical Discourse Analysis. The response of the small-scale miners to the communication materials was also evaluated through the lens of Prochaska and DeClemente's Transtheoretical Model of Behavior Change.

The use of mercury in the artisanal and small-scale mining in country has been going on since the 1980's. In the mining town of Mt. Diwalwal, in Monkayo, Compostela Valley alone, many of the estimated 18,000 small-scale miners use and handle mercury daily in their gold-mining operations, this action of the small-scale miners was in spite of the warnings issued by concerned agencies of the government about the dangers of mercury to human health (Lim, F. 2013).

For years, mercury has been the number one choice of the local small-scale miners because with mercury, they could extract gold from ore more efficiently compared to other methods of gold mining. But in 2013, the Philippine government, together with other 86 countries, signed the Minamata Convention on Mercury in Kumamoto, Japan. This international accord is part of the global effort to reduce mercury pollution in the world.

In response to the global effort to reduce mercury pollution, Republic Act 6969 otherwise known as “An Act to Control Toxic Substances and Hazardous and Nuclear Wastes, Providing Penalties for Violations Thereof, and for other Purposes”, and Executive order 79, series of 2012 which talks about the “Institutionalizing and Implementing Reforms in the Philippine Mining Sector, Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources”, was passed by the congress and the executive branch to manage the toxic substances and hazardous nuclear wastes of the country.

Concerned government and non-government agencies initiate plans and strategies to help the government in the full implementation of the Minamata Convention. Though not yet into force, the provisions and obligations under the convention would require thorough assessment and preparatory work on the part of the government to ensure the country’s readiness to abide once the convention enters into force (EMB-DENR, n.d.).

Communicating Mercury in Small-Scale Mining

Campaigns to inform and educate the small-scale miners about the hazards of using mercury in small-scale mining were implemented by the Department of Environment and Natural Resources (DENR) and Ban Toxics, these agencies produced communication materials which aim is to convince the local small-scale miners to stop using mercury in their gold-mining operations.

In the mining town of Tboli, South Cotabato, there were at least three (3) communication materials on the risks of using mercury in small scale mining produced by Department of Environment and Natural Resources (DENR) and Ban Toxics. Ban Toxics produced two (2) posters. The first poster holds this message, "Pildi ka sa Mercury!" (You will lose in Mercury). this communication material highlights the economic aspect of using mercury in small-scale mining. The overall message of Ban Toxic's poster 1 is, the small-scale miner will end up a loser if they opt to continue using mercury in their daily mining operations because the price of mercury is slowly increasing due to the lack of mercury supply in the market. While the second poster conveys this message, "Mercury usa ka Hilo!" (Mercury is a Poison!). The second poster of Ban Toxics, talks about the nature of mercury as a health hazard. This communication material is trying to convince the small-scale miners to stop using mercury in small-scale mining because mercury is considered a poison, that could eventually harm their loved ones.

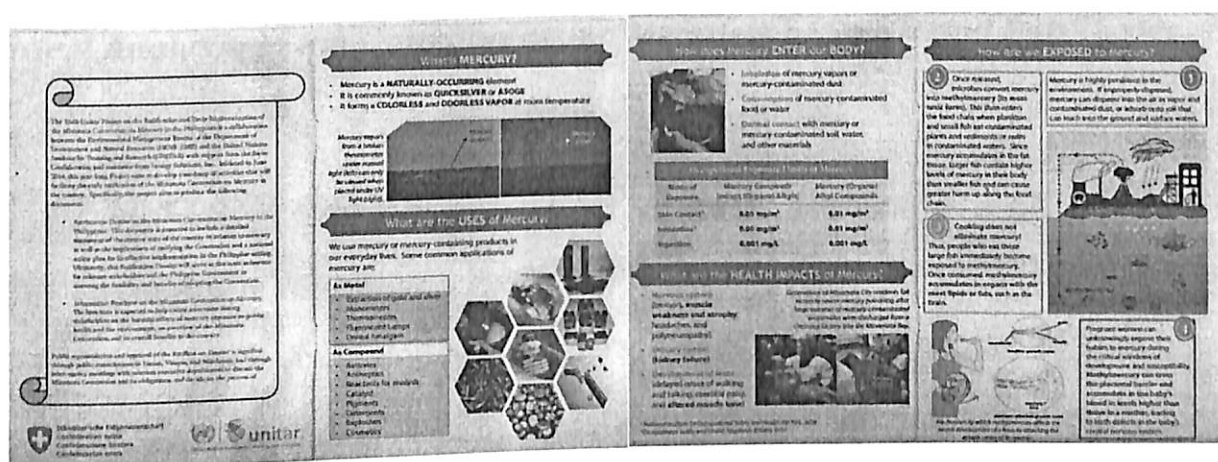
Ban Toxic's Poster 1

Ban Toxic's Poster 2



Figure 5. Ban Toxic's Communication Materials

DENR's Leaflet/Primer



These communication materials were produced by Ban Toxics and the Department of Environment and Natural Resources (DENR). Ban Toxics was a non-government organization dedicated to the advancement of social and environmental justice. Ban Toxics aimed to reduce and eliminate the use of harmful toxins by producing educational campaigns materials, such posters and flyers, to raise public awareness and develop policy building programs.

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produced by Department of Environment and Natural Resources (DENR), and Ban Toxics were evaluated through Lexical Analysis, Naming and Reference, Suppression, Presupposition, Modals, and Rhetorical Tropes. In the same manner, the response of the small scale miners to the communication materials of Department of Environment and Natural Resources (DENR) and Ban Toxics was evaluated by the researcher through the lens of Transtheoretical Model of Behavior Change.

Lexical Analysis in the Communication Materials of DENR and Ban Toxics

Analyzing the choice and meaning of words used in a communication or textual materials were the preliminary stage of any text or discourse analysis. Richardson (2007), in his book, *Analyzing Newspapers*, laid down the concepts and tools used in analyzing texts, according to him, lexical analysis was the process of analyzing the words used in any textual materials in order to understand the denoted meaning of words. It was further supported by Kress (1989) and Fairclough (2000) when they said that, Lexical Analysis enabled the researcher to analyze the basic choice of words used by the producer of the text by asking questions such as, what kinds of words were used and was there a predominance of particular kinds of words used in the textual materials.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and DENR, the choice and meaning of words were presented in two different ways. Ban Toxics opted to contextualize their message by using vernacular words or Cebuano dialect in their communication materials, contrary to the way DENR presented their communication materials. DENR used English language in presenting the facts about mercury in their leaflet or primer.

The table below shows in detail how the producers of the text use language to educate the local small-scale miners on the hazardous effect of mercury to their health.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	Pildi ka sa Mercury! Kung Gusto ka Makadaginot ug mokita ug dako, duol sa Ban Toxics!	The message of the communication material was contextualized according to the level of understanding of the people in the community.
Ban Toxic's Poster 2	Mercury usa ka Hilo! Kung gimahal nimo ang imong anak i-undang ang paggamit og Mercury sa pag-mina.	The message was written in Cebuano dialect so that it can be easily understood by the consumers of the text.
DENR's Leaflet/Primer	<u>What is Mercury?</u> Mercury is a Naturally-Occurring Element. <u>What is Mercury?</u> Mercury is a Naturally-Occurring Element.	the terms or words used in the communication material are highly technical and cannot be easily understood

Table 1. Lexical Analysis

Lexical Analysis refers to the choice and meaning of words used in a textual material. Richardson (2007) states that, words are used to convey the imprint of the society by conveying connoted as well as denoted meanings. Ban Toxic's poster number one (1) used Cebuano dialect in conveying its message. Delivering the message using the mother tongue dialect of the intended audience increases the understandability of the communication material. Words such as; "Pildi ka sa Mercury" (*You will lose in Mercury*), "Dili kini praktikal" (*It is not practical*), "Walay Pulos" (*Worthless*), and "Kung gusto ka makadaginot" (*if you want to earn more*) will be easily understood by the audience because it is written in their own dialect.

The overall content of Ban Toxic's poster 1 focused mainly on the economic aspect of using mercury in small-scale mining. The communication material pointed out that the small-scale miners will always end up a loser if they opt to continue using mercury in their daily mining operations because the price of mercury is slowly increasing due to the lack of mercury supply in the market. This reality will affect the small-scale miners if they opt to continue using mercury in their daily mining operations.

The words used in Ban Toxic's poster 1 are basic, easy to understand words, it did not connote any hidden meanings. By just reading the text alone, the reader could easily understand the message. However, Ban Toxic's poster 1 did not elaborate further on the actions a miner should undertake in order to earn more even without using mercury in small-scale mining. Instead, the producer of the communication materials enticed the recipients of the message to contact Ban Toxics if they wanted to earn more using the mercury-free method of small-scale gold mining.

Ban Toxic's poster 2 also utilized Cebuano dialect in conveying its message. But unlike poster 1 which focused mainly on the economic aspect of the miners, Ban Toxic's poster 2 focused on the hazardous effect of mercury to the human health. Poster 2 literally conveyed to the audience that mercury is a poison by stating that "Mercury usa ka Hilo" (*Mercury is a Poison*), poster 2 also issued a challenge to the recipients of the communication material that they should stop using mercury in their daily mining operations if they truly loved their children, because continued use of mercury in small-scale mining means poisoning your own children. "Kung gimahal nimo ang imong anak, i-undang and paggamit ug Mercury sa pag-mina." (*If you love*

your child, stop using Mercury in mining). Ban Toxic's poster 2 also appealed to the emotion of the audience by using a picture of a vulnerable child sleeping in the background, this image adds to the emotional appeal of the communication material.

The third communication material was a leaflet or primer produced by Department of Environment and Natural Resources (DENR). The communication material was written in English language. The message of the communication material was conveyed literally, there were no hidden meaning on the words used in the material, however, it uses highly technical and scientific words that cannot be easily understood by a person with limited educational attainment. Words such as;

- Mercury is a naturally-occurring element
- It forms a colorless and odorless vapor at room temperature
- Mercury vapors under normal light can only be viewed when placed under UV light
- Occupational exposure limits of mercury through **skin contact** - 0.05 mg/m³, **Inhalation** - 0.05 mg/m³, **Ingestion** – 0.001 mg/L
- **Health Impact of Mercury** – tremors, muscle weakness and atrophy, polyneuropathy, delayed onset of walking and talking, cerebral palsy, and altered muscle tone.
- Once released, microbes convert mercury into **methylmercury** (its **most toxic form**). This then enters the food chain when plankton and small fish eat contaminated plants and sediments or swim in contaminated waters.

Most of these words were highly scientific and cannot be easily understood if the person reading it did not even finish basic education.

Naming and Reference in the Communication Materials of DENR and Ban Toxics

Fairclough (2003) and Kress (1989) laid out that the manner that people are named in a text or speech can have a compelling impact on how they are viewed by the masses. It was further supported by Hansen & Machin (2013), when they specified that we have a range of naming choices that we can make when we wish to refer to a person, and these allow us to place people in social world, to highlight certain aspects we wish to draw attention and to silence others. Van Dijk (1993) pointed out that producers of the text often use referential choices to create opposites, to make events and issues appear simplified and in order to control their meaning.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and Department of Environment and Natural Resources (DENR), Naming and Reference were used and presented differently. Ban Toxics opted to describe the participants as individuals, while DENR classified their social actors as part of a collective body. Van Leeuwen (1996) described the classification of social actors as a comprehensive inventory of the ways in which we can classify people and the ideological effects that these have.

The table below shows in detail how the producers of the text used Naming and Reference in their communication materials.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	Pildi KA sa Mercury! Kung Gusto KA Makadaginot ug mokita ug dako, duol sa Ban Toxics!	The social actor in this communication material was presented specifically. The producer of the text used the pronoun KA (you), to address a specific person.
Ban Toxic's Poster 2	Mercury usa ka Hilo! Kung gimahal NIMO ang IMONG anak i-undang ang paggamit og Mercury sa pag-mina.	The participant in this communication material was presented as a specific individual by addressing them personally.
DENR's Leaflet/Primer	<u>How does Mercury enter our body?</u> Inhalation of mercury vapors or mercury-contaminated dust. Consumption of mercury-contaminated food or water.	The participants were not presented as specific individuals instead they were addressed collectively or in a generic way.

Table 2. Naming and Reference

According to Van Leeuwen (1996) there are variety of ways in which we can classify people through Naming and Reference. One of those is, presenting them as a specific individual or as a generic group. Ban Toxics presented their social actors or participants as specific individuals. By using the pronoun ka (you), the message of the communication material was specifically addressed to the person reading it. These statements particularly address the intended audience “Lugi ka!” (you are losing), “Pildi ka sa Mercury” (you will lose in Mercury), these messages are specifically personal and intended to the one reading the communication materials.

Same with poster 1, Ban Toxic's poster 2 also presented the social actors of their communication material specifically. The use of specific reference tends to represent social actors as real, immediate and closer to our experience (Dunn, 2006). The usage of the pronouns *nimo* (you), and *imong* (your) made this communication material specific in terms of addressing its participants. The statement "*iyaw ipasa and hilo kay baby*" (do not pass the poison to the baby) particularly addresses the readers of the communication material and urging them to stop using mercury in their mining operations, because they are directly poisoning their loved ones. It was further supported by the last statement that said "*kung gimahal nimo ang imong anak, I undang ang paggamit ug Mercury sa pag-mina*" (If you love your child, stop using Mercury in mining), this statement was crafted and posed as a challenge to all individuals that if they truly love their kids, it is ideal to stop using mercury in their mining operations, because if they don't, they are just slowly poisoning their loved ones.

The third communication material, the leaflet/primer produced by Department of Environment and Natural Resources (DENR), presented generally the participants of their communication materials. The text used in the communication material did not address the readers as individuals, instead, the message was crafted for the general audience. The generic references can have the effect of distancing actors/groups of actors, making them less real, representing them as other than ourselves (Dunn, 2006). The main purpose of this communication material was just to inform the audience of the facts about mercury, the message of the communication material was not produced to talk to a specific individual. Statements like; "What is Mercury", "What are the uses of Mercury" and "What are the Impacts of

Mercury” are considered to be general statements intended for a general audience, it does not refer to a specific individual or person. These type of statements appeared to be less personal because it does not directly involve the social actors or the participants in the communication material.

Suppression in the Communication Materials of DENR and Ban Toxics

The producers of the text will sometimes deliberately hide the real message of the communication material. According the Fairclough (2003), these missing messages are a clue to what the author wished to hide from the readers of the text. Fairclough (2000) explained that suppression is the process of obscuring the one who acts and the one who has responsibility, this was accomplished by using passive verb structures.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and Department of Environment and Natural Resources (DENR), Suppression was observed in the second communication material of Ban Toxics, the poster 2. Ban Toxic’s Poster 1 and DENR’s Leaflet/Primer, on the other hand, did not show Suppression because the producers of the text included all significant information needed by the recipients to understand what Mercury is all about and how it could affect the well-being of the person.

The table below shows in detail how the producers of the text utilized Suppression in their communication material.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang pagtaas sa iyang presyo. Dili kini praktikal, walay pulos, ug lugi ka. Pildi ka sa Mercury!	Ban Toxics explained in their communication material the reasons why miners who will continue to use mercury in gold-mining will eventually lose or go bankrupt.
Ban Toxic's Poster 2	Ayaw ipasa ang hilo kay baby. Mercury usa ka Hilo! Kung gimahal nimo ang imong anak i-undang ang paggamit og Mercury sa pag-mina.	Suppression was observed in this communication material. The producer of the text did not reveal any information why Mercury is considered as a poison.
DENR's Leaflet/Primer	<u>What are the Uses of Mercury?</u> As Metal Extraction of gold and Silver Manometers Thermometers Fluorescent Lamps Dental Amalgam	Suppression was not observed in this communication material. All necessary information about mercury are included in the communication material.

Table 3. Suppression

Suppression, according to Fairclough (2003), is the process of deliberately hiding something in the text, those missing information or absences are used by the producers of the text as a clue to what they are really trying to convey to the recipients of their message. Suppression was not observed in Poster 1, the main message of this communication material is “Pildi ka sa Mercury” (You will lose in Mercury). However, this line was supported and further explained by the previous sentence which states that, “Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang

pagtaas sa iyang presyo. Dili kini praktikal, walay pulos, ug lugi ka.” Which means, *(While the supply of Mercury in the market is slowly declining, the price of it increases. This is no longer practical, it’s worthless, and you’re losing.* This statement explained to the intended recipients of the communication material the reasons why they will end up a loser if they opt to continue using mercury in their mining operations. The lack of supply of mercury in the market will increase its price, making it impossible for the miners to earn more.

However, Suppression was observed in Ban Toxic’s poster 2. The main message of this communication material is “Mercury usa ka hilo!” which means, (Mercury is a Poison). This message was not further supported by facts in the communication material. Facts, that would further convince the intended audience that indeed Mercury is a harmful chemical.

The communication material produced by Department of Environment and Natural Resources (DENR), the leaflet/primer, on the other hand, did not observe Suppression. All necessary information needed by the intended audience to fully understand Mercury as a harmful chemical were included in the communication material.

Presupposition in the Communication Materials of DENR and Ban Toxics

Hansen and Machin (2013) define presupposition as the kinds of things that are assumed as given in a text. Richardson (2007) explained that not all meanings is immediately “there” in a text to be simply read from a manifest content; according to him, there are also hidden presupposed meanings in texts. Presupposition according to Hansen and Machin (2013), is the style of the producers of the text to use concepts in their statements without really mentioning or saying what they specifically mean. The producers of the text use this style frequently to appear that they have taken it for granted but the reality is they have not.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and Department of Environment and Natural Resources (DENR), Presupposition was observed in Ban Toxic's Poster 1 and Poster 2, however, presupposition was not utilized in the communication material produced by the Department of Environment and Natural Resources (DENR).

The table below shows in detail how the producers of the text utilized Presupposition in their communication materials.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang pagtaas sa iyang presyo. Pildi ka sa Mercury!	The communication material assumed that the supply of mercury in the market was already declining.
Ban Toxic's Poster 2	Ayaw ipasa ang hilo kay baby. Kung gimahal nimo ang imong anak i-undang ang paggamit og Mercury sa pag-mina.	The communication material assumed that the intended audience of the communication material uses mercury in their mining operations.
DENR's Leaflet/Primer	<u>What are the Health Impacts of Mercury?</u> Nervous System (Tremors, muscle weakness and atrophy, headaches, and polyneuropathy)	Presupposition was not observed in the communication material because the content centered on the general facts about Mercury and on how it affects the human body.

Table 4. Presupposition

Hansen and Machin (2013), elucidated that the producers of the texts sometimes use concepts without actually saying what they mean specifically. This type of process was called presupposition. Presupposition was observed in Ban Toxic's poster 1. The statement, "Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang pagtaas sa iyang presyo." Which means, (*While the supply of Mercury in the market is slowly declining, the price of it increases.*) The statement assumed that the supply of mercury in the market was already declining, the communication material did not include the reasons why the supply of mercury in the market decreased.

Poster 2 also observed Presupposition. These statements “Ayaw ipasa ang hilo kay baby” (Do not pass the poison to the baby) and “Kung gimahal nimo ang imong anak i-undang ang paggamit ug Mercury.” (If you love your child, stop using Mercury in mining) already assumed that the intended recipients of the communication material use mercury in their mining operations. Because of this assumption, the central message of the communication material centered on convincing the audience to stop the practice for the sake of their children. This simply presupposes that people in the community particularly where the communication material was posted were using mercury in their mining operations.

Presupposition was not observed in the third communication material of Department and Environment and Natural Resources (DENR). The overall content of the communication material was centered on the general facts about Mercury and on how it affects the human body. The facts that were included in the communication material are literal explanation of the nature of Mercury as a toxic chemical. The data included in the communication material are not based on assumptions or presuppositions.

Modals in the Communication Materials of DENR and Ban Toxics

Modals according to Hodge and Kress (1993) and Fairclough (2003) are words that express degrees of certainty. Examples of modals are verbs like; may, will, and must, and adjectives such as, possible, probable, and certain. This type of words according to Hodge and Kress (1993) and Fairclough (2003) are characteristic of language that tells us about people's commitments to what they say and also about their own perceived status (Hansen and Machin, 2013). The use of modals indicates the sense of authors identity; it is used sometimes to convince people.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and Department of environment and Natural Resources (DENR), the use of Modals was not observed in Ban Toxic's poster 2 and DENR's Leaflet/Primer. However, Modals was observed in Ban Toxic's poster 1. The statement "Pildi ka sa Mercury" (You will lose in Mercury) signified a high degree of certainty by using the word will.

The table below shows in detail how the producers of the communication utilized Modals to express degrees of certainty in their messages.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	Pildi ka sa Mercury! <i>(You WILL lose in Mercury)</i>	The word "Will" in the statement "You will lose in Mercury" signifies a certain degree of certainty.
Ban Toxic's Poster 2	The producer of the text did not use modal verbs and adjectives in this communication material.	Modals was not observed in the communication material.
DENR's Leaflet/Primer	The producer of the text did not use modal verbs and adjectives in this communication material.	Modals was not observed in the communication material.

Table 5. Modals

Modals are sometimes used by the producers of the text to show the level of certainty on their statements. As Hansen and Machin (2013) puts it, modals expressing high degrees of certainty might be used in order to convince people. It is worthy to note that only Ban Toxic's poster 1 utilized the use of modals in the communication material. The word "Will" in the statement "You will lose in Mercury" signifies a certain degree of certainty. The word "will" signifies that miners who will continue to use mercury in gold-mining operations will eventually end up loser.

The producers of poster 2 and Leaflet/Primer on the other hand, did not use words that would indicate high degree of certainty to reinforce the message of their communication materials. What Poster 2, and Leaflet/Primer contain are just general facts about Mercury, its hazardous effect to human health, and its economic implications.

Rhetorical Tropes in the Communication Materials of DENR and Ban Toxics

Rhetorical Tropes are considered as political rhetoric and are used to shape the understanding of a situation rather than describe it in concrete terms (Hansen and Machin, 2013). Rhetorical Tropes include hyperbole, metaphor, metonym, and puns. Richardson (2007), in his book, *Analyzing Newspapers*, highlighted that journalists do not often provide reports of events that are entirely true and objective, instead, they employ rhetorical strategies in order to convince its readers to adopt the same point of view. Rhetorical Tropes are utilized by the producers of a text with the aim of persuading others to adapt their same point of view.

In the communication materials on the risks of using mercury in small scale mining produced by Ban Toxics and DENR, the use of Rhetorical Tropes was not observed in Ban Toxic's poster 1 and DENR's Leaflet/Primer. Ban Toxic's poster 2 on the other hand, employed rhetorical trope in a form of hyperbole. Hyperbole are exaggerated statements or claims that should not be taken literally, this type of rhetorical trope is sometimes an indication of attempts at persuasion and abstraction (Hansen and Machin, 2013).

The table below shows in detail how Ban Toxics and DENR utilized Rhetorical Tropes in their communication materials.

Communication Material	Textual Evidence Choice and Meaning of Words	Implications
Ban Toxic's Poster 1	The producer of the text did not use Rhetorical Tropes in this communication material.	Rhetorical Tropes was not observed in the communication material.
Ban Toxic's Poster 2	Ayaw ipasa ang hilo kay baby. <i>(Do not pass the poison to the baby.)</i>	Rhetorical Trope particularly, hyperbole, was utilized in this communication material. The word "poison" was used in this statement as an ordinary thing that could be given to anyone. Contrary to the way people handle poison in reality.
DENR's Leaflet/Primer	The producer of the text did not use Rhetorical Tropes in this communication material.	Rhetorical Tropes was not observed in the communication material.

Table 6. Rhetorical Tropes

Richardson (2007), in his book "Analyzing Newspapers", claimed that journalists often use Rhetorical Tropes in their news articles because there are situations or events that prohibits them to provide reports of events that are entirely true and objective. This is the reason why according to Richardson (2007), journalists employ rhetorical strategies aimed at persuading others to adapt their same point of view. Ban Toxic's poster 1 and DENR's Leaflet/Primer did not employ Rhetorical Tropes in their communication materials. Words used in the communication materials are plain, literal, and straight facts or information about Mercury as a hazardous compound. It was evident on the central message of Poster 1, which focused mainly on the economic aspect of using mercury in small-scale mining. Leaflet/Primer, on the

other hand, centered its message on educating the small-scale miners on the general facts about mercury and its adverse impact on human health.

Ban Toxic's Poster 2, on the other hand, utilized Rhetorical Tropes particularly, hyperbole. Hyperbole was used in this communication material. The statement "Ayaw ipasa ang hilo kay baby" (Do not pass the poison to the baby), was a hyperbole because the word "poison" was used in this statement as an ordinary thing. Contrary to the way people handle poison in reality. The use of hyperbole in texts would lead the recipients of the message to evaluate persons, places and events. It is one way also of uncovering the reasons why the producer of the text used such language.

Overall, Ban Toxic's poster 1, in terms of the Lexical Analysis, the communication material was contextualized according to the level of understanding of the people in the community. The message was written in Cebuano dialect so that it could be easily understood by the consumers of the text. The communication material contained no hidden meaning. Words used are direct to the point. In terms of Naming and Reference, the social actor in this communication material was presented specifically. the producer of the text used the pronoun ka (you), to address a specific person. The participant in this communication material was represented as a specific individual. In terms of Suppression, the producer of the text literally explained in their communication material the reasons why those people who will continue to use Mercury in their mining operations will eventually lose or go bankrupt. This information was not hidden from the intended audience. In terms of Presupposition, one of the statements included in the communication material assumed that the supply of mercury in the market was already declining therefore its price would eventually

increase. The Statement, "You will lose in Mercury" also assumed that the intended audience were already users of mercury. As to the use of Modals and Rhetorical Tropes, these were not observed in the Ban Toxic's poster 1.

Ban Toxic's poster 2, in terms of the Lexical Analysis, the message of the communication material was contextualized according to the level of understanding of the people in the community. The message was written in Cebuano dialect so that it could be easily understood by the consumers of the text. The communication material contained no hidden meaning, words used are direct to the point. In terms of Naming and Reference, the social actor in this communication material was also presented specifically. The producer of the text used the pronouns **nimo** (you), **imong** (your) to address a specific person. The participant in this communication material was represented as a specific individual by addressing them personally. In terms of Suppression, the producer of the text did not reveal any information why Mercury was considered as a poison. Suppression was observed in this communication material. In terms of Presupposition, the producer of the text utilized it through the statement "Ayaw ipasa ang hilo kay baby." "Kung gimahal nimo ang imong anak i-undang ang paggamit og Mercury sa pag-mina."

(Do not pass the poison to the baby. If you love your child, stop using Mercury in mining).

This statement assumed that the intended audience of the communication material used mercury in their mining operations. Because of the assumption that the intended audience was already using mercury in gold-mining operations, the central message of the communication material centered on convincing the audience to stop the practice for the sake of his or her children. However, the use of modals was not

observed in this particular communication material. As to the Rhetorical Tropes, hyperbole, was utilized in this communication material. The word "poison" was used in this statement as an ordinary thing, contrary to the way people handle poison in reality. The use of hyperbole in texts would lead the recipients of the message evaluated persons, places and events. It is one way also of uncovering the reasons why the producer of the text used such language.

DENR's Leaflet/Primer, in terms of Lexical Analysis, the communication material was written in English language. Some of the terms or words used in the communication material were highly technical. In terms of the Naming and Reference, the social actor in this communication material was presented generally. The participants were not presented as specific individuals instead they were addressed collectively or in a generic way. As to Suppression, it was not observed in this communication material. All necessary information about mercury were included in the communication material. In terms of Presupposition, it was not also observed in this communication material because the content centered on the general facts about Mercury and on how it affects the human body. The facts that were included in the communication material are literal explanation of the nature of Mercury as a toxic compound.

And finally, the use of Modals and Rhetorical Tropes were not observed in this particular communication material.

Mercury as a Health Hazard

Mercury is considered to be one of the most toxic compound known to man. If improperly disposed, Mercury can disperse into the air as vapor and contaminated dust. The process of burning the mercury in order to extract the gold will also vaporize the toxic compound and will spread into the atmosphere, the harmful element will eventually be inhaled by the person doing the refining process. Once inside the human body, Mercury could trigger neurological disturbances as well as problems in the reproductive and other body organs (Viega 1997a).

The use of mercury in artisanal and small-scale mining is so prevalent because of variety of reasons. Local small-scale miners prefer to use mercury in their daily operations because it produces quick money. It is also accessible and cheap. Other reasons cited are the lack of awareness of the risks of using mercury as well as the inadequacy of the local miners to use the mercury-free method of gold mining.

Various government and non-government agencies such as Department of Environment and Natural Resources (DENR) and Ban Toxics took precautionary measures by conducting informational campaign aimed to educate the small-scale miners on the hazardous effects of Mercury to the environment and the human health. Communication materials were produced highlighting the adverse effects of mercury to human health, as well as, its economic impact. Ban Toxics, a non-government organization dedicated to the advancement of social and environmental justice, produced two (2) communication materials in a form of posters to further educate the local small-scale miners of Tboli, South Cotabato about the harmful effects of mercury

to their health.

Ban Toxic's poster 1 focused mainly on the economic impact of mercury on the livelihood of the small-scale miners. "Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang pagtaas sa iyang presyo. Dili kini praktikal, walay pulos, ug lugi ka. **Pildi ka sa Mercury!** Kung Gusto ka Makadaginot ug mokita ug dako, duol sa Ban Toxics! *(While the supply of Mercury in the market is slowly declining, the price of it increases. This is no longer practical, it's worthless, and you're losing. You will lose in Mercury! If you want to save, and earn more, reach out to Ban Toxics.)*"

Ban Toxics contextualized its message by using vernacular dialect as the medium of their communication material. Vernacular dialect or Cebuano was considered to be the most appropriate medium for this communication material because it was the mother tongue of the intended recipients of the message. It would be much easier for the intended audience to understand the message because it was written in their own dialect. Mr. Willie Loyola, Pollution Control Officer of the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR), Region XII, said that;

"I contextualize jud sa ilang lenguahe, kay kung ikaw ordinary ka na tao mas makita nimo kung may touch of reality, may sense na mas maka relate ka."

(It is better to contextualize it using their own language, because if you are just an ordinary person, you will be able to see that its real, you can easily relate to it)

Mr. Loyola of DENR, reiterated that, it would be easier for the audience to understand the content of the communication material, especially those with limited

educational achievement, if it was written in their own dialect. The main tag line of Ban Toxic's poster 1 was "Pildi ka sa Mercury" which means (*You will lose in Mercury*); The text was written in capital letters using huge font so that it would be easier to read even in a distance. Under the main tagline, an image of a burning one-hundred-peso bill was also included in the communication material. The image was utilized to reinforce the main message of the communication material.

Ban Toxic's poster 2, focused on the health aspect of the small-scale miners. The communication material highlighted the negative impact of mercury even to those people who are not directly handling the hazardous compound. The main message of the communication material was; "Ayaw ipasa ang hilo kay Baby. *Mercury usa ka hilo! Kung gimahal nimo ang imong anak i-undang ang paggamit ug Mercury sa pag-mina.*" (Do not pass the poison to the baby. Mercury is a Poison! If you love your child, stop using Mercury in mining).

Same with poster 1, poster 2, also used Cebuano, the vernacular dialect of the small-scale miners of Tboli, South Cotabato to communicate the adverse effects of Mercury to the human health. The main tagline of Poster 2 is "*MERCURY usa ka HILO!*" (Mercury is a poison). The main message or tagline was written in Capital Letters. The word mercury was written in capital letters, huge font and white color, so that it would stand out from the background. The word "HILO" (Poison) was written in capital letters also, huge font, but red color. Red was used in the word "Hilo" (*Poison*) because this type of color was commonly associated with caution, warning, and STOP.

An image of a vulnerable child was also used by Ban Toxics to reinforce the message. By using this image, the producer of the communication material was able to capture the attention of the small-scale miners, especially the parents. The words, *"kung gimahal nimo ang imong anak, i-undang ang paggamit ug mercury sa pag-mina"* (if you love your child, stop using mercury in mining), was also an appeal to the small-scale miners, to stop using mercury if they truly loved their children, because by continuing to use mercury, they are slowly and indirectly harming or killing their children.

DENR's Leaflet/Primer focused mainly on the general facts about mercury, questions such as; What is mercury? What are the uses of mercury? How does mercury enter our body? How are we exposed to mercury? And What are the health impacts of mercury? Were answered in this particular communication material. However, the producer of this communication material opted to use the English language as the main medium for this health awareness campaign. Highly scientific and technical terms were also used in this communication material.

Words such as;

- Mercury vapors under normal light can only be viewed when placed under UV light
- Occupational exposure limits of mercury through **skin contact** - 0.05 mg/m³, **Inhalation** - 0.05 mg/m³, **Ingestion** – 0.001 mg/L
- **Health Impact of Mercury** – tremors, muscle weakness and atrophy, polyneuropathy, delayed onset of walking and talking, cerebral palsy, and altered muscle tone.

- Once released, microbes convert mercury into **methylmercury** (its **most toxic form**). This then enters the food chain when plankton and small fish eat contaminated plants and sediments or swim in contaminated waters.

The use of highly scientific and technical words made it difficult for the intended audience to understand the message easily especially those with limited educational achievement. It would be hard for the intended audience to relate the message to their own situation because it was not contextualized to fit their needs.

The communication material also contained images, but the images were considerably small. The font size used was noticeably small, making it hard for the intended recipients to read the message from a distance.

The communication materials were produced with the aim of persuading the intended audience to stop using mercury in small-scale mining. Mr. Willie Loyola, Pollution Control officer of the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR), Region XII, admitted that, to date, their office was not able to focus on the production of communication materials intended for the small-scale miners. According to Mr. Loyola, there were communication materials on the risks of using mercury in small-scale mining produced by their national office, but the message was not contextualized to its intended audience. But they are trying to compensate this gap by conducting community consultations and forums with the goal of educating the small-scale miners on the hazardous effect of mercury to the human health.

"There were instances nga nakipag collaborate kami with the provincial environmental management office where in gi gather namo tanan mga Small-scale miners including kanang mga ballmill operators tapos gi discuss Namo didto ang mga new policies related sa pag ban sa mercury."

(There were instances that we collaborated with the provincial environment Management office and we gathered all small-scale miners including the Ballmill operators and we discussed with them the new policies relating to the total banning of mercury).

DENR XII Pollution Control Officer

One of the major thrusts of the Department of Environment and Natural Resources (DENR) is to pursue intensive informational campaign against the usage of mercury in small-scale mining because DENR was well aware of the adverse impact of mercury in small-scale mining because DENR was well aware of the adverse impact of mercury to the human health due to what happened in Minimata, Japan, generations of Minimata City residents suffered severe mercury poisoning after large volumes of mercury-contaminated wastewater was discharged into the Minimata Bay. Huge volume of methylmercury was consumed by the people living near the bay through contaminated fish and shells. But despite all the warnings and precautionary measures implemented by DENR and other non-government organizations about the hazards of mercury, convincing the miners to stop using the hazardous compound, still remains a challenge. Mr. Loyola said that, some of the small-scale miners have been handling mercury for years as their form livelihood, making it more difficult for them to convince the small-scale miners to abandon the usage of mercury in small-scale mining.

*"For economic reason jud number 1, I mean they will gamble their health"
And all that because what they are asking is dugay pa man siguro ko
Mamatay ani. Pero kung wala koy ma produce na gold karon, mamatay
Akoang pamilya sa kagutom"*

(For economic reason number 1, I mean, they will gamble their health
Because what they are asking is, maybe I will not die that soon if I will
continue to use mercury. But if I will stop using mercury in my gold
mining operations, my family will die of hunger).

DENR XII Pollution Control Officer

Mr. Loyola admitted that, in order to convince the local small-scale miners to
stop using mercury in their mining operations, government agencies such as DENR
should present alternative solutions to the miners. It is not enough to just tell them to
stop using mercury, without giving them concrete alternatives.

*"Because again dili man gud ta directly makahatag sa ilaha ug alternative
Na makahatag sa ilaha ug tarong na income...basig if there are other ways
Means of income aside from mining na hindi an aka hago from their family
Basig mo divert pud sila sa ing ato nga income"*

(For economic reason number 1, I mean, they will gamble their health
Because what they are asking is, maybe I will not die that soon if I will
continue to use mercury. But if I will stop using mercury in my gold
mining operations, my family will die of hunger).

DENR XII Pollution Control Officer

Concerned agencies such as DENR, do not discount the fact that
communication materials intended to improve the welfare of the people should be
pursued and developed. The effectiveness of the communication materials should not
be discounted and minimized instead it should be supported and implemented.
Government and non-government agencies should forge partnerships to carry out
programs that would benefit the people.

"On our part we can do to improve, we will continue with this and we Will try to evaluate the effectiveness of the materials that we provide Kasi sayang naman na pang-uli lang siya diba? Kasi again meron nga Siyang malaking malaking impact, a picture is a story of a thousand words So if only you can provide very clear picture of what should be the case And what will happen diba? Ganun ka ano, so I think mag bago ang Paradigm noong mga tao. Malaking factor talaga yung marketing and communicating"

(On our part, what we can do to improve is, we will continue with this And we will try to evaluate the effectiveness of the materials that we Provide because it would be a waste if it will be used only as a tissue After using the comfort room. Because again, it has a huge impact, A picture paints a thousand words, so if you can only provide a clear Picture of what should be the case and what will happen. That's how, So I think people's paradigm will still change, marketing and Communication play an important factor.)

DENR XII Pollution Control Officer

Ban Toxics and DENR presented Mercury as a hazardous compound in their communication materials differently. Ban Toxics contextualized its message by using vernacular language so that it would be easier for the intended audience to understand their message. Different font sizes and font colors were also used in the communication materials to attract more attention from the intended audience.

DENR, on the other hand, presented mercury using scientific and highly technical terms. The communication material was written in English language. It also covered a wide range of topics such as; What is mercury? What are the uses of mercury? How does mercury enter our body? How are we exposed to mercury? And What are the health impacts of mercury? All this important information was included in a short primer/leaflet produced by the Department and Environment and Natural Resources.

Small-Scale Miner's Response to the Communication Materials.

The Municipality of Tboli, in the province of South Cotabato, is just one of the many municipalities and provinces in the country where you find a number of artisanal and small-scale mining operations. Small-scale mining has turned Tboli into a first-class municipality, small-scale miners pay as much as P1,000 in taxes per ton of gold ores. As a result, the mining revenue of the province doubled from only 4.8 million in 2010 to 9.75 million in 2011, doubling again to 15.79 million in 2012 (Lacorte, 2014).

Most of the small-scale gold mining areas in country are operating illegally and don't have proper permits from the government, making it difficult on the part of the government to closely monitor the accurate gold production levels, as well as, the mercury usage of small-scale gold mining operators in the country. The usage of mercury in the artisanal and small-scale gold mining operations in the country was also left unregulated for years, according to the data released by the National Strategic plan for the Phase-Out of Mercury in Artisanal and Small-Scale Gold Mining in the Philippines 2011-2012, the mercury release from the ASGM sector in the Philippines was estimated at 70 metric tons per year, making the industry the single largest emitter of mercury pollution in the country. Mercury use in the sector also poses great danger to the life of the miners, their families and communities living in the affected regions.

This reality prompted concerned government and non-government agencies to produce communication materials aimed to educate and inform the small-scale miners about the hazardous effect of mercury to the human health. In the

municipality of Tboli, South Cotabato, the Environmental Management Bureau of Department of Environment and Natural resources (EMB-DENR) in partnership with Ban Toxics, produced communication materials to address the issue. Two (2) communication materials in a form of posters, about the risks of using mercury in small-scale mining, were produced by Ban Toxics, while DENR produced a leaflet/primer detailing the general information about mercury. These communication materials were posted and distributed in the mining town of Tboli, South Cotabato.

Fifteen small-scale miners of Tboli, South Cotabato were interviewed to determine their response to the communication materials produced by Ban Toxics and DENR. According to Velicer, et al. (1998) the Transtheoretical Model (TTM) focuses on the decision making of the individual and is a model of intentional change. TTM assumes that a person undergoes six stages of change: Precontemplation, Contemplation, Determination, Action, Relapse, and Maintenance. The TTM operates on the assumption that people do not change behaviors quickly and decisively. Rather, change in behavior, especially habitual behavior, occurs continuously through a cyclical process. Using the Transtheoretical Model of Behavior Change, the researcher was able to uncover the responses of the small-scale miners to the communication materials presented to them.

Visibility of the Communication Materials

One of the major factors that contribute to the effectivity of a communication material is, its exposure to the intended audience. The longer the intended recipients are exposed to the communication material, the more they will remember and

understand the content of the text. Majority of the fifteen small scale miner respondents claimed that they have seen the communication materials produced by Ban Toxics. Out of the fifteen respondents, eight of them admitted that they have seen the posters in the following locations; Municipal office of DENR Tboli, South Cotabato, Ball Milling area, and in the Minahang Bayan of Tboli, South Cotabato. However, seven of the small-scale miners admitted that, they have not seen the posters. In the case of the leaflet/primer produced by DENR, all of the small-scale miners said that they have not seen the communication material in their area of work. It was not distributed or posted in the Municipal office of DENR, in Tboli, South Cotabato, Ball Milling area, and even in the Minahang Bayan of Tboli, South Cotabato.

The eight small-scale miner respondents who saw the posters in the Municipal office of DENR, in Tboli, South Cotabato, Ball Milling area, and in the Minahang Bayan of Tboli, South Cotabato said that, they were not convinced by the message of the communication materials. The other five miners who did not saw the communication materials posted in the public area of Tboli, South Cotabato, concur with the opinion of the miners who saw the communication materials. According to them, they were not convinced by the communication materials produced by Ban Toxics and DENR.

However, there were two miners who said that, they were partly convinced by the communication materials, they agreed with the message of the communication material that mercury could eventually affect the well-being of a person, but it was not enough to totally convince them to stop using mercury in their daily operations.

For the small-scale miners, mercury made their livelihood easy and quick, contrary to the claim or message of poster 1 that says *"Pildi ka sa Mercury"* (you will lose in mercury).

"Ang kanang communication materials mao kana mu discourage sa tawo"

Pag miner dili jud siya mudulot. And every day what we do sa small-scale

Before. The easiest way for us to produce gold kana masegregate siya Sa kuan is mercury jud. Low cost siya kumpara sa planta mi.

(The communication materials are aimed to discouraged the people to use mercury. But if you are a miner, it will not have an effect on you. The easiest way for us to produce gold is through mercury. the cost of this process is also considerably low compared to process the gold in gold-processing plants.)

Miner 2

The small-scale miners do not also agree with the claim of one of the communication materials produced by Ban Toxics that says "Mercury is a Poison". The small-scale miners claimed that most of them have been using mercury for years, but they could not recall an incident where they or their fellow miners were poisoned by mercury.

"Dili ko mutuo ana, kay sa una nag process ko nay mga samad, Hangtod karon OK man, wa may problema sa ako lagi. Ok man Gihapon. Plano plano lang man na nilla maka hilo, wala may nahilo Anang mercury"

(I don't believe that, I used to process mercury before, I even have a wound while handling mercury, but until now, I am still okay. some are saying that mercury is a poison, but nobody was poisoned by mercury.)

Miner 9

"wala, kay nag hinaw na sila ug mercury, tag pila ka kilo nga mercury Ginagunitan. Wala man, sa una pa 1989-1988 wala man hangtod Karon."

(I don't believe, because my fellow miners had been handling mercury

Since 1988 or 1989, they had been handling kilos of mercury, up to
Now, they are still doing okay.)

Miner 7

The failure of the government and other non-government organizations to support their claims about the hazards of mercury to human health contributed to the credibility and reliability of their communication materials. The lack of evidences contributed to the way small-scale miners respond to the campaign materials about the risks of using mercury in small-scale mining.

*"Tanan pag advertise ana banning of mercury, wala sila'y
Bisag is aka specific na medical record na ma presinta sa amo
Na kani jud specific case diri sa Tboli nga nahitabo jud, ug mao
nay pangalan unsa na hospital. Wala sila nag present ana, as far as
I know wala pa."*

(Of all the advertisements about the banning of mercury, they did not
Present to us a specific medical record about mercury poisoning, they
Did not give us names of the people affected by mercury and the
Name of the hospital where they are confined. They did not
Present that to us, as far as I know, not yet.)

Miner 13

The small-scale miners were not also convinced by the leaflet/primer or the communication material produced by DENR. According to them, the terms used in the communication material are not appropriate for the intended audience. The material also used highly scientific and technical terms, making it hard for a person with low educational achievement to read and fully understand the content of the communication material.

*"dili jud, kay kung tigulang tigulang na mo tan-aw ana
di kabasa ana"*

(I don't believe it, (referring to the leaflet/primer of DENR) because
If an older person tries to read it, he or she could not read or
understand it)

Miner 10

*"Actually, dapat binisay-on ni. Kining mga ing-ani na drawing dagko
Binisay-on kay dili man pud tanan maka basa pero and pag comp
Sa mga English terminologies basig lisod."*

(Actually, it should be written in Cebuano, these drawings should be
Larger then these, then it should be translated into Cebuano because
Not everybody could and understand. Maybe it's difficult for them
To understand the English terminologies)

Miner 4

The small-scale miners of Tboli, South Cotabato admitted that they have seen the communication materials produced by Ban Toxics and DENR. But all of them claimed that the communication materials with the following message; "Pildi ka sa Mercury!" (You will lose in Mercury), and "Mercury usa ka Hilo!" (Mercury is a Poison!), and the leaflet/primer of DENR about the general facts about mercury, did not convince them to stop using mercury in their gold-mining operations. The miners claimed that the message of Ban Toxic's poster 2, "Mercury usa ka Hilo" (mercury is a poison) does not match with their actual experiences. The small-scale miners said that they have been using mercury for years, 20 to 30 years to be exact, but they did not experience health issues that could be attributed to mercury handling. This lead to their belief that mercury is not a harmful compound as claimed by DENR and Ban Toxics.

The small-scale miners did not also agree with the message of the first communication material produced by Ban Toxics. Ban Toxic's poster 1, states that "*Pildi ka sa Mercury!*" (You will lose in Mercury). The small-scale miners said that, by using mercury, the usual long process of gold recovery becomes an easy and quick activity. They also agreed that the leaflet/primer produced by DENR contained too many technical and scientific words making it difficult for an ordinary person to easily read and understand the message.

Awareness of the Risks of using Mercury in Small-Scale Mining

At least two small-scale miners of Tboli, South Cotabato, admitted that they did not totally discount the fact that Mercury could affect their well-being. They were aware of the possible side effects of using mercury in small-scale mining because of the trainings, symposiums, and public consultations conducted by DENR and other non-government organizations in their community. But the awareness about the possible hazards of mercury to their health was outweighed by their economic needs and personal experiences.

*"Sa pagsugod namo sa mercury siguro nilutoay namo mga niabot
Na mga 30 years, karon wala may ingon na total effect nga ma kuan ka,
Pero kumbinsido mi makadaot jud siya pero kulang ang mga
Alternatives nga mu effect dayon ni siya"*

(We have been using and burning mercury for about 30 years already,
Until now we did not experience the negative effects of mercury,
but we were aware that it could be harmful to us, but there was lack
alternative information about timeframe of negative effect of mercury.)
Miner 1

According to one miner, the communication materials made him aware of the possible negative impact of mercury to his health, but that awareness is not enough to convince him to stop using mercury, especially, if the supply of mercury in their

community still exists. According to him, as long as there are no concrete alternatives given to the small-scale miners such as; extensive trainings on mercury-free method of gold mining and other livelihood alternatives, mercury usage in the artisanal and small-scale mining will continue to exist.

The World bank (2013) claimed that most of the people involved in small-scale mining are the poorest and poorly educated populace with little other employment alternatives. People on this sector will continue to ignore the risks brought about by the usage of mercury, as long as there were no concrete alternatives given to them by the concerned agencies of the government.

"Convincing siya, pero dili siya enough na maka stop. the way kung I put nato siya into simpler terms maka kumbinsi siya, klaro and message Pero dili siya maka pugong sa paggamit as long as the material Is available. Dili siya maka pugong kay gamiton lang gihapon"

(I believe that its convincing, but it is not enough to convince the miner To stop. In simpler terms, yes, the communication material could Is convincing, the message is clear, but again, the communication Material could not force the miner to stop using mercury Especially, if the material (mercury) is still there and they have Access to it. It could not them, they will continue to use.)

Miner 3

The small-scale miners do not discount the possibility of totally stopping the usage of mercury in their mining operations. Though majority of them believe that mercury could not harm them, because based on their experiences and the accounts of their fellow miners, they have been using mercury for years, 20 to 30 years to be exact, still, they did not experience any health related issues that could attributed to mercury.

For the small-scale miners, there are two situations that could convince them to stop using mercury in artisanal and small-scale mining. These are, the total ban of mercury usage in small-scale mining and strict enforcement of the said ban from the authorities, and an extensive training on mercury-free method of gold mining for the small-scale gold miners. Unless all these alternatives are in place and properly implemented, the usage of mercury in artisanal and small-scale mining in country will continue.

*"kaining kuan, pag pahimang-no sa atoa sa gobyerno, kung I force
Gyud ni siya, ma undang gyud ni siya. Wa man tay mahimo.
Pero kungAng tawo lang imong pa istoryahon bahin anang
undangon, dili gyud na sila muundang kay gamit man kayo na nila."*

(If the government would really force and implement the total
Ban of mercury, the usage of mercury in small-scale mining
Will also stop. We have no choice but to stop. But if we will
Just tell people to stop, definitely they will not stop because
Mercury is very useful to them.

Miner 6

Though some miners claimed that, the mercury-free method of gold mining is so expensive that only those with huge capital could afford to put up mercury-free processing plants. Ordinary and poor small-scale miners have no choice but to continue using mercury in their small-scale mining operations due to the fact they need to provide for the needs of their families.

*"Kailangan you have to accumulate, kailangan ka mu gather
Ug 10 tons ore para maka kuan kag isa ka cycle, that will take you
7-10 days. 12 days entire cycle, I transport nimo ang ore didto
Galingon nimo siya I crush, then sackigon nimo paingon sa planta.
So kung small-scale ka, tapos wala kay kwarta nga mu sustain
Ug 12 days asa man ka mo kuha ug kwarta? Pwera sa mercury bisay
Isa ka drum lang ang ore mabutangan mercury pagkahapon
Naa na."*

(You need to accumulate at least 10 tons of ore so that you could Complete 1 cycle, that will take you 7 to 10 days. 12 days the entire cycle. After crushing the ore, you bring it to the processing plants. If you are a small-scale miner, then you could not sustain the entire 12 days of processing, Where are you going to get the money? Unlike using mercury, even you only have 1 drum Of ore, you can process it using mercury, by the end Of the day, it will be completed.)

Miner

12

Majority of the small-scale miner-respondents claimed that they are not convinced by the message of the communication materials produced by Ban Toxics and DENR, because the message contradicts their actual experiences. They have been using mercury for years, 20 to 30 years for some, but these people claimed that they did not experience health issues that could be attributed to mercury handling. This contributed to their belief that mercury is not a harmful to human health as claimed by DENR and Ban Toxics.

TTM and the Response of the Small-Scale Miners

The Transtheoretical Model of Behavior Change (TTM) focuses on the decision making of the individual and is a model of intentional change. TTM assumes that a person undergoes six stages of change: Precontemplation, Contemplation, Determination, Action, Relapse, and Maintenance. The TTM operates on the assumption that people do not change behaviors quickly and decisively. Rather, change in behavior, especially habitual behavior, occurs continuously through a cyclical process.

Looking through the lens of the Transtheoretical Model of behavior Change developed by Prochaska and De Clemente, the behavioral response of the small-scale miners of Tboli, South Cotabato fell only on the first two stages of the model. The Precontemplation stage and the Contemplation stage.

People on the Precontemplation stage do not have plans to change their behavior in foreseeable future. They act this way because they were unaware of the consequences of their behavior, while others chose to ignore the repercussions of their actions because they believe that they don't have the will power to change their behavior. Both groups tend to avoid reading, talking or thinking about their high risk behaviors. They are often characterized in other theories as resistant or unmotivated or as not ready for health promotion programs.

People on the Contemplation Stage on the other hand, plan to change their behavior in the future. Some people tend to stay in this stage for quite a long time because they tend to strike a balance between the advantages and disadvantages of changing their behaviors. This phenomenon was often referred to as chronic contemplation or behavioral procrastination. Same with Precontemplation, people on this stage are not yet ready for health promotion programs.

Majority of the small-scale miners belong under the Precontemplation stage. 13 out of 15 respondents believed that the message of the communication materials was not effective enough to convince them to stop using mercury in their daily mining operations. The small-scale miners do not believe the message of poster 1 that says "Pildi ka sa Mercury!" (You will lose in Mercury), because this claim contradicts their

own experience, for them, using mercury made their gold mining operations easy and quick. The small-scale miners do not agree also with the message of the second poster that says "Mercury usa ka Hilo!" (Mercury is a Poison!), because based on their own accounts, they have been using mercury for years, yet, they are not aware of any reports or incidents of health related issues that could be attributed to the usage of mercury in small-scale mining. These realities contributed to the passive behavior of the small-scale miners concerning the usage of mercury in small-scale mining.

However, there were 2 out of 15 small-scale miners who belong to the contemplation stage. People on the Contemplation Stage plan to change their behavior in the future. The small-scale miners who belong to this stage admitted that mercury could eventually harm their health, but because of the lack of gold processing alternatives, such as mercury-free method of gold mining, these miners said that, they have no choice but to continue using mercury in artisanal and small-scale mining in order for them to provide for their families. According to the small-scale miners, unless a concrete and effective method of mercury free-mining alternative is in place, the mercury usage in the artisanal and small-scale mining operations in the country will continue.

The small-scale miner respondents did not reach the Determination, Action, Relapse, and Maintenance stage of the Transtheoretical Model of Behavior Change because all of the respondents did not show any plans to change their behavior in the immediate future. Only 2 of the 15 respondents recognized the possibility of having health-related issues due to mercury usage, but these respondents did not

show determination to change their behavior or stop using mercury in their daily mining activities. The communication materials on the risks of using mercury in the artisanal and small-scale mining produced by Ban Toxics and DENR, made the small-scale miners aware of the hazardous effect of mercury to their health, however, it was not sufficient to convince the small-scale miners to stop using mercury in their gold-mining operations.

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

This study analyzed through Critical Discourse Analysis (CDA) the communication materials on the risks of using mercury in small-scale mining produced by Ban Toxics and Department of Environment and Natural Resources (DENR).

This study also examined the response of the small-scale miners to the communication materials through the lens of Transtheoretical Model of behavior Change developed by Prochaska and DeClemente.

Based on the findings, the following are the conclusions of the study:

Linguistic Patterns of the Communication Materials

The communication materials produced by Ban Toxics used vernacular language, Cebuano dialect in particular, to contextualized its message. Cebuano dialect was utilized to increase the understandability of the communication material. Words such as; "Pildi ka sa Mercury" (*You will lose in Mercury*), "Dili kini praktikal" (*It is not practical*), "Walay Pulos" (*Worthless*), and "Kung gusto ka makadaginot" (*If you want to earn more*) will be easily understood by the audience because it is written in their own dialect. Ban Toxics contextualized its message by using the Cebuano dialect as the main medium of their communication materials. The leaflet/primer produced by the Department of Environment and Natural Resources (DENR) was written in English and uses highly scientific and technical terms making it difficult for an ordinary

audience to understand the message.

Naming and Reference were used and presented differently by Ban Toxics and DENR. Ban Toxics opted to describe the participants as individuals, while DENR classified their social actors as part of a collective body. Ban Toxics presented the social actors of their communication materials as specific individuals. By presenting their social actors as specific individuals, Ban Toxic are making communication materials relatable and closer to their intended audience. DENR, on the other hand, presented the participants of their communication materials as collective body and not as individuals. The text used in the communication material did not address the readers as individuals, instead, the message was crafted for the general audience. The generic references can have the effect of distancing actors/groups of actors, making them less real, representing them as other than ourselves (Dunn, 2006). The content of the communication material is a general statement intended for a general audience, it does not refer to a specific individual or person. These type of statements appeared to be less personal because it does not directly involve the social actors or the participants in the communication material.

Suppression was observed in Ban Toxic's poster 2, because the claim of the communication materials is not supported by facts. Facts, that would further convince the audience that mercury is a harmful chemical compound. Ban Toxic's poster 1 and DENR's Leaflet/Primer, on the other hand, did not show Suppression because the producers of the text included all significant information needed by the recipients to understand what Mercury is all about and how it could affect the well-being of the person.

Presupposition was observed in the communication materials produced by Ban Toxics, while it was not utilized in the communication material produced by DENR. The general content of the communication materials produced by Ban Toxics assumed that the small-scale miners are already using mercury in their mining operations, therefore, the overall message of their communication materials centered on convincing the audience to stop the practice for the sake of their children. However, presupposition was not observed in the communication material produced by DENR, the overall content of the communication material was centered on the general facts about Mercury and on how it affects the human body. The data included in the communication material are not based on assumptions or presuppositions.

The use of Modals was not observed in Ban Toxic's poster 2 and DENR's Leaflet/Primer. However, Modals was observed in Ban Toxic's poster 1. The statement "Pildi ka sa Mercury" (You will lose in Mercury) signifies high degree of certainty because of the word will. The word "will" connotes that, it is certain that the miner will end up losing more money if he continues to use mercury in small-scale mining. The producers of Poster 2 and Leaflet/Primer on the other hand, did not use modals to reinforce the message of their communication materials. What Poster 2, and Leaflet/Primer contain are just general facts about mercury, its hazardous effect to human health, and its economic implications.

Rhetorical Tropes was not observed in Ban Toxic's poster 1 and DENR's Leaflet/Primer. Ban Toxic's poster 2 on the other hand, employed rhetorical tropes in a form of hyperbole. The statement "Ayaw ipasa ang hilo kay baby" (Do not pass the poison to the baby), was a hyperbole because the word "poison" was used in this statement as an ordinary thing that could be given to anyone. Contrary to the way people handle poison in reality. The use of hyperbole in texts would lead the recipients of the message evaluate persons, places and events.

Response of the Small Scale Miners to the Communication Materials

The miner-respondents of this study claimed that they are not convinced by the message of the communication materials produced by Ban Toxics and Department of Environment and Natural Resources (DENR), because the message of the communication materials contradict their actual experiences. This contributed to their belief that mercury is not a harmful to human health.

Looking through the lens of the Transtheoretical Model of Behavior Change by Prochaska and DeClemente, the response small-scale miners of Tboli, South Cotabato fell only on the first two stages of the model. The Precontemplation stage and the Contemplation stage.

The small-scale miners did not reach the Determination, Action, Relapse, and Maintenance stage of the Transtheoretical Model of Behavior Change because all of the respondents did not show any plans to change their behavior in the immediate future. Only 2 of the 15 respondents recognized the possibility of having health-related

issues due to mercury usage, but these respondents did not show determination to change their behavior or stop using mercury in their daily mining activities. The communication materials on the risks of using mercury in the artisanal and small-scale mining produced by Ban Toxics and DENR, made the small-scale miners aware of the hazardous effect of mercury to their health, however, it was not sufficient to convince the small-scale miners to stop using mercury in the gold-mining operations due to the contradiction between the message of the communication material and the actual experiences of the miners.

Overall, majority of the small-scale miners did not find the communication materials effective in convincing them to stop using mercury in small-scale mining. This study found out that the linguistic patterns, visual images, font style, font size, text color, and other technical properties of text, are not the only factors to consider in producing an effective development communication material. Producers of any development communication materials should put also into consideration the personal background, educational attainment, personal experiences, social, economic, and health conditions, as well as the locality where the intended recipients reside, in designing any communication material because all these factors play an important role in the successful transfer of information from the source to the recipient of the message.

Recommendations

In the light of the results of the study, the researcher wishes to make some recommendations, which, if taken into consideration, might bring some changes to the current situation.

- Concerned government and non-government organizations should re-assess and evaluate their methods of producing communication materials on the risks of using mercury in small-scale mining.
- Concerned government and non-government organizations should develop new strategies and approaches in producing communication materials on the risks of using mercury in small scale mining, the personal experiences, economic and social conditions, and health status of the miners should be taken into consideration in the development of these new communication materials.
- Involve the small-scale mining sector in the development of the communication materials through regular public consultations and forums.
- Concerned government and non-government agencies should establish sustainable partnerships with the local small-scale mining operators and other government agencies such as the Department of Health and Department of Social Welfare and Development in order for them to properly address the needs of the small-scale miners in their communication materials.

CHAPTER VII

COMMUNICATING MINING RISKS IN THE PHILIPPINES

This chapter discusses the insights gained by the researcher from the results of the study.

The artisanal and small-scale gold mining (ASGM) is a form of livelihood in the Philippines that relies mainly on brute force and hard labor, it is considered to be a vital contributor in the Philippine economy because it provides employment opportunities to the people living in the countryside and produces almost 80% of the country's gold supply.

However, though considered as a significant contributor in the Philippine economy, the ASGM sector has been labeled as one of the leading mercury-emitting sectors in the world due to the usage of mercury as the number one element used in the recovery of gold in the artisanal and small-scale mining.

A number of legislations and executive orders have been passed by the Government to regulate and prohibit the use of mercury in the artisanal and small-scale gold mining, these laws and regulations are in response also to the Minamata Convention signed by the country in an effort to contribute to the reduction of mercury emission in the world. But these laws and regulations have failed to stop the small-scale miners on using mercury in their gold mining operations.

Concerned government agencies such as Department of Environment and Natural Resources (DENR) and Ban Toxics, produce communication materials highlighting the risks of using mercury in the artisanal and small-scale mining, the aim of these communication materials is, to inform, educate, and eventually persuade the small-scale miners to stop using mercury. But these communication materials have failed to convince also the small-scale miners to stop using mercury in the artisanal and small-scale mining.

The decision of the small-scale miners to accept or reject the message of the communication materials on the risks of using mercury in small-scale mining, do not rely solely on the the content, linguistic patterns, and other textual properties of the text contained in the communication materials. The personal background and experiences, educational attainment, health, social, and economic conditions of the small-scale miners play a significant role in their decision to accept or reject the message of any development communication materials presented to them.

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Researcher's Profile



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Joseph A. Laroscain is a full-time instructor at the Ateneo de Davao University.

He teaches Nonlinear Video Editing, Digital Video Production, Writing for Radio and Development Communication. He supervises Blueknight FM, a two-hour block time program of the Mass Communication Department of Ateneo de Davao University, over 94.7 DXLL FM One Radio.

Joseph A. Laroscain was a former professional radio broadcaster at 1197 DXFE, a regional radio station of the Far East Broadcasting Company. He worked as a radio announcer-producer for 10 years. He is a bonafide member of the Kapisanan ng mga Brodkaster ng Pilipinas (KBP).

Joseph A. Laroscain holds an AB Mass Communication Degree from Ateneo de Davao University and a Master of Development Communication (MDC) degree from the University of the Philippines Open University. He is currently pursuing his Doctor of Communication Degree at the University of the Philippines Open University.

Joseph A. Laroscain lives in Davao City with his wife, Mahalia Sol G. Laroscain and their three children. When not working, Joseph Laroscain enjoys spending time with his three sons, Seth Joseph, Ethan Luke and Lee. He loves watching indie films, playing basketball and going on a road trip.

Appendix A

Ban Toxic's Poster 1

Sa paghinay-hinay ug kawala sa Mercury sa merkado, samot ang pagtaas sa iyang presyo. Dili kini praktikal, walay pulos, ug lugi ka.

PILDI KA SA MERCURY!



Kung gusto ka makadaginot ug mokita og dako, duol sa BAN Toxics!

www.bantoxics.org

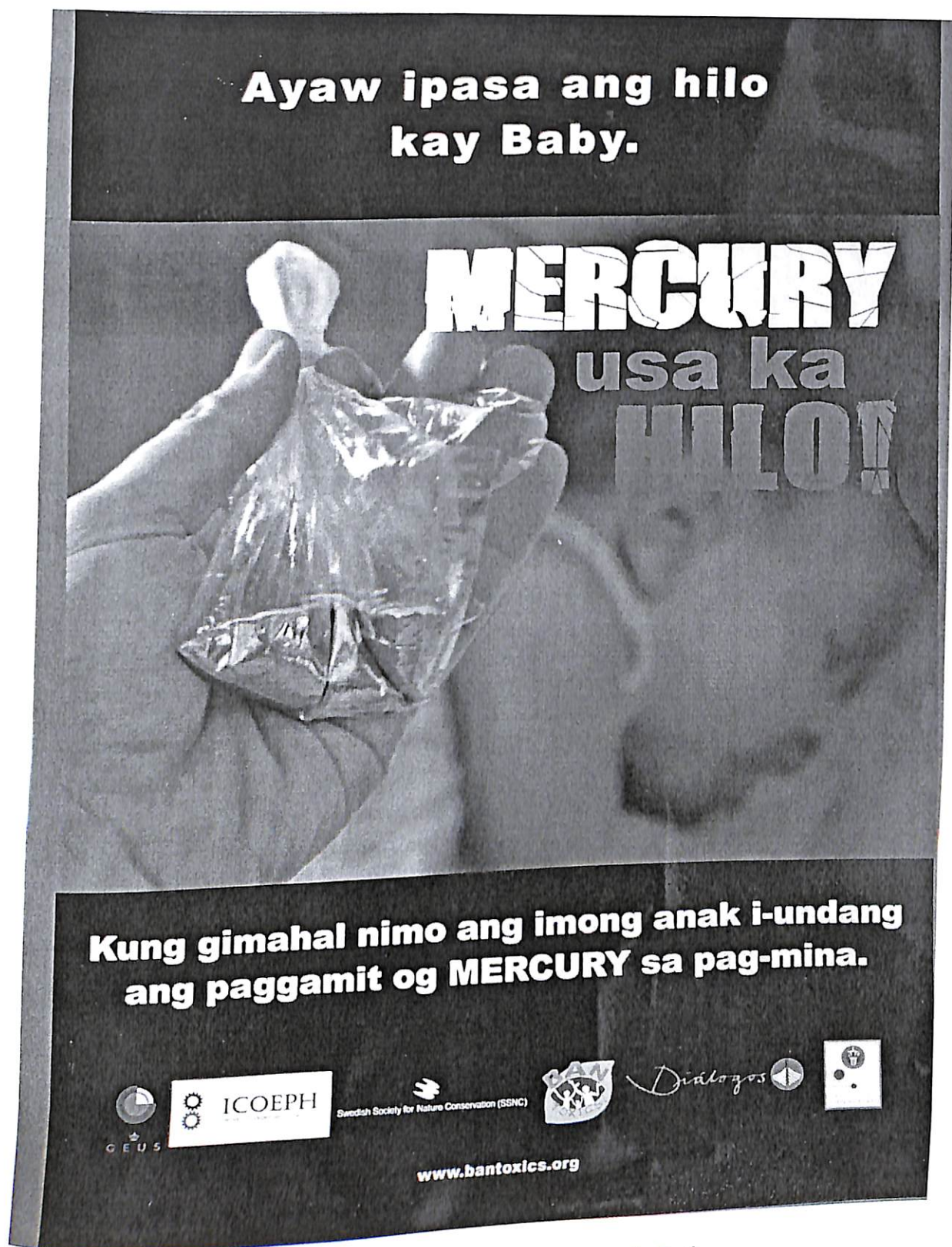


BAN Toxics!
26 Matalino St., Suite 329 Eagle Court Dilliman,
Quezon City 1101 Philippines
+63 2 355 7640 | info@bantoxics.org

(You will lose in mercury)

Appendix B

Ban Toxic's Poster 2



(Do not pass the poison to the baby)

Appendix C

DENR's Leaflet/Primer

The EMB-Unitar Project on the Ratification and Early Implementation of the Minamata Convention on Mercury in the Philippines is a collaboration between the Environmental Management Bureau of the Department of Environment and Natural Resources (DENR-EMB) and the United Nations Institute for Training and Research (UNITAR) with support from the Swiss Confederation and assistance from Innoogy Solutions, Inc. Initiated in June 2014, this year-long project aims to develop a roadmap of activities that will facilitate the early ratification of the Minamata Convention on Mercury in the country. Specifically, the project aims to produce the following documents:

- Ratification Dossier on the Minamata Convention on Mercury in the Philippines.** This document is expected to include a detailed assessment of the current state of the country in relation to mercury as well as the implications of ratifying the Convention and a national action plan for its effective implementation in the Philippine setting. Ultimately, this Ratification Dossier will serve as the main reference for relevant stakeholders and the Philippine Government in assessing the feasibility and benefits of adopting the Convention.
- Informational Brochure on the Minamata Convention on Mercury.** The brochure is expected to help create awareness among stakeholders on the harmful effects of mercury exposure to public health and the environment, an overview of the Minamata Convention, and its overall benefits to the country.

Public representation and approval of the Ratification Dossier is signified through public consultations in Iloilo, Visayas, and Mindanao, and through inter-agency meetings with relevant executive departments to discuss the Minamata Convention and its obligations, and decide on the process of

What is MERCURY?

- Mercury is a **NATURALLY-OCCURRING** element
- It is commonly known as **QUICKSILVER** or **ASOGE**
- It forms a **COLORLESS** and **ODORLESS VAPOR** at room temperature

Mercury vapors from a broken thermometer under normal light (left) can only be viewed when placed under UV light (right).

What are the USES of Mercury?

We use mercury or mercury-containing products in our everyday lives. Some common applications of mercury are:

As Metal

- Extraction of gold and silver
- Manometers
- Thermometers
- Fluorescent Lamps
- Dental Amalgam

As Compound

- Batteries
- Antiseptics
- Reactants for analysis
- Catalyst
- Pigments
- Detergents
- Explosives
- Cosmetics

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

unitar
United Nations Institute for Training and Research

How does Mercury ENTER our BODY?

- Inhalation of mercury vapors or mercury-contaminated dust
- Consumption of mercury-contaminated food or water
- Dermal contact with mercury or mercury-contaminated soil, water, and other materials

Mode of Exposure	Mercury Compounds (except (Organic) Alkyls)	Mercury (Organic) Alkyl Compounds
Skin Contact ¹	0.05 mg/m ³	0.01 mg/m ³
Inhalation ²	0.05 mg/m ³	0.01 mg/m ³
Ingestion	0.001 mg/L	0.001 mg/L

What are the HEALTH IMPACTS of Mercury?

- Nervous system (tremors, muscle weakness and atrophy, headaches, and polyneuropathy)
- Urinary system (kidney failure)
- Development of fetus (delayed onset of walking and talking, cerebral palsy, and altered muscle tone)

Generations of Minamata City residents fall victim to severe mercury poisoning after large volumes of mercury-contaminated wastewater were discharged from a chemical factory into the Minamata Bay.

How are we EXPOSED to Mercury?

2 Once released, microbes convert mercury into methylmercury (its most toxic form). This then enters the food chain when plankton and small fish eat contaminated plants and sediments or swim in contaminated waters. Since mercury accumulates in the fat tissue, larger fish contain higher levels of mercury in their body than smaller fish and can cause greater harm up along the food chain.

3 Cooking does not eliminate mercury! Thus, people who eat these large fish immediately become exposed to methylmercury. Once consumed, methylmercury accumulates in organs with the most lipids or fats, such as the brain.

1 Mercury is highly persistent in the environment. If improperly disposed, mercury can disperse into the air as vapor and contaminated dust, or adsorb onto soil that can leach into the ground and surface waters.

4 Pregnant women can unknowingly expose their babies to mercury during the critical windows of development and susceptibility. Methylmercury can cross the placental barrier and accumulate in the baby's blood in levels higher than those in a mother, leading to birth defects in the baby's central nervous system.

Mechanism by which methylmercury affects the neural development of a fetus by attacking the growth cones of its neurons.

¹ National Institute for Occupational Safety and Health (NIOSH), 2010
² Occupational Safety and Health Standards (OSHS), 2011

Appendix D - FPIC

February 5, 2018

REYNULFO A. JUAN, CESO V

Regional Director, Region XII

Department of Environment and Natural Resources

Koronadal City, South Cotabato

Dear Director Juan:

I am Joseph Albano Laroscain, a full-time faculty of Ateneo de Davao University and a Doctor of Communication student at the University of the Philippines Open University in Los Baños, Laguna. I am now on my dissertation stage and I have chosen to conduct a study on the communication materials produced by the Department of Environment and Natural Resources to educate the local small-scale miners of Region XII on the risks and hazards of using mercury in artisanal and small scale mining.

It has been a fact that the use of mercury in the small-scale mining industry in the country is so prevalent because of variety of reasons. Local small-scale miners prefer to use mercury in their daily operations because it produces quick money, aside from the fact that it is also accessible and cheap. Other reasons cited are the lack of awareness of the risks of using mercury as well as the inadequacy of the local miners to use mercury-free method of gold mining.

It is for this reason why I decided to pursue this study, I would like to find out what kinds of communication materials are produced by DENR to educate the local small-scale miners on the risks of using mercury in gold mining. This study would like to investigate how DENR presented mercury as a health hazard in their communication materials. It would try to uncover also the response of the local small-scale miners to the communication materials on the risks of using mercury in small scale mining.

In this regard, I would like to seek approval from your office to allow me to have a copy of the communication materials produced by DENR Region XII in educating and informing the local small-scale miners on the risks of using mercury in small-scale gold mining. These communication materials could be in the form of posters, leaflets, brochures, and flyers.

I would like to request permission also to conduct an interview with the head of the Environmental Management Bureau and Mines and Geosciences Bureau, Region XII, in order for me to gain more information on the process of producing and distributing the communication materials. Their inputs and insights would be very valuable in coming up with the most objective and relevant data for this research.

I hereby attach the guide questions that will direct the interviewees.

I hope for your positive response to this request.

Sincerely,

Joseph A. Laroscain

Appendix E – FPIC

February 5, 2018

DIBU S. TUAN

Mayor
Municipality of Tboli
Province of South Cotabato

Dear Mayor Tuan:

Greetings!

I am Joseph Albano Laroscain, a full-time faculty of Ateneo de Davao University and a Doctor of Communication student at the University of the Philippines Open University in Los Baños, Laguna. I am now on my dissertation stage and I have chosen to conduct a study on the communication materials produced by the Department of Environment and Natural Resources to educate the local small-scale miners of Region XII on the risks and hazards of using mercury in artisanal and small scale mining.

Barangay Kematu, in the municipality of Tboli, South Cotabato is one of the many barangays in the country where the main source of income of the local residents come from artisanal and small-scale gold mining. Most of these local small-scale miners use mercury in their daily gold mining operations because of the fact that it produces quick money, accessible and considerably cheap.

I decided to pursue this study in order to find out the steps undertaken by Department of Environment and Natural Resources Region XII in educating the local small-scale miners of Kematu, Tboli, South Cotabato, on the health risks and hazards of using mercury in small-scale gold mining. This study would like to find out the communication materials used by DENR to inform the miners on the health risks of using mercury in small-scale gold mining.

This study would try to uncover also the response of the local small-scale miners to the communication materials produced by DENR.

In this regard, I would like to seek approval from your office to conduct an interview/focus group discussion to the selected local small-scale miners of Brgy. Kematu, Tboli, South Cotabato. Their inputs and insights would be very valuable in coming up with the most objective and relevant data for this research.

I hereby attach the guide questions that will direct the interviewees.

I am hoping for your positive response to this request.

Sincerely,

Joseph A. Laroscain

Appendix F – FGD/Interview Guide

Interview Question Guide

For the Director of DENR's EMB and MGB

1. What types of communication materials are used by DENR to communicate to the small scale miners of Brgy., Kematu, Tboli, South Cotabato the health hazards of using mercury in small-scale gold mining?

(Unsa klaseng mga materyales para sa kumunikasyon ang gigamit sa inyong opisina (DENR) aron mapa-abot sa mga minero sa Brgy. Kematu, Tboli, South Cotabato and kaudat nga pwede ihatag sa paggamit sa mercury sa ilang pang-adlaw adlaw nga operasyon sa pagkuha ug bulawan?)

2. In what way does DENR present mercury as a health hazard in their communication materials?

(Unsa mga pamaagi ang gibuhat sa DENR aron ma prisinta sa ilahang mga materyales sa kumunikasyon and kaudat nga pwede mahatag sa lawas sa tawo sa paggamit sa mercury sa pag mina?)

3. Why did DENR decide to produce communication materials that will show the risks of using mercury in small-scale mining?

(Nganong nagdesisyon man ang DENR nga mag mugna ug mga materyales sa kumunikasyon nga mag pakita sa dili maayong resulta sa panglawas sa paggamit sa mercury sa pag mina?)

4. How do the communication materials of DENR reflect the need of wider society to educate the small-scale miners on the health risks of using mercury in artisanal and small-scale mining?

(Gi-unsa pag hulagway sa mga materyales sa kumunikasyon sa DENR ang panginahanglan sa katilingban nga ma edukar ang mga minero sa kaudatan sa lawas nga pwede ika-hatag sa paggamit sa mercury sa pag mina?)

Interview Question Guide

For the Small-Scale Miners of Kematu, Tboli, South Cotabato

1. Have you seen the communication materials of DENR on the risks of using mercury in small-scale mining?

(Imoha na bang nakit-an ang materyales sa komunikasyon sa DENR nga may kalabutan sa kadautan nga pwede ihatag sa paggamit ug mercury sa pagmina?)

2. Where did you see these communication materials of DENR detailing the negative effect of mercury to human health?

(Asa man nimo nakit-an ning mga materyales sa komunikasyon sa DENR nga naga detalye sa dili maayong epekto sa mercury sa panglawas sa tawo?)

3. What is your first impression when you first saw the communication materials of DENR on the risks of using mercury in small-scale mining?

(Unsa man ang imong unang impresyon katong una nimo nakit-an ang materyales sa komunikasyon sa DENR nga may kalabutan sa kadautan nga pwede ihatag sa paggamit ug mercury sa pagmina?)

4. Were you convinced by the communication materials of DENR that using mercury in your daily gold-mining operations could eventually affect your well-being or your health? If Yes/No, why?

(Nakumbinse ba ka sa materyales sa komunikasyon sa DENR nga ang padayon nga paggamit sa mercury sa pang adlaw adlaw nga operasyon sa pagmina magahatag ug negatibong epekto sa imong panglawas? Kung Oo/Wala, ngano?)

5. Did the communication materials of DENR showing the health risks of using mercury in gold-mining operations made you decide to stop using it? And start exploring other ways of mining gold using mercury-free methods? If Yes/No, why?

(Ang materyales sa komunikasyon ba sa DENR nga nagapakita sa dili maayong epekto sa paggamit sa mercury sa pag mina ang rason nganong ni undang ka paggamit niini? Ug nag sugod ug pangita ug laing pamaagi sa pagmina sa bulawan gamit ang ubang pamaagi nga dili na kinahaglan pa mugamit ug mercury? Kung Oo, Dili, Ngano?)

6. Do you totally agree that using mercury in your daily gold-mining operations will eventually affect your health, but despite of this awareness, you still continue to use mercury in your daily mining activities? Could you please state your reasons why despite the awareness of the health hazards of mercury, you still opt to continue using it?

(Ikaw ba nagatuo gyud nga ang paggamit ug mercury sa pang-adlaw adlaw nga operasyon sa pagmina ug bulawan magahatag ug dili maayong epketo sa imong panglawas, pero bisag ikaw nasayod na niini, padayon gihapon ka sa paggamit ug mercury sa imong pang adlaw-adlaw nga operasyon? Mahimo ba nga imong isulti ang rason nganong bisag nasayod na ka sa dili maayong epekto sa mercury, padayon gihapon sa paggamit niini?)

7. Did the communication materials of DENR on the health risks of using mercury in small scale mining show in details the drastic effect of mercury to human health? If Yes/No, can you please tell us about this detail? Did these details affect your decision to continue/not continue using mercury in your daily mining operations?

(Ang materyales sa kumunikasyon ba sa DENR naga detalye pag mayo sa dili maayong epekto sa mercury sa lawas sa tawo? Kung Oo/wala, pwede ba nga imong isulti unsa ni nga mga detalye? Kining mga detalye ba nga anaa sa materyales sa kumunikasyon sa DENR naka apekto sa imong desisyon nga padayon o dili na magpadayon ug gamit ug mercury sa imong pang-adlaw adlaw nga operasyon sa pagmina sa bulawan?)

8. Did you find the communication materials of DENR on the health risks of using mercury in small-scale mining effective in convincing the miners to stop using mercury in their daily operations? If yes, what part of the communication materials do you consider as very effective?

(Imo bang nakita nga epektibo ang materyales sa kumunikasyon sa DENR para makumbinse ang mga minero nga undangon na ang paggamit ug mercury sa ilang pang-adlaw adlaw nga operasyon? Kung Oo, unsang parte sa materyales sa kumunikasyon ang sa imong tan-aw ang epektibo kaau?)

9. Did you find the communication materials of DENR on the health risks of using mercury in small-scale mining ineffective in convincing the miners to stop using mercury in their daily operations? If yes, what do you think are the reasons why these communication materials failed to convince you?

(Imo bang nakita nga dili epektibo ang materyales sa kumunikasyon sa DENR para makumbinse ang mga minero nga undangon na ang paggamit ug mercury sa ilang adlaw adlaw ng operasyon? Kung Oo, unsa sa imong pag tan-aw ang mga rason nganong wala man ka nakumbinse sa materyales sa DENR nga undangon na ang paggamit sa mercury?)

Appendix G – Close Textual Analysis Matrix

DENR Communication Materials	CDA Tools of Analysis	Discussion
DENR's Anti-Mercury Usage Poster	Lexical Analysis enables the researcher to analyze the basic choice of words used by the producer by asking questions such what kinds of words are used and is there a predominance of particular kinds of words used in the textual materials.	
	Naming and Reference laid out that the manner that people are named in a text or speech can have a compelling impact on how they are viewed by the masses	
	Suppression a process of looking at what is missing from a text, because such absences are clue to what the author wished to hide from its readers.	
	Presupposition is the style of the producers of the text to use concepts in theirs statements without really mentioning or saying what they specifically mean? The producers of the text use	

	this style frequently to appear that they have taken it for granted but the reality is they have not.	
	Modals Modals express degrees of certainty or conviction, example of these are, verbs such as may, will, and must and adjectives such as possible, probable, and certain.	
	Rhetorical Tropes Rhetorical tropes include hyperbole, metaphor, metonym and puns, Hansen and Machin (2013) describe all this as typical political rhetoric and are often used to shape the understanding of a situation rather than describe it in concrete terms.	

Appendix H – Transtheoretical Model of Behavior Change Matrix

Respondent	Transtheoretical Model of Behavior Change	Analysis
Miner 1	Precontemplation people on this stage do not have plans to change their behavior in foreseeable future. People on the precontemplation stage act this way because they were unaware of the consequences of their behavior, while others chose to ignore the repercussions of their actions because they believe that they don't have the will power to change their behavior.	
	Contemplation people on this stage plan to change their behavior in the future. Some people tend to stay in this stage for quite a long time because they tend to strike a balance between the advantages and disadvantages of changing their behaviors.	
	Preparation people on this stage plan to change their behavior in the immediate future. Individuals on this stage have shown interests to change their behavior in the past year by	

	consulting a counselor, visiting their physician, joining health education class, or doing a self-change approach. People on this stage are considered to be ready for action-oriented programs.	
	Action people on this stage have made significant, specific, and clear change in their behaviors and health lifestyles within the past six months. Since action is observable, behavior change has been associated with action.	
	Maintenance on this particular stage, people are working to prevent relapse or to fall or slip back to a former state after a period of improvement by reevaluating their plans and making necessary adjustments along the way. Individuals on this stage are less tempted to fall back to their previous stage through the help and support of others as well as the benefits of change.	

Apendix I – Key Informant Interview Transcript
Mr. Willie Loyola, Pollution Control Officer, EMB-DENR Region XII

Interviewer	So kuan, diba ang context sa atoang interview, im doing a research ang tittle diay sa akoo research is analysis of communication materials hazards of mercury in small scale mining so ang kuan akoo research question about communication materials -how government and non government present mercury as health hazard, tapos mao na ni among na interview ganina how small scale miners respond to communication materials and health risks of using mercury
Interviewee	So background lang kamusta ang interview?
Interviewer	Ahh , sa miners do they will aware sa kining mga communication materials , (di ma dungog) after gani ato sa kuan sir office ni adto ko didto jud sa tiboli
Interviewee	I see, si Ban Toxics jud ang ano
Interviewer	oo. so pag agto jud nako didto naa jud mga naka post didto nga mga ing ani nga mga communication materials sa area og katong gipakita nako na sa mga miners , positive pud nga nakita pud nila na sa area
Interviewee	Atleast kahit papano naka abot , kaya lang sympre wala ta kabalo kung gaano ka ano ka effective pud ang pag communicate , sir well there be any chance at least kami pud maka kuha me og copy sa imuhang study, para ma gamit pud namo sya sa office to improve a where way of communicating sa amoang mga materials kay naga ISO pud kami eh, so gusto namo maapil kay part man gd sya sa among process so we also want to nga unsa to mga sympre findings nimo didto nga dili sya effective ma rectify namo at the same time ma improve namo sya kay very important pud imuhang output sa amoa.
Interviewer	Sige2. So sa context sa inyuhang agency sir sa DENR, what types of communication materials are used by your agency to communicate sa mga small scale miners ang health hazards nga mahatag sa mercury
Interviewee	Interms of sa small scale mining no ang may pinaka grip jud sa ilaha actually ang provides but kami sa EMB we also mentor them tungod sa ilahang minahang bayan at the same time may mga small scale miners didto na established na, may mga kanya-kanya na sila mga multi part monitoring team. So ang among office naga adto didto to check to monitor and also represented kanang multi part monitoring team is a group of individuals na representing mga mining say for example sa critical project including kanang mga small scale mining nato. So thru MMP so mmp is one way na communicate kami didto thru the MMP ma educate to mga tao didto specially the representative sa mga stakeholders so included diha pati ang proponent kung ano tong mga risk involve sa ilaha so

	kasali mana sa ACC nila eh kung mag presents sila sa ilahang environmental study so enclused diha pati ang aspect enclused mercury and both health and sa environmental so another is kaning mga materials na gi collaborate namo with deferent NGO like the bantok 6 so gina communicate na sya didto sa field during also sa amoang mga inspection gina check pud ang ilahang pag ware sa PPE og tama ba ang
Interviewer	Sa meaning Sa PPE?
Interviewee	Personal Protective Equipment at the same time kung unsa to mga engineering rules nga dapat naka stablsh didto nga related sa mercury sap ag manage sa mercury. there will also instances nga nakipag collaborate kami with the provincial environmental management office where in gi gather namo tanan mga small scale miners including kanang mga bolmel operators tapos gi discuse namo didto unsa to mga related sa new policies related sa pag banned sa mercury and nag ask pud me asa sila naga kuha sa ilahang mga sources sa mercury kay mao na isa sa mga gina demand sa atoang minamata convention naa tay menamata assisment sa Philippines where in kana na iniciative murag gina trace niya ang mga areas there is still artisa mine and if there is still presents of mercury use sa mga areas , mostly dila man gud nimo ma ano ma kuha ang tinood na story kung sa interview2 lang unlike mag actual visit ka or offline nimo sila ingnan kay usahay dili man pud sila mag reveal nga naa silay use of mercury didto kay mahadlok sila kay kabalo man sila illegal na ang pag gamit sa mercury . but basically in term of communicating materials so naa kitay mga print media at the same time sa mga schools pud naay mga ginabuhat
Interviewer	Sulti nimo Print Media , kani mga poster
Interviewee	Kani mga Poster , mga liffflets , flyers or kana mga communication materials in written sometimes naay mga bisaya gina try pud sya na I contextualize in to vernacular kay para mas dali nila ma intindihan
Interviewer	Tapos gina reproduce to sya in there own dialect tapos ginahatag mismo didto
Interviewee	oo. Sometimes gina gather pud sila in group tapos I discuse sa ilaha. May mga teach-in man kami pero
Interviewer	Sa katong mga communication materials sir in what way does your agency present mercury , gina unsa pag present sa mercury as a health hazards thru pictures ba?
Interviewee	A, yes thru pictures isa na sya at 1st we discuse also sometimes we lead them into a technical aspect sometimes we present ano iyang accomposition interms a science behind sa mercury ... asa ang sources sa mercury asa na sya gikan, unsa ang mga characteristic sa mercury because we want them to understand na mercury is already there naa jud na sya sa nature naga accure jud na sya how ever how do we manage it. and then ang path ways ang gaano ka daghan ang mercury ang mo sulod sa atoa hangtod dila na nato kaya

Interviewer	Actually naa jud na sya diri
Interviewee	Uu pati diri tapos kanang mga bio accumulation how do we accure. mga path ways niya paano ang paano sya na himo bio-accumulation.
Interviewer	Sir is the material design for the masses of the ordinary small scale miners
Interviewee	Looking at these since it is English murag dili sya enough o dili sya design really. Most of the time ang amoan mga ma encounter katong mga naa sa middle management nila katong mga PCO mga safety officers nila katong mga medjo may knowledge may technical knowledge kay mao man to sila mas dali I gather at the same time during sa amoa mga Polossion Control officer training courses enclused jud ang chemical control order sa mercury sa amoang mga topics. Including kana pag use niya sa mining so during sa mga training medjo technical sya and I think kani na materials although I was not involving prepairing this material problely ang aim with this is to inject as much impormation as possible. looking at it ao personally when I look at this it is not intended for wider audience lalo na if im from the community I wont be able appreciate everyting. sige Makita nako picture but looking at it now I don't understand really specially ang level sa mga minero jud ang atoang I ano.
Interviewer	Mao to I presented show this material sa ilaha most of them ang ni sulti comment jud sa ilaha ani kay sulti nila kadaghanan sa mga miners are dili jud ana ka taas ang education sa ilaha
Interviewee	Gtade 6 lang for example kabasa sila ok na
Interviewer	Presenting this kind of imformation to them for them this is to High.mao to ilahang sulti is kung ang goal man jud halimbawa galing sa mga non-government organization or government organization such DNR AMB for wider this information importante pud siguro is contextualize
Interviewee	Uu I contextualize jud sya sa ilahang ano jud sa ilahang linguahe at the sametime kung ikaw ordinaryo ka na tao mas Makita nimo kung may touch of reality may touch of kanang may sense na makarealate ka for example ako comaparing this with this. although this is jump pack of all information , very important information at that kay pati ang mga legal requirement mga standard exposure limits naa diha but then as ordinary individual , I would appreciate this better kaning ayaw ipasa ang hilo kay baby kay very striking the message is already there
Interviewer	Kumbaga everybody could identify kay naa man silay anak
Interviewee	And them kabalo sila na ang mercury Hilo diba? All of these only mean na hilo ang mercury naa sya capacity na patyon jud niya ang tao . in the long run ang point is dapat iwasan nato sya . if you see picture like this mas stuck daun sa imuha ma hunahunaan daun nimo imong anak . very effective ang . para sa akoe mas effective ni sya nga material compare to this one.,

Interviewer	So kato akoo question ganina in what way your agency presented mercury as health hazards in your communication materials . gi sulti nimo ganina thru text mga picture and kato mga catchy nga mga line or slogan. Pero katong before katong mga poster before ba sya ihatag sa public naga conduct ba mo pilot testing halimbawa mag kuha mga 10 miners nakita
Interviewee	Sample materials . murag wala pa na sya sofar I think for now is a good idea for improvement so for now wala pa
Interviewer	Halimbawa kani sya this pieces of information important man jud kaayo ni example unsa lang jud to dapat nga kanang volume sa mercury na kaya sa atoa lawas na dili maka apekto sa atong health. Pero kung halimbawa I present this for wider dissemination
Interviewee	It will not retain sa ilaha
Interviewer	Naa pay comment ganina sir nga halimbawa Makita daw nila ni sya . tapos wala sila kasabot pwd I uli lang daw ni nila
Interviewee	Exactly pang uli lang jud sya
Interviewer	Example what are the health impact? Pero kahibalo sila nga naay negative kay mao gina sulti sa ilaha
Interviewee	Pero can they differentiate nevosystem brakedown from urinary failure? For them all for those will just a manifestation na is just bad for your health period. Dba mao lang na
Interviewer	Just for example kana thermores 100% sa ilaha wala kabalo ana thermores
Interviewee	Unsa na thermores? Lami kay sya paminawon. unsa diay na
Interviewer	Ok why did your agency decide . diba the past few years ang inyong agency active man jud dili lang sa pag produce og co materials pag collaborate sa ubang NGO like bantok 6 og uban pa mga NGO . og pag conduct og mga public consultation forums. In order for them to para ma educate jud sila sa kaning mga hazardous effect sa mercury . nganong ang ahensya sa DNR decided to produce co material that will show the risk of using mercury as will as conduct educational campaign educate the miners of the carpol effect of mercury is there really an urgent need educate the local small scale miners in the health hazards ?
Interviewee	YES
Interviewer	Kay according sa ilaha they handling mercury for so many years
Interviewee	Yes and I think isa sa mga major "trust" namo sa office why we are trying to pursue nyo a more intensive campaign against sapag gamit sa mercury nakita na nato internationally there are a lot of manifestation like minamata in japan naa nay manifestation how bad can mercury provide you . and as of now naa pa man ang Pilipinas sa Acute effects naa pa lang ta acute syntoms nga mga health condition we are not yet didto sa stage of consciousness of cronic na mga condition so isa na sya coming from may boss isa na sya sa pursutes nila nga to educate people na dili lang ta aware sa acute effect sa atoa sa mga bagay specially sa mercury they have this cronic effect pa unti unti to longer exposure naa diay sya

	siever effects dili lang sa atoa even to the future generation kay naa sya teratogenic effect so mao nay mga misscunception sa community na gusto nato ma erase thru kaning intensive nato na information campaign although adlaw2 kana naga gunit sa mercury kay abi nimo ok lang kay wala daun ka namatay.pero is not like that because mercury will stay there for a longer time and once na you expose your self and you reach the capacity of your body to contain as much as mercury mag manifest nana diha so it will shrink your brain it will give you thremores and so on . so kanang mga tao sa community karon mao na concern nato sa ilaha na as if murag sa ilaha na wala lang. that bother some pasagdan lang ba nati sila na until when na mag gamit sila mercury without even knowing na anaa diay na sya long term effect sa ilha . kay what they only know na kung unsa lang to maka igo sa akoo karon mao ra to dilikado na mamatay ra ko kay naa sya hilo. Pero ang ma consider lang nako kay katong makapatay sa akoo in a day or 2 or 3 days dili nako I consider na nga hilo kung ma longer period pa sya. Pero ing ana diay mahitabo sa ilaha kung dili nila na sya
Interviewer	What is your comment sir didto sa statement sa mga local small scale miners na if mercury belongs to toxic materials bakit hindi sya tinotally banned ng government? Kay according to them kay kung I banned sya sa gobernyo they have no choice . pero as of now wala man jud dw sya direct jud na order from government
Interviewee	There a direct order already mao pud ni no ang problema there are already regulation diba na restricting in the used of mercury in the certain lang na application that's why we have the chemical control order from mercury diba. The chemical control order for mercury is there to regulate used of mercury to certain applications only and that was not include small scale mine.
Interviewer	Dili sya ma totally banned kasi meron other needs
Interviewee	And those need are allowed are already covered with so much information so much data so much studies na ok we will use this for this application because wala pa tay nakita alternative and this has great economic impact once dili sya ma pursu. So let still allow a certain level of mercury in this kind of production but there are restriction already . na Ok you should not reach this much na level I mean kani naa tay standard limit na dili jud na sya exceed na once you exceed that then you already in violation. So similarly ing ana sya supposedly ang konsepto sa pag desimenate sa batas . kaso sa field mao na siguro ang lacking sa amoa sa government no on how to educate the community na kanang mercury dili na jud na sya pweding gamiton specially sa inyuhang kasi sa proseso.
Interviewer	Ang small scale sa artisana dili ni sila allowed to used mercury jud.
Interviewee	Yes... That why we had this consultation with the bolmel operator we wanted to find out kung kinsa pa jud ang naga gamit og mercury diha. Na dili na sya dapat pwede..

Interviewer	Pero aware ang inyong agency sir na siguro.
Interviewee	Very aware kami na there still a part of mao ganina.
Interviewer	Pila ka percent kaha sa tingin ninyo sir ang still gumagamit nga small scale mining?
Interviewee	Dira masking dira pa gani sa palang sa tiboli siguro mga 50%. Kay you cant fine I mean ang ginagamit na alternative for mercury in that context is borak. So Makita nimo , mao na standing order ni RD sa amo to evaluate the small scale mining operation specially the bolmels production capacity wise. I compute mo sya in regards to kombaga product vs input. Because the product and the input should be balance yan sya. So ibigsabihin there producing a lot of gold how much of the catalize are they using to produce gold nuggets. And in order to for you to produce gold nuggets you need colleting agence like mercury diba? Pero instead of mercury you should be using boraks so how much boraks is used . because if kunti lang ung boraks na ginamit pero you producing a lot of gold then its easy to say na they are using other means to produce gold. So very basic ibig sabihin kung gamay lang ang boraks, damo mercury kay damo man gold production. I don't know nag stop ba sila sa gold production nila karon sir? Murag naay TRO man ata or something na murag monatorium pa man ata sila saminahang bayan. Wala ba?
Interviewer	Sa pagkakaron katong gi agtoan namo na kuan wala sila nag operate. Wala sila naga pa gawas og ore .
Interviewee	Pero naga bungkal pa lang sila, so murag pwede pud nimo ma ingun nga poticially wala . kay ore pa man wala pa nila gi process
Interviewer	Actually na storya pud nako si menro didto sa tiboli, nag ana sya kani mga small scale mining operators naga gamit jud silag mercury
Interviewee	Uu and there is that concern pa gani basi gikan pa sa mga dentist ang ilahang mercury. Kay murag naa pay mga dentist nga
Interviewer	Kay since diba ?
Interviewee	Yes Dili na sila kapalit
Interviewer	Asa man sila gikan ani
Interviewee	Ang uban backdoor siguro
Interviewer	Kay sympre kung mo gamit silag mercury paspas man.
Interviewee	Paspas jud ang pag purify sa gold
Interviewer	So unsa man sa tan aw nimo sir what major challenges your agency encounter will communication small scale mining reason using in small scale mining

Interviewee	Sige num. 1 the format of the materials are murag will design to satisfy the international community., murag its there to satisfy na. ing ani ka comprehensive ang amoang method. So diba see this is still In English it has a lot of picture pero hindi mo sya in right away ma connect to mercury. Because kani mura syag elementary na drawing2 sa elementary so tungod kay gi cartoonize mo sya murag na trivialize hinood ang effect sa mercury I think there are also a factor on how to grapichally introduce picture . kay there are some picture na tungod kay ang point mo is gusto mo lang maging chatchy sya sa audience kya you want to use vibrant colors you want to use animation some how it compromises the messages. Just like this one.
Interviewer	It toxic to the brain and effects brain development and the unborn baby something pero look at
Interviewee	Look at the picture diba ay ka cute diba? I will not focus on this but I will focus on the picture hala ka nice ang picture. So I woulded feel worrired about mercury as much kay ka cute diba? Very cute
Interviewer	Actually ang comment sa mga miners sabi nila. Its not really affecting them . wala jud sya impact sa ilaha kay base sa ilahang experience they handling mercury for 15yrs 20years. Wala pa man jud sila nakita effect sa ilahang health then here comes the government and agency NGO telling them na muericy Its bad. Diba tan aw ang kanang sa pakite sa sigarilyo
Interviewee	pakite sa sigarilyo pero naa silay mga personal experiences na wala man ko na ing ana because again they are only concern the acute effects there not concern about the cronic effects of cigarette smoking.
Interviewer	Halimbawa Base on there experience they are handling mercury for so many years walay effect sa ilaha sa imong tan aw naa pa bay other reason ngano this small scale miners off to continue using mercury toxic materials?
Interviewee	No. 1 Easy money sya . for economic reason jud number 1 I mean they will gamble there health and all that because what there asking is dugay pa man siguro ko mamatay ani . pero kung wala koy ma produce ko na gold karon mamatay akooa pamilya karon sa kagutom. My think that how they way it.
Interviewer	So gina unsa ninyo na sa inyong agency murag kailangan man gud ninyo I balance
Interviewee	Kailangan nimo I balance ang economic . so we have to present alternatives solution. Na OK so dili ta mag mercury mining. What else can we do here that's why naa kami mga other activity with them ang uban . Mga forest protection ang uban naman kanang mga recycling activity although kabalo ka na dili sya k empact full with this one . pero atleast gina try nimo I divert ang ilahang source of income na dili sila mag depend lang of this type of mining . and nan aa silay mga alternative pud na pwede na ma ingun na ok that's good alternative ill switch on that instead of just using mercury pero sa karon Makita nako nako wala pata kaabot sa ing ana na point sa Pilipinas.

	For now makaingun ka na bawal na sya dili na jud na sya pwede pero pag balikan na pud me pangutan on me unsa diay inyung ihatag sa amoa na equally significant pud sa amoa .
Interviewer	So as long as wala pa juy klaro na alternative for this na the same na ginahatag sa ilaha sa mercury gina tan aw sa inyung agency nga padaun gihapon sila sapag gamit
Interviewee	Murag padayon pa gihapon sila . dili man gud nimo sila ma kuan ana. Will kung siguro si Gena Lopez ang naa diri karon na nag pungko as secretary maybe she can do something else . Sa amoa karon na current administration they are looking in to it. Pero probably there are bigger problems that have easier solution than this one. Because again dili man gud ta directly maka hatag sa ilaha alternative na maka hatag sa ilaha tarong na income but if you do something else with other issues that maybe link in one way or onther to there concern basig if there are other ways means of income aside from the mining na hindi ing ana ka hago from there family basig mo divert pud sila sa inga to na income.
Interviewer	Pero Since halimbawa sir. Not only sa DNR sa uban pa NGO working with this sector . since naka hibalo naman pud aware na ta na dili jud mo epekto sa ilha despite sa because of there economic condition . murag unsa man ang atong mga plan are we going to continue with this communication materials
Interviewee	Will ako I cannot speak in behalf of the head office maybe you talk someone from the head office kasi kami dito sa region kina cascade lang din sa amin yung mga but we are not limited. Meron pa rin kami it always in our financial plan but I mean it also kumbaga relatively new lang din kasi ako sa government eh . I was here for only morethan a year pa lang naman so. Given may mga ganito mga concern I will make it my own personal advocacy to improve on communication. And I will not just limit my self on our activity to just providing the materials. Complying with the requirement producing IEC materials because hindi naman tayo output base ngaun eh. Outcome base na tayo ngaun. How impactful your iniciative to the community. So in order for use to identify that we have to make sure na may changes talaga. Either sa lifestyle nila and we can only do that if we will work or we will constantly incontact with this people
Interviewer	That brings me to my next question. You think that local small scales miners are resective to the communication materials presented to them? Did your agency notice or documented the
Interviewee	Will given nga kanina with does reaction probably they are not ask receftives as what we expect them to be . hindi namin na meet ang ideal na stuation with this materials because on tha hime side meron naman tayong nalalaman na nag poproduce ng mercury and we connot even get the exact number exact percentage or baseline we don't have baseline kung pila yung dati gumagamit ng mercury and now ilan na lang yung gumagamit ng mercury because on how effective this material. Our yung initiative naman namin not really focus on the IEC materials but its more on

	monitoring and regulation. Ito iec materials is parang nagiging extended arm nalang natin sya nasa down kami dati . un konsepto namin nandun sa down stream na approach kumbaga during operation ito. I momonitor huhulihin ko kung sino mga ano . so makikita naming ma rerelate lang naming ung degrease dun sa number of user ng mercury not because how effective the materials are but because how effective we were in our monitoring. Dun yun nagiging basihan never naming naging basis yung IEC materials as a means of reducing the number of users because probably in the past hindi sya ganun ka naging priority or naging nakitaan ng ganun ka lacking significate in term of reducing the level or reducing the number of users sa mining. Pero kung titingnan pala natin ngaun itong mga ganitong mga materials can be use as pro active approach or upstream parroach kasi given for example we have this baseline now and then we will touch the hearth of the miners with our materials and how we communicate the problem to them. Then once kasi na tamaan mo yung hearth nila .
Interviewer	Once ma seed kailangan mo nalang diligan.
Interviewee	oo. para mag grow, constantly mo nalang sila I remind nun. Will it becomes a habit for you iiwas kana talaga.
Interviewer	Disregarding with the some aspect
Interviewee	Even the economic aspect , yun naman talga importante ang hiraphirap mag instel ng isang change kung wala kang alternative from the statusco yun talaga pinakamalaking struggle dyan . so for now although is one of the many priorities but I think na babasa naman sa news na ang priority kasi ng government natin ngaun sa DNR air water and solid ways but not much on the hazardous but I think we will get into that kasi mas Malaki problema nun . kasi yung iba mas bolky sila kay un ang tinitotokan like boracay pero hindi naman ibigsabihin nun na hindi natin tinitingnan ng maayos ung mercury situtation natin dito sa Pilipinas. Actually yun nda dapat eh hindi nag eend dun sa mga miners yung concern natin about sa mercury exposure kasi although sila yung directly affected. Sila yung 1st hand na apektohan ng mercury.
Interviewer	Ginagawa ng government atleast ma protektahan yung mga tao
Interviewee	Yes that what we are doing now. Kasi hindi lang yung mga miners yung gusto natin I protect pati rin yung mga tao sa downstream kasi halimbawa kung hindi sila titigil sa mga mining operation nila using mercury it will down to the community kung saan man nag pupunta ang tubig. <i>I think yun ang isa sa mga bagay na dapat baguhin naming sa materials naming yung responsibility ng mga miners hindi lang sa sarili nila but even also to other people na dependent or somehow interaction dun sa kanilang ginagawa.</i>
Interviewer	That not soly for them but for the intire community

Interviewee	Kasi yun na nga eh sila kasi yung source kung nasa downstream lang tayo at hindi natin pipigilan yung source . we will just there on the defensive andun lang tayo lagi sa containment action lang ako. And its very expensive to the government to contain to ano lang even rehavilated a certain area na contaminated by mercury . kung hindi mo naman na intercept yung source and if sila na yung source. We will get into them and educate them and convience them to stop what there doing. Mag dodomino na yan pababa.
Interviewer	That leads me to my last question sir...(ikaw na sulat)
Interviewee	I think may statement answer that question na hindi lang eto dahil sa kanila . dahil again no man is an island here . hindi lang sa kanila umiikot at hindi lang naka containe sa kanila ang ginagwa nila . everything that they do has an impact to the environement although when we say going down medjo na decrease yung kanyang concentration but mercury is not just something decepate overnight or what it accumulate . The monents na hindi mo sya na cocontrol sa source mas marami kang na cocontaminate mas madami kang ma poproblema so the bigger picture why we focus on providing materials to small scale miners is to prevent your further contamination ng mercury use sa other area. Kasi the moment na nag contamination na yung mercury sa food or sa agriculture tuloy2 na yan.
Interviewer	Specially pag pupunta na sya don sa water. Mga tail ponds nila diba when they process mercury yung tail na huhulog lag dun sa ponds sa labas. Tapos sympre pag ulan mg foflow yun sa downstream
Interviewee	And yes yun ung pinaka major concern I mean this is not just concentrated to the mercury but in all toxic substancies that we use in our industry. The moment na ni lelect natin yung atin responsibility containing that or in making sure na hindi sya lalabas dun sa kanyang area patay na tayo dyan. Dun na mag start ung malaking malaking problema natin that's why in any solution nga raw dapat nasa upstream measure ka dapat unahin mo lagi yung source . stop the leak, contain the leak and stop the source, ganun sya dapat saka ka mag cocontaminate . So I think yun naman talga yung gustong gawin ng government but it easier to say than done. Diba we have this effort but we know subrang kulang na kulang pa. and its good na dumating tayo sa mga imean there are people like you who do research like this because at some point sasabihin materials lang man yan communication materials lang naman yan. How important is it. If nandun kami sa technical side na parang they must concern yung mga engineering controls because the Philippines has been a custom to that kind of culture the culture of yung ano ka lang parang defensive ka lang. mahihintay ka lang na may mangyari saka ka gagawa ng action. Nasa reactive tayo na stage. Yung safety culture ng Pilipinas is always on the reactive stage pa lang and sympre we want to be like those in the 1st world country na nasa pro active sila. Where in bago pa magyari ang isang bagay or kung may mang yari man na

	isang bagay may prevent action na sila ginagwa or corrective action para hindi na sya ma ulit. Kasi satin ditto ok lang maulit yan kasi ganito naman ginawa naming dati so ganito ulit gagawin namin. Hindi natin alam ang ginagwa pala natin na ganito is hindi na pala sya effective that's why paulit ulit parin nag yayari ang isang sakuna or mga ganitong kaso so yun. Hopefully sa mga bagong henerasyon naming ngaun sa office mag iiba narin ang takbo
Interviewer	Actually itong ano sir itong co materials andun lang eto sa loob ng menro ginawa nilang pang cover ng cabinet.
Interviewee	Pero diba nakita mo parang lagi nalang yung mga materials na to under appreciated sila
Interviewer	Sinasabi ng mga miners acutally nakita nila pero hindi talaga yung nandun sa area. Kung saan nakikita ng mga miners
Interviewee	Kasi I think whats lacking is hindi na sesend yung message ng tama . kasi they tough na picture lang yan ok lang yan. Mapapansin ba ok. Complient ok picturan padala nyo nay an. Meron naman tayo ginawa eh. Kasi nga babalik ulit tayo dun sa kutorang output culture hindi outcome culture . ngaun infairness talga sa millennials age it bring you to the defference perfective sa mga bagay2
Interviewer	Halimbawa NGO could initiate or spare head a campaign
Interviewee	Actually that ban toxic doing it marami silang mga efforts na ginagawa
Interviewer	Actually ban toxic naga collaborate sya
Interviewee	Yes maraming marami silang agency na collaborated including us siguro lang din sa mga ganyan kasi mga NGO's naman to they do not have that much man power and the funding comes depende sa kung ano yung mag fufund sa kanila from abroad IFC or what . So pumupunta pa dn sya dun sa political well and prioritization programs ng mga nakaupo sa gobyerno . Kami naman on our part nasa implementation lang naman kami I mean kami where just there task mandated to implement kung ano man yung mga mandates
Interviewer	Pero yung sa inyo
Interviewee	On our part we can do to improve , we will continue with this and we will try to evaluate the effectiveness of the materials that we provide kasi . saying naman nap ag uli lang sya sa kuan diba? Kasi again meron nga syang malaking malaking impact a picture is a story of a thousand words so if only you can provide very clear picture of what should be the case and what will happen if diba? Ganun ka ano so I think mag bago ang paradime nung mga tao . malaking malaking factor talga yung marketing branding and communicating.
Interviewer	Ang mga words talaga nila really affected
Interviewee	Yah kasi, like this one . pano ka maka ingun na pilde ko sa mercury nga naga earn gani ko karon eh diba? Because they

	cannot see the bigger pictures because sometimes ang issue like this cannot be explain to one picture only or two picture only. It needs to way communication between the sender and the receivers. Kasi with all of this kind of communication one way lang sya eh sinisend mo lang yun information you don't know if nakakarating ba sa kanila or not. Theres no feedback
Interviewer	Dun yun pumapasok yung before siguro for wider decemination
Interviewee	Uu meron feedback pilot testing and ano and I think that something that we should really apply sa office namin na pweding I implement ng mga taga IEC naming or sa EDOK namin.
Interviewer	Salamat Sir
Interviewee	Thank you, salamat sa ambush interview

Appendix J – Focus Group Discussion

Small-Scale Miner's Interview Transcript

Miner 1	Short name lang , Naldo
Miner 2	Ruel
Miner 3	Eljay
Miner 4	John Paul
Miner 5	Rey
Miner 6	Rolan
Miner 7	Don-Don
Interviewer	Cge, kani sya kani mga commination materials nakuha nako ni sya didto sa menro dha sa munisipyo. kani sya naa ni naka post didto sa opisena so ang akoang 1 st pangutana, Inyuha ba ning nakit an Dinhi sa tibolli or bisag asa area dri sa tibolli kini nga mga communication material.
Miner 1	Uu nakita nako
Mner 3	Nakita
Miner 7	Asa Dapit nakita?
Miner 3	Naa sa mga Government na mga offices, naa sa poste pa pd
Interviewer	So nakit-an ninyo ni sya na kani nga poster diri sa tboli , Asa na kit an? Sa Poste ,
Miner 2	Sa Bolmilan naa sa bolilan na
Interviewer	Sa bolmilan pud. Og naa pud dito sa LGB mismo. sa opisena sa LGB. Unsa inyong 1st impresyon katong 1st jud ninyo nakita? Unsa imong unang impresyon una nimong nakita ang materyales kini na communication materials kalabotan sa pag gamit sa mercury, unsa man imong ma sulti? Katong 1 st jud nimo ni sya nakita?
Miner 1	Ako sir sympre murag worry pud ta , pero mao na man gud na kuan sa mining , pero karon na nahibal an na namo na ing ana diay na so I aware lang nato, so mao lang na akong ma storya
Interviewer	Katong nakita ninyo ni sya naka post sa poste , dito sa Bolmelan, unsa inyuhang 1 st impression ?
Miner	Pwede ta mo kuan , mo emphasize ana , kay naa man pud koy gamay nga knowledge ani bahin sa mercury kay kaning mercury gud , dati pa ni nag sugod ni sa davao del norte , hangtod diri , mas daghan pa mercury sa una , genalon pa , karon gamay nalang mercury tungod sa kamahal , unya kani unta nga kuan pag gawas ani nga gibawal , sympre no choice kay sa goberno mani nga kuan nga order , dako gyud kayo kadaot ni mercury kay ako nakuhaan man ko mercury sa panahon pa didto sa davao del norte , naay taga Australia nga nag agto didto , pero gi kuhaan mo og sample mercury . naa jud to silay van nga kuan. Bisan sa buhok naa panit nato naa, pero gipa inom me atog mga tambal, kaning mercury naa unta ni syay solution kung dli ing ani unta plastar unta sap ag nilutoay , pag produce og

	bulawan. Kung na emphasize pa to retorts, kay kani gung mercury pag once na gani na lutoon nimo na mag luto kag bulawan , mulopad na sya layo kayo daganan na. mao katong wala pani nagawas ni bawal , kini naa nakoy gihimo na retorts , bag ong technology to gi upgrade lang nako tong teknolohiya gikan sa davao . Sa kuan gihapon to sa goberno katong retorts , nga mag luto ka pag luto nimo gawas to bloweran to ang aso niya pasulod didto sa pressure na hangin og tubig , nga dli mo gawas karon diri kay open man pag luto nimo gawas mana padulong adto na sa mga kabataan , mumuloyo diha sa site sa kuan .
	Naa puy tendency don na ang naga luto
Miner	Siguro 1 st na sya sya jud ang unang una , pero kining mercury sa akoang na obserbahan naa gani kauban namo didto na niinom og mercury hangtod karon buhi pa man. Mo gawas lang man to pero ang pinaka dilikado sa mercury kung ikaw mag luto . kay ngano pag lupad ana sa kuan aso na sya mahigop nimo agto na sya sa imong utok , agto sa imong dugo mo sulod sya kay pino man . pag bugnaw sa panahon didto mag tibook tibook na sya mao to makadaot jud permira jd makadaot sa tao pero kung imnon nimo siguro naay mga kuan imong tina-e pero mo gawas ra jud na sya . agto mo dispose ra jd na sya. Pero hangtod krn buhi pa man .
interviewer	Diri sa kuan ba tibolli municipality sa tibolli sa ma sulti ba nnyo na kusog ang drive sa NGB og NDR nga mangampanya na ma sultian jud ang mga miners sa kining kadaog or negative effects sa mercury sa mga miners naga conduct ba silag mga forums or mga community consultation or aside sa mga poster naa ba jud consultation, murag regular consultation ba para ma sultian j dang mga miners na kining pag gamit jd sa mercury makadaot sa kalawasan?
Miner	Daghan daghan na kaayo mga ni anhi dinhi na nag conduct og mga kuan bahin ani sa mercury , naa pa gani to mga taga binquet mining , naa pato daghan ahensya to nga nag kuan dinhi , ila ni gi update kay sympre gikan mani sa atoang kuan ,
Interviewer	Pero katong nakita ninyo ni mga communication materials , na kombinsi ba mo kamo personally nga kining mercury jud makadaot sa akoang lawas.na kumbinsi ba mo base lang jud sa picture , sa text na nakabutang dinha , halimbawa mercury usa ka hilo , sa inyong tan aw ba sakto nana sya nga kana na pahimangno makumbinsi na ang mga miners na undangon jud ang pag gamit sa mercury sa inyuhang pag tanaw og inyuha ni syang makit an? Enough na ba sya para ma reminds ang mga miners na dili nako mo gamit ani mercury? Unsa imong tan aw?
Miner 6	Kaning kuang, pag pahimangno sa atoa sa atong goberno , kung i force jd ni sya ma undang jud ni siya. Wa man tay ma himimo . pero kung ang taw lang imo pa storyahon bahin anang undangon , dli jud na sila mo undang kay gamit man kaayo na nila. Bisan sa davao del norte kung pagahiaay lang ulo. Davao pinaka gahi.

Interviewer	So murag ang imong kuan, bisan unsa pang mga ing ani nga ipang paskil ipang butang didto sa bolmilan murag mo sulti jd mo na dli jd sya epiktibo mga ma kumbinsi ang mga miners na mo undang.
Miner 7	Kani noon 100 percent jud ni sya nga ma undang kung I force jd pero kung gani gud sya , kani na Sistema sa pag bawal , mao mao ra ni sa sigarilyo. Nga I indung nato pero di jd ma kuan
Interviewer	Pareha ana sa sigarilyo karon kana pakiti naa nay warning..
Miner	Uu dli na mo undang kay na deputize na sila sa kuan
Interviewer	So murag ing ato ba na katong nakita nimo to sa sigarilyo nga drawing didto nga cancer , ni undang ba ka o Dili?
Miner	Ingun na sila nga cancer ba diay ko nga kadugay na, wa pa namatay to akoang kuan wa pa na daot.Mao mana ilaha , mao mao ra na sa rabes
Interviewer	Ikaw sir Dan , Nakita nimo ni enough na ba ni sya nga kani text picture, kini mercury usa ka hilo , naay bata kung gimahal nimo imong anak I undang. Sa imong tan aw enough na ba ni sya mga mensahi.
Miner	Ang minsahé ok , no problem about the message noh, risky kana kabalo ta unsay epekto pero kana lagi as gi sulti ni Naldo , tungod sa pangangailangan ma disregards sya ba nga it just calls at the back of your mind tapos wala na. So ang naka gwapo lang karon kay mag mitigation sa local government sa LGB naay ga craft og mga balaod nga eventually , dli sya regulated basig banning jd to , banning jud sya totally , pag na imprement na nga ordinance mahuman nana sya , naa na sya sa renewal nila na mercury testing , nga sa ilang mga facility , nga it could be a ground na dili na sila ma renew. Actually ang provincial level nato kusog pud kaayo silag push ani. Advertisement ok ang apg advertisement pero moaabot jud sya sa point because it is available gamiton jud.
Interviewer	So despite sa katong mga campaign sa mga katong na sulti nimo ganina sir nga Despite sa campaign sa LGU , local government as long as naay supply sa mercury a padayong gihapon, dili man I disregard pero murag since naay mga panginahanglan ang mga local miners despite sa mga materials na gi provide sa LGU. Bantog six kanang mga Non NGO , non government organization murag ma over power ghaon sa mga needs sa mga miners ang mga... Aware sila nga kahibalo mo nga naa jud negative effect pero ma over power sa panginahanglan sa tao. Unsa sa inyong tan aw halimbawa kung halimbawa naay mga dagko kaayo mga poster o tarp ipakita diha mga I detalye jud unsay negative effect sa mercury ma sulti ba ninyo nga pwede na sya nga ma convince ang mga local miners sa tiboli nga pwede mo sulti sila na dili na me mo gamit aning mercury?
Miner	Siguro sa outside kato wala sa minahan , mga wala mag kuan lang sa gawas na wala mag touch sa mina sila uyon kaayo sila ana. Kay Sympre poster Makita gud nimo na actual pero sa mga miners , murag naa pa na silay kuan kay wala pa man solution og unsaon jud pag., naay mga bag o technology karon na mag kuha sa bulawan sa mga pino , kana mang murag karaan nga technohiya line of 8 pa. unya kaning among source kailangan na sya mo kuha og mga kuan

	kuha to mga nuggets o kuan, wala may lain solution. Ang solution nila karon ditso plan ta . I plan nalang dito, dako mana nga financing mao na gi kuha pana karon , wala pa kaayo na emphasize pero ang government nato nag kuan nag post na sila nag pa implement na sila nga wala nay renewal pag ma tistingan imong "clearing pond?" (15:07) karon kung mag operation ka pero ambot , na implement pa
	Wala pa jud kaayo kuan pero kusog jud kaayo ang drive sa LGU pati sa province pati halos non-government agency kusog jud ang drive. Ang sa poster for say murag dili sya ingun ana jud ka dako impact the way I see it sa kuan ba ang ads mismo. Once walay law nga ma implementa maka reprimand sa tao actually dako jud kaayo papel ang local government ang provincial government mga mining agency nato sap ag implement ani sya.
Interviewer	Sa imo tan aw sir don. Dili enough bisag unsaon pa sa LGU, NGB o concern agency o AMB nga mag produce ani mga communication materials kung wala jud concrete jud nga murag alternative sa pag extract sa gold, mag padaun jud gihapon, kung naay pay supply. Dili jud sya totally banned , ang kuan ang implementation sa totally banned sa mercury pag mag pagdaun gahapon ang mga local miners sa pag gamit sa mercury
Miner	UU laban jud sa ing ana.
Interviewer	Despite of the communication nga gina provide.
Miner 2	Ang kana communication materials na kana mo discourage ka tao, pag miner di jud sya mo dulot. And every day think we do sa small scale before. The easies way for us to produce gold kana mas segregate sya sa kuan is mercury jud. Law cost sya compare planta me. Kay ma accumulate ang gastos sa mga capable yes
Interviewer	Pero despite ana sir don nga dili sya mo dulot. Pero naga tuo sa kadaghanan ba sa inyo nagatoo ba mo nga ang kanang exposures sa mercury eventually maka apekta sa inyong lawas.
Miner 2, Miner 3, Miner 1	UU to me ana.
Interviewer	Pero despite ana na awareness katong imong gi sulti sir don nga, ma supersede sa need sa mga minero ang mga katong awareness .
Miner 2	Lalo na katong mga miners na nga who needs the cash for everyday bases .
Interviewer	Sa kato mga communication materials kato gi sample man nato ganina kato sa sigarilyo. Mo palit kag sigarilyo karon naa na didto tong , naay cancer ang liog. Mao gi buhat na sya sa DOH para ang katong manigarilyo Makita ma remind sila before sila mo sigarilyo. Ma remind sila na pwede ni mahitabi sa ilaha ,sa inyong tan aw ang mga communication materials ba kaning mga poster nga gina sulti kaninyo nga naga remind sa miners nga naay kadaot nga mahatag ang mercury sa pang lawas enough ba , gipakita bas a mga communication materials ang effect sa pang lawas sa tao?

Miner 2	Uu ginapakita, klaro kaayo minsahe sa kana, economic, health, environment so klaro gud pag prisinta sa mga agencies nato even NGO klaro.
Interviewer	Represent sa mga miners ang drastic effect sa environment sa health sa tao. Kung ang gobyerno will introduce you ways of extracting gold without using mercury, halimba kato gravitational ba to. Nga I extract ang gold using water, willing ba ang mga miners ang mga local scales miners dinhi sa tiboli na I abandon ang pag gamit sa mercury, .?
Miner 2	Uu willing, pag naay alternative na I present ang government, o any agency basta matagaan ang remedy na makuha namo ang exact na recovery sa gold the way nga makuha namo sa mercury mo cooperate ang tao ana. Tapos sabay pa na mo inforce ang mga balaod ma inforce syag strekto na pag implement tapos naay alternative naay remedy everyone will follow eventually .
Interviewer	Diri ba sa tiboli Don naa na bay kuan jud na sample na kining tawhana mao jud ni naka experience jud sya sa drastic effect sa mercury sa pag gamit sa mercury sa iyaha.
Miner 2	Naa actually naa koy sa akoo uyuan sa una. Dili sya mo luto mo tan aw lang na sya kay mo bantay na sa pag luto sa bulawan. Tapos halos everyday na niya ginabuhat eventually naay mga spot of mercury nakuha sa iyahang lawas . ni survive pd sya pero dili na jud sya ingun an aka health kompara ato wala pay effects sa mercury.
Interviewer	Pero kanang kuan aside ato sa karon naa bay ing ana. Halimbawa maka apekto, kay ang sulti man gd nila pwde sya maka apekto sa kanang mga naga buntis or naay effect sa bata ang .
Miner 13	Tanan pag advertise ana banning of mercury. Wala silay bisag is aka specific na medical record. na mag prisinta sa amo na kani jd specific case diri sa tiboli nga nahitabo jd mao nay pangalan unsa na hospital. Wala sila nag present ana, as far as I know wala pa.
Interviewer	Tapos ma sulti ba nimo sir Don, nga katong gi sulti niya ganina nga naglisod ang gobyerno na totally eradicate ang pag gamit sa mercury kay wala may concert na basihan jud na ing an ang ipekto sa mercury sa health na murag wala pa mo, Dugay na man me naga gamit ani hanggtod karon wala pa man gihapon ni epikto sa akoang panglawas. Pwede pud na sya?
Miner 2	Pwede isa pud na sya, sa mga visual aids nila sa pag present sa mga non-government agency na mo push ani sa una. Katong video sa minamata decease sa japan sa una. murag that was a deferent case kay sa isda mismo gikaon nila volume na to eh, so that cuz gi ingun nila minamata decease , volume to sya so extreme case to sya, mag sea sour sila.
Miner 1	Sa pag sugod namo sa mercury siguro nilutoay namo mga niabot na mga 30 years karon wala may ingun na total effect nga ma kuan ka pero..... kumbisido me makadaot jud sya pero kay kulang mga mga alternative nga mo effect daun ni sya kay syempre dako man ang financing sa kuan kung I stop jud ni sya shutdown ang mga kuan ani, kay wala may financing

Interviewer	Pila ba ka percent ang population sa tiboli don ang sa small scale minging?
Miner 2	Depende sa barangay , kemato halos mga miners jud na sa bisawa halos miners pud na nay pipila sa poblacion pero mining is murag another means of having an income pag ang farm wala mag income .
Interviewer	Pero kana mga miner dili lang totally ang naga depende lang sa mena naa pud silay other alternatives .
Miner 2	Naay portion na ing ana pero most of the time katong babad jud sa , panaglitan nag puyo na jud sa minahan , unya kanang mo strick-strick bisan asa kanang arang arang na tunnel ssudlan nila, So everyday mining is naa jud mga fulltime miners jud. Kani naa sa atoang crowd karon fulltime miners mani ang most of us. Fulltime miner jud ni
Interviewer	So ang main source of kuan jud to provide for the family is kaning Mina, kaning small scales mining . So akua lang usab I run tru ang question , actually humana man ta pero I ran tru lang nako usab. So kadaghanan or tanan mo nagasulti na nakit an ninyo ni sya,kani nga communication materials, kaning reminders sa LGU og non-government organizations sa kadaot nga pweding mahatag sa mercury sa inyong panglawas. Nagatoo man mo ana no tanan no. Tapos nakita ninyo ni sya kaning communication materials didto sa mining area sa may kemato, didto sa bolmel area sa mga poste hindi sa toboli mismo og didto sa may ngb sa opesina sa munisepyo then ang inyuhang 1st impresyon kato nakita ni ang iyuhang sulit ganina murag na remind mo nga naa jud possible nga ihatag nga kadaot ang mercury sa inyuhang panglawas kini base sa communication materials , pero ang pangutana na kumbense ba mo sa katong mga pang adlaw-adlaw nga operation sa mag mena makahatag og negatibong epekto so na convince pud mo nga magahatag sya dili maayo. Pero katong sulti nimo Don ganina nga kato sya yes aware ang mga miners nga naa sya ikahatag nga dili maayo pero makuan to sya supersede sya sa tanan panginahanglan
Miner 2	Ma pending pa sya kay long term effect ang hunger 3days lang mamatay na jud ang tao. Sa mercury sa 30 years murag wala pay namatay diri sa mercury .
Interviewer	So mao na bisag dispite unsa ka kuan kani mga ing ani kaning sulti sa campaign nila murag dili jud ing ana jud na ma convince dayon ang kuan kay dili man jud ing ana daun ang effects sa kuan.
Miner 2	Oo isa na sya
Interviewer	Pero ang mga miners kinahanglan man jud mo kaon,kinahanglan man pud mo provide og kanang panginahanglan sa ilahang pamilya. So maka sulti bam o nga because of this , beacuse of the commincation materials ni undang mo pag gamit sa mercury? Wala?
Miner 1. Miner 2	Anam anam,

Miner 2	Mahal kaayo
Miner 1	Dili na pud ka kapalit tungod sa kamahal, unya siguro mura lag siguro paminaw mura nag shabu kay pangitaonon na.
Interviewer	Pero Dili jud sya nga kanang dili jud sya nga nag undang sa pag gamit kay because of this communication materials . kay mao tong gina balik balik nato ganina nga naa man jud panginahanglan ang mga miners diba? Kinahanglan mag provide sa family. Tapos , nag agree man pud noh na everyday if you will expose yung self., kung ma expose mag gamit mo everyday ani maka apekto ni sa inyuhang panglawas pero ngano padaun gihapon pag gamit. Mao to natubag na ghapon ganina nga katong mga panginahanglan sa minero. Pero na illustrate katong gi mention nimo ganina sir don na illustrate man pd sa mga communication materials ang effect bas a katong mga forum sa ilahang communication materials , information drive na provide man pd. Na provide sa mga miners. Pero dili sya ang kining mga communication materials murag dili kaayo sya convincing dba?
Miner 3	Convincing sya pero dili sya enough na maka stop . the way kung I put nato sya into simpler terms maka combense sya klaro ang message pero dili sya maka pugong sa pag gamit as long as the material is available .Dili sya maka pugong kay gamiton lang ghapon.
Interviewer	So ang kakinalasan siguro unsa man sa inyuhang tan aw ang pwedeng ma buhat sa LGU o government o kining mga concern agency AMB aron jud ma totally stop kining pag gamit sa mercury sa small scale mining operation.
Miner 2	Will ang pinakauna jud ana sa LGU side , sa environment pud as of now being crafted almost nasa 90% sya matapos na siguro eventually mga 1 st week sa may , june So pag mahuman nana sya ma inforce nana sya na ordinance ang MGB nay move nga totally I eradicate jud na sya kay mo tabang pud DNR Ang nay storya na small scale ang local government and concern agency sa provides nga basig mag put up eventually og isa ka facility na mercury free nga maging common for everyone. The moment that happens it would be easier for the local government to implement the law kay gitagaan na nimo remedy , alternative ang tao nga Ok we will stop this mercury pero mag provide mig something. So ingun ana sya. So Anyways is this a obligation of the government to provide sa ingun ana for as long as people are not capable una I inforce na sya ng buong buon mawalaan ang tao e. asa mana sila padulong. Dili makaya sa LGU mag provide og food for them every day and job sa pag kakaron na time most of them unskilled there only good in mining kabalo jud mag mina jud. And it provides as long as steady lang sya its provide for the family. So ang mitigation LGU kato eventually ma buhat na sya. laws pag ma implement , pag naging presence ang mercury sa renewal sa imong

	processing zone , imong industrial pwede closure so di na ka renew og permit. Until such time na ma clear ka.
Interviewer	So karon gina before sa renewal murag naga inspect man ang MGB
Miner 2	Ang MGB murag ingun ana siguro.
Interviewer	Kay katong murag sa among interview pud before ang sulti sa AMB .before mag renew ang kining mga small scale mining operator murag nina inspect ilang bulmilan . tapos pag nay makit an didto nga mercury they will confiscate .
Miner 2	Or I Subject for closure ilahan facilities .
Interviewer	Pero sa imong kuan karon Don kung kining sa mga mina dinhi sa tiboli mga pila kaha ka percent ang mga naga gamit og mercury? Sa ilahang operation
Miner 2	Sa paminaw nimo kuya makaya pa 40% sa intero processing naa pay mga ing ana naga gamit katong operational lang na area. Naa pay mga 40% siguro ana sa operation na lang o sa 30.
Interviewer	So atleast dili na kaayo ana jud 100% ang naga gamit dili na diay jud
Miner 2	UU dili na jud ingun ana. Unang isa ka reason ana sir is ang ore supply gika sa mining padulong didto sa processing area murag hinay pud. Unsa man imong gamitan og mercury nga imong bulmela wa man kay graba. Isa kana sya sa chain of effect ikaduha naa kay graba pero gamay kay kag mercury naa kay graba dha di kay ka kakita mercury kaau kay mahal na man jud kaayo unya imong graba gamay pa jud kaau unod. SO dli ka maka affort pero nay mag pa utang nimo makapalit ka. sa pag kakaron na ni less jud ang pag gamit sa mercury
Interviewer	Unsa ba jud ang alternative sa pagka karon kung dili ka mo gamit og mercury unsang alternative nimo para ma process sya.
Miner 2	Cover and doss. Plan
Interviewer	So mao na pud na ron ang kadaghanan nagagamit ana
Miner 12	Will actually tanan gagamit siguro ana pero ang makagamit ana. Ang makabuhat ana ang katong naay kwarta so meaning pwede sila mo sacrifice this much while processing it kailangan you have to accumulate kailangan ka mo gather og 10 tons ore nga para maka kuan kag isa ka cycle so that will take you about 7 to 10 days , mga 7 days lang ,galing tapos planta
Miner 12	At least mga mahuman na sya 12days
Miner 12	Uu 12 days entire cycle I transport nimo Ore nimo didto galingon nimo sya I crash nimo sya gi sackigon nimo paingon planta so entire cycle mo abot jud og 12 days . so small scale ka tapos wala kay kwarta na mo sustaine og 12 days asa ka man ka mo kuha og kwarta. Pwera sa mercury bisay isa ka drum lang ma butangan mercury pagkahapon naa na.

Interviewer	Mas ma fast jud sya ang return diba sa investor
Miner 2	Katong mga dako na Operator anytime pwede na sila mo undang , kana pwede ka mo impost ana nga pag naay mercury sa amo pasirado namo . pwede gud
Interviewer	Ang LGU naa bay program ana para atleast ma support pud ang local miner para encourage pud sila na .
Miner 2	Sa pagkakaran wala pa . Isa pa Local government is not capable to put up anything no, Wala pa jud ang resources sa government kay wala pa . dili sya enough for that nga method nga gamiton namo. Pero exept sa IP plan siguro naa pa man sya sa discussion on process ang tanan mechanisms na ma stop na sya namo dako jud kaayo ang rules sa MGB dri og PMO.
Interviewer	Basic naa pa mo ikasulti ang uban. Si kuan unsa gani imong pangalan koy? Mga pila naka ka tuig nag kuan nag mena.
Roland	Bago lang 1 year.
Interviewer	Ikaw koy? Sa gani imong pangalan koy? Mga Pila naka ka tuig
Ray	Ray, Mga Kuan na siguro 30 year ,diwalwal pa
Interviewer	So ikaw nong Ray, didto pa sa diwalwal nag sige na jud kag gamit og mercury
Ray	Mao na jud toy gamit didto. Ka daghan mercury didto
Interviewer	Kay kahinomdom ko don katong gamay pa me, naa koy kaila na diri pud diwalwal tapos kapitbahay pa jud namo didto sa marvel unya nagadala sya sinako na ore unya didto niya gina process , naa mana silay bobon gani didto niya gina kuan. Mao to gamay pa ko nakakita nako mercury ana kana didto niya gina process , gina ana ana nila didto tapos sa amo sympre Makita namo silver sya nga magdagan dagan so abi pud namo pwede . mao tong gamay pako nakagunit nako anang mercury kay wala man me kabalo , wala me knowledge ana. So si nong ray pila naka ka tuig 30 years nakang ga mena pero sige pud kag handle ana mercury
Ray	Sigeg handle kay sa diwalwal , hasta diri
Interviewer	Pero sa imuhang tan aw walay epekto sa imuha?
Ray	Wa man mura mag, ang epekto siguro kining naputi sigurong buhok mao ra siguro to .
Interviewer	Pero naa kay nailhan didto murag na naa jud epekto sa iyang lawas? O wala jud?
Ray	Murag wa man gihapon
Interviewer	So ma sulti nimo , Siguro mao pud na sya factor mao ang mga minero dili jud ma convience sa kining ing ani lang kay wala may pud jud concerte na outright effect jud sa lawas

Ray	Kay ang akong mga batch didto ang ilang mga anak nanagko man gihapon diwalwal man gihapon abantero man gihapon hastang na ngapo na
Interviewer	Mao lagi kato pud gi interview namo nanigulang na gikan pa sya diwalwal tapos ni abot pa sya dinhi nakapag graduate na sya sa tanan
Miner 1	Pero kato hinoong dali ma epektohan ani kato hinoong naa sa gawas na wala mag gamit og mercury , pag confine sa doctor didto result Mercury. Oh Sila pa hinoon na dutlan nga layo kaayo
Interviewer	Ka kuan mo atong naay na buak lang na thermometer sa manila , nabuak lang sa laboratory na nag panic na sila tanan
Ray	Kit an to sa taga diwalwal dakpon to
Miner 1	Pupuon pa to , kuhaon pa to tilaan pa tog di makuha jud sa kuan . didto na buang na sila didto
Interviewer	Mao to gi close jud ang skwelahan ato kay gipa limpyohan unya ang gipadala didto naa jud full tanan jud naka mask
Miner 1	Sa kani na panimangno dinhi sila na kuan
Interviewer	Didto sa diwalwal naa pud kay nakit an na mga ing ani? Daghan nakanakit an .
Ray	Wala kay pag gikan nako mga taod2 na.
Interviewer	Ikaw gani nong, kuy pila naka ak tuig.
Miner 1	Parepareha ra me kay Dungan man me sa diwalwal.
Interviewer	So mao pud ing ana pud na tuig naga handle pud kag kuan
Miner 1	Mao pud ni among kinabuhi, pag kuha og bulawan., karon lang man me nag kuan mga planta diri na
Interviewer	Unsa ganito imong pangalan koy si? Ikaw pila nka katuig nga na miner na
John Paul	1 year na
Interviewer	1 year ok, Ikaw koy pila naka ka tuig nag kuan
Ruel	Mga 20 na pud siguro diwalwal man gihapon ko
Interviewer	20 years na pud gikan ghapon diwalwal,daghan mo gikan sa didto sars nga nagandto dinhi gikan diwalwal murag ni balhin lang pud. Pero didto man pud murag crowded na man pud sila didto
Miner 1,Miner 2	(Miner 1)Ang diwalwal karon (Miner 2) Menos na kay mga nag move didto mga company na. sa una katong kami pa small scale mining . open pa man para pud diri gihapon sa tiboli line of 8 a 9. Kuan pa surface pa ang mena. So dati taga dinhi home town namo ni tobili kay marvel man me.

Interviewer	So ngano ang concentration sa uban nga mga bukid dili lang ang bukid dinhi Sa tiboli pero sa uban mga area naa ba gold pud ditto. Sa bagong bayan. Diba naa pd naga mena didto.
Miner 1	Dili man ang tanan naay bulawan ang bukid kay Makita mana nimo sa satellite kung asa to declearation Makita nila.
Interviewer	Nadaun ba na sa tampakan sars
Miner 2	Malabo siguro ma large scale
Interviewer	Pero gold ban a sa tampakan diba dili?
Miner 1	Naa gold
Miner 2	Small scale sila pero hydrolic mining sila eh. Mao na banlas so mao diri gina discourage na namo.
Interviewer	Kay ilahan man gud kuanon og tubig ang bukid. Mao ma guba jud
	Kaning sa amo after namo mag mine karon maka plant meg tress ,
Interviewer	Responsible kuan man gd mo
Miner 2	according to TMO walay responsible mining eventually naa jud collateral damage . responsive mo response lang me sa
Interviewer	Sa mga Need. Kanang kuan sars katong sa interview namo before isa sad sa TMO is kanang pag putol sa mga kahoy na ginagamit sa sulod sa mga menahan gina regulate pud sa mga LGU
Miner 2	Oo karon sigurado jud kay next year pag renew sa mga permit sa mga miner operation naa may timber contract basta kalimot q sa term ato , nga dapat naa kay supplier legitimate nga naka apil sa imong business permit nga didto ka naga kuha timber. So Ma account jud pag wala kay ing ana na contrata na suplier sa legitimate na kuan, hardware ba ron o negosyante dili ka matagaan next year part na sya sa code na ginabuhat karon sa local government nato .So mamonitor na sya
Miner 1	Nakaayo man pud sa tiboli sir kay ang legality nato dri sa pag mina gi implement jud para ana pag mga document up and down gikan sa setyo , barangay, municipal to province mao nay naka ayo diri kay ako dati davao del norte wala manay ing ani. Bisan barangay wala nako tagae monisipal , kalot lang ka dha , walay land owner walay mga document didto
Interviewer	So kani diri tanan fully kuan jud ni tanan tanan menero , kanang kalot dinhi regulated jud na sa kuan
Miner 2	Dili sa tanan , pero permit holder ka regulated jud ka , naa may mga illegal gihapon pero every now and then gina Inspect jud na sa PMO sa menro namo na there required to get the permit otherwise ipa close down. Ipa close jud.

Interviewer	So in that way atleast kahit papano ma regulate jud pud ang mga naga kuan
Miner 2	Cooperative ang mga miner nato dri we have this atmosphere nga peaceful mo cooperate jud
Interviewer	Compared didto sa diwalwal murag less ang kuan diri nga kanang violence sa kanang ing ani noh.
Miner 2	Wala na jud halos
Interviewer	Didto sa kuan , didto na area murag medjo na violence na mga records
Miner 1	Kuan didto kumbaga murag semi legal. Simpre hampan lang ta sa mga politics , murag semi legal lang unya kung naay mga ing ani gahi kaayo sila pa tuohon kay syempre mao may kuan di man pareha diri nga 1 false move lang man dri pag di ka mo tuo ah siguro stop ka .
Interviewer	Kani sya kani kay bisaya mani sya so dali sya ma sabtan sa mga miners pero kani sya nakuha nako ni sya sa DNR ang nag hatag ani sa AMB so kani sya kuan pud sya sars replit na sya murag primer about mercury pero naka kuan man gd sya kining . kani sya sa imong tan aw ba dali ba sya ma sabtan sa mga miners kung mao na ihatag nila didto kay how does mercury enter our body?
Miner 4	Actually dapat ni binisay on ni . kaning mga ing ani ba na drawing dagko unya binisay-on kay di man pud tanan kanang makabasa pero ang pag "comp?" diay sa english terminologies basig silod
Interviewer	Kani sya , naga conduct daw silang consultation training ang AMB isa ni sya sa mga primer na gina hatag nila sa mga miners sa mga consultation nila so nakabutang diri what is mercury so how does mercury na unsa pag mercury sulod sa atong lawas , unsa ang health impact sa mercury og how are we expose to mercury pero sa inyong tana aw ba kani sya ma sab tan ba ni sya dali. Sa mga ordinary mga miners sama nato o sama ninyo diri sa tiboli ? kung kini ang ihatag sa inyo ma contribute ba ni sa inyo na ma convince mo na , mao to sulti ni don2 ganina nga unsa binisay on sya aron dali sya maabtan. Parehas ani what are the health nervous system, urenary system pwede daw ka mag ka kidney failure , tapos ang occupational expose ang limits lang.pareha ani mag butang silag mga ing ani paano man ma sabtan sa mga ordinary na miners pila ang 1.5milegram. Nga sa skin diba mao mani sya ganina halimbawa I handle nimo ang mercury gamit imong gamot so dapat ang acceptable lang daw kay .5 something milegram ang sa inhalation kanang pag sunod dapat ing ana lang injestion katong sulti nimo ganina inumon gyod ing ani dapat ing ani lang dapat. Pero murag dili sya since dili sya kaayo
Miner 2	Pag ingun nila nga pwede na sya kay naay limit nga per milegram , pwede ra gyud diay . Di nalang nato na I ban
Interviewer	Pero I distribute na sya
Miner 1	Kani ma sabtan lang nimo ni og mag conduct og seminar pero I Distribute nimo ni ah siguro I ilo pa ning uban ani . Di mani ma sabtan

	kaayo labi na , may man tanan naay grado may pang antipara naa pay grado.
Miner 3	Gamay kaayo oi magunitan sa imo kamot. Ato gani isa ka kuan.
Miner 2	Ah di ta ka puga sa atoang kinilo . higupon ra na
Miner 3	Ingon pa gani ta gamaya ani mercury oi , isa ka lapad
Miner 2	Sa isa ka gramo higupon lang na
Miner 4	Didto sa manila kato pagkabuak sa naratol , ang ilahang huna huna brain wash buang ang kuan didto manila university
Miner 1	Naa man gd lugar ni tibuok komunidad jud nga na daot tong gi kwaan og mercury sa gawas man to .
Interviewer	Japan, pero kato sya sulti nimo sars murag dako kaayo to na volume
Miner 1	Di sa planta to , gamit kaning mercury daghan man gamit ani
Interviewer	Ang nervous system kanang tremors kanang mag kurog kurog ka .
Miner 3	Kalabanan kanang limtanon ka
Interviewer	Muscle weakness kanang mag luya
Miner 1	Wa man
Miner 2	Kato ra lagi katong di na kaayo sila gwapo
Interviewer	So kani sya sa inyong tan aw murag dili kaayo ni sya effective considering , kana mo explain jud sa ilaha pero kanang mo explain jud sa ilaha pero kaning kini lang iilo pa
Miner 1	Kato ra siguro mo buhat ana og kuan scratch na siya katong mga walay knowledge nga di kabasa , pero kabasa ka siguro tagoan nimo kay unsa mani naa man diay ni makadaot oh
Interviewer	Mao ni sulti nila mercury droplet mercury vapor , katong vapor na ma sunog na mulopad sya mao ni sya mo sulod sa
Miner 1	Mao na sya pinaka dilikado sa mercury mao nay pinaka dilikado kay mo sulod mana sa utok sa atong dugo
Interviewer	Pero kanang pasta diay murcury man diay na noh.
Miner 1	Daghan Kanang himoon og plywood
Interviewer	Diba before kanang pasta diba silver ang mo gawas sa imong ngipon karon dili na man karon murag color na sa imong ngipon , pero kanang tinood na sars kanang source sa isa sa mga source sa mercury is kanang dental mga dental clinic kay sila man daw ang naay license na mag angkat sa mercury

Miner 2	Kanang mga unsa gani na sya kanang unsa nga permit kana CCO unsa gani na , basta kanang mag transport mo gikan sa tagum mga (Sayanied) , mga mercury sa una legal mana , dili ko sure pero sa una sa una na time murag kusog kusog na sya sige lang I research nato
Interviewer	Kay naa ko kaila nako na dentist, na before daw kanang didto sa dewalwal pinaagi lagi daw thru dental clinic sila , pero karon siguro at least regulate na mana sya
Miner 2	Kanang isa ka drum ana nga mercury ana gamiton
Miner 1	Kanang sa maghimo diay sa kuan sa una pekop sa una mercury pay imo paagi na sa kuan na sa plywood kanang ma hinlo mana sya , mga paper mail
Interviewer	Sige so far mao lang man to akoo kuan. Salamat kaayo sa inyong cooperation og daghan kaayo salamat. Kani sya ang inyuhang Dili mani sya I include inyo pangalan , real identity didto . wala man gani namo gikuha inyo real name . so kaun lang sya ang mo appear lang didto sa research is miner 1 , miner 2 ana lang . you will not be identify . so ang importante lang man dinhin dili man kamo ang gina focus sa research ang ako focus sa research is kining ilang mga materials kung effective bani sya sa inyuha as local small scale miners kung naa ba ni effect sa inyuha kaning ilahang gina pang sulti dinhi , na kumbense ba mo nga naa juy kadaot nga mahatag ang mercury sa inyuha lawas. Inyuha na sulti na man to ninyo so Daghan kaayo Salamat

Interviewer	Sige mayong udto ako diay si joseph, kini si den2 si kagawad sars klasmate me highschool sa nutridem so nangayo kog tabang sa iyaha akoo sa ateneo ko , naga buhat kog research about mercury so mao nangayo ko sa iyahang kuan tabang nga maka interview mga small scale miners dinhi sa tiboli , mao ng naa ko dinhi karon, So naa lang koy gamay kaayo pangutana. Pweding tubagon na sya in bisaya or Ilonggo mo pwede pud na sya So kini sya dili ni sya I identify inyong tinood pangalan so mangutana lang ko sa inyuhang pwede gani inyong pwede gani inyong hanyo lang. palayaw ninyo para ma identify for documentation para ma identify nga naa jud me na interview So ang akong mga pangutana So akoang 1st is kini na nakakita ba mo ani? Ay pa ilala sa diay So pwede siguro unsa imong pangalan og pila naka ka tuig nga minero Mga pila naka ka tuig miner kol
Miner 8	Chito , 25 na
Miner 9	Bobong , about 5 pa lang

Miner 10	Ako diay si dodong , mga 10 year na
Miner 11	Edil , duha ka tuig pa lang
Miner 12	June , 25 na
Miner 13	Jake2 , mga pulo na ka tuig
Miner 14	Ramel , 7 pa lang ka tuig
Miner 15	Ren Ren 6 ka tuig
Interviewer	Ok nakakita na ba mo ani diri sa kuan kay kani sya kini na poster nakuha nako ni sya didto sa menro diha sa munisepyo sa kanang merno MGB So kinsya poster ni sya about sa kanang epekto sa mercury sa panglawas sa tao So nakakita ba mo ani or didto sa minahang bayan kung asa man mo naga kalot , nakakita ba mo ani? Or nakit an ba ninyo ni sya
Miner 8	Wala man ko kita ana poster sa tunnel Sa bolmelan , guro
Miner 9	Bolmelan naa gipang poster ng mga poster
Interviewer	So nakita ninyo ni sya sa bole milan , so ayaw ipaha ang hilo kay baby mercury usa ka hilo kung gi mahal nimo ang imong anak I undang ang pag gamit sa mercury sa pag mena. So mao na sya ang kuan Ang kaning akoang study dili ni sya about sa inyo mga miners ang akoa mao ni akoang I analyze kining communication materials kay communication major man ko , so gusto nq ma hibal an kung unsa inyong response sa kining mga poster mga communication materials na gi produce sa DNR og sa kining ubang NGO pareha sa bantok 6 . so kadaghanan sa inyuha nakakita ani didto sa bolmelan o didto sa menro.
Miner 11	Didto sa bolmelan
Interviewer	Sa bolmelan naa, ikaw koy kita nimo ni sya
Miner 12	Wala pa. Karon pa man ko kita ani
Miner 13	Kita ko ani sa bolmelan
Miner 14	Wala pa karon pa
Miner 10	Karon pa
Interviewer	So unsa inyong 1st impression bisan wala mo ka kita. Unya karon nakakita mo unsay inyong 1st impression unsa inyo nasulti nakita ninyo ni?
Miner 8	Kung sa akoa lang kanang mercury sa amoa dri walay epekto na sa amoa dri kanang mercury Didto siguro sa bolmelan kay sila didto ang ga luto . sympre ga aso gud na. didto sila naga kuan ana . pero kung parti sa minero., ga buho lan man kami ga kutkut lang man kami

Interviewer	Pero kung kani nakita ninyo ni sya na poster , naka sulti ba mo nga
Miner 9	Kung tinoodna nga makadaot nganong sigihon pa mana,diba. Kung maka daot sa lawas nganu siguhon pa man
Interviewer	Kung makadaot jud sya sa lawas, tapos specially katong sa mga kadaghanan sa minero dinhi moa bot na man 20 ka tuig 25 ka tuig , 30 ka tuig
Miner 12	Wala pa may epekto sa amoa na
Miner 13	Wa pa may nag ingun nga na hilo
Miner 15	Kay ang mercury dinhi gina ampingan man gani naay mercury kay mahal kaayo na
Miner 33	Wa man ko kabati namatay sa mercury
Interviewer	So kini sya sa inyuhang tan aw wala mon a convince o mo sulti mo na kini dili ni sya sakto nga ma convince ang isa ka minero na undangon ang pag gamit or pag gamit sa mercury
Miner 8	Oh bisan sa ako ,
Interviewer	Dili jud sya enough , kay sama sa gisulti ganina base sa imong exp. Taod2 na pud ka naga gamit og
Miner 12	Kay wala man me lain source mag kuha og bulawan, kay ipa bulmel man namo na pag abot didto pakaon mana. Mao lagi pinakamadali mabisa nga makakuha mercury. Mercury ray makadakop sa bulawan.
Interviewer	Pero naga conduct man pud siguro simenar kining DNR naka dungog ba mo naga sulti ba sila nga naa juy epekto ang panglawas ang mercury
Miner 11	Naa jud epekto kuno sa ilahang storya . basi sa ilaha among na dunggan
Interviewer	Pero kamo naga too ka koy na naay epekto ang mercury sa lawas?
Miner 14	Ambot lang ana kay kuan mana karon pa gani me ka kita ana unya ang among pag gamit nga para ma kuha ang bulawan kana man jud among gamiton
Interviewer	Pero sa imuha ikaw naga tuo ka nga walay
Miner 10	Murag wa siguro oi kay wa man pud me ingon nga kami mo luto , sila man didto sa kuan mo luto ana
Interviewer	So halimbawa kini mo sulti sila mercury ang DNR, bantog 6 ni sulti sila ani nga mercury usa ka hilo mo tuo ka ana?
Miner 9	Dili dili ko mo tuo ana , kay sa una nag process ko naay mga samad hangtod karon OK man , wala may problema sa ako lagi. Ok man ghapon . plano plano lang mana nilang makahilo, wa may na hilo ana mercury
Interviewer	Pero kani bisan ibutang ni didto sa tunnel mo sulti ka nga mga minero wajud naga kuan ani di jud mo tuo ani kuan

Miner 7	Wala, kay nag hinaw na sila mercury taga kuan mercury tag pila ka kilo mercury ginagunitan . wala man sa una 1989-88 wala man hangtod karon
Interviewer	Pero ang sulti man gud sa expert dili daw daun na sya mo epekto
Miner 10	Kanang isa ka lapad sa una lima lang jud na ka drum , maliban karon isa ka kilo 20 na ka drum
Miner 12	Ang ginabawal kana noon cyanide kana hilo jud na sya, isa jud n aka hilo
Miner 33	Hilo jud na sya kayo ultimo sagbot makaon gani sa kabaw baka patay man gani
Miner 12	Kana bisan pag ma kaon sa isda mercury wala di jud ko mo tuo
Interviewer	Mao to gi share namo ganina didto sa manila naay isa ka skwelahan nga naay na buak na thermometer , na buak sa laboratory gi close down gi undang ang klase gipagawas tanan studyante naay ni adto gikan sa chemical something naka full equip . naka full protection . sa ilaha they treat mercury as ing ana jud ka hazardous pero lahi ang sentiment dinhi sa atoa diri sa atoa murag dili ta naga too nga kay base man gd sa inyong experience pud kay 25,30 years katong na interview namo ganina , 30 years na sya na anga handle ani wala man pud epekto
Miner 10	Wala man epekto maliban lang sa nagluto kay galuto . bisan kami gani bisan galuto bisan mag aso gani naga palayo kami
Miner 13	Kay kung kana mercury gani kung makahilo pana katong diha ila Jolito sa una gi kaon man gani tog pato . wa man namatay ang pato di lang kalakaw tungod sa ka bug at.
Interviewer	Sa karon katong karon lang ni nakit an unsa inyong ma sulti?
Miner 15	Wala gihapon
Interviewer	Halimbawa ikaw 1st time nimo nakita ni mercury unsa ka hilo ma convince ba ka na hilo jud ang mercury .
Miner 12	Dili na hilo ang mercury
Interviewer	Kay ang imuhang katarungan kay base sa imong experience na 25 years 20 years naka naga handle ani tan aw nimo wala may epekto sa imo
Miner 10	Wala wala epek Bisan pag tunlon nag tao
Miner 13	Kay naa man pud storya nga ako nabatian nga naka inom ana mercury , Buhi man , kay kanang mercury di mana ma tunaw mag tibuok mana didto sa sulod . mo lusot ra gihapon na
Miner 9	Kay og ma libang napug an lang tog apil.
Miner 8	Kato lang naay mga samad . ingun sila na dilikado kay naay samad ang mga kuan . Ayo na noon na mga samad
Miner 11	Gahi jud na bato. Alangan inig pa bomel kinsa may mo karaw ana
Interviewer	Naa moy na ilhan koy na halimbawa nakita nimo ni tapos naka sulti ka na makadaot man di undang ko.naa mo na ilhan ana nga

Miner 13	Sa akong experience wa jud .
Interviewer	Na base lang sa kini nga mga poster nila mga tarp nila . kanang sa ilang mga forum diba naa man mo mga community consultation
Miner 14	UU kay sa safety ga seminar kami sa safety, gina pabalo nila na naay epekto kuno ng mercury sa galuto , kay kuno kanang aso kuno niya mahulog na didto sa mga tanom makadaot kunon. Tapos kanoon . Paano ma sangit na didto nga mercury ka bug at man.
Interviewer	Pero katong after sa symposium kato mga naga luto nag take sila pre-cessionary measure o same gihapon ila ginabuhat?
Miner 9	Mao lang gihapon ang ilang ginabuhat karon
Miner 8	Bisag suroyon ninyo na bolmelan diha tan awa ninyo dha og mag paluto mo . diba mao ra gihapon na. abuhan diri kusina dha naa ra diri ga luto
Interviewer	Pero sympre diba katong mga symposium, consultation mga kini mga tarp tapos kining mga poster , kamo naga as small scale miner nga naa jud sa front line kamo naga tuo ba mo na kung magpadaun jud mo gamit ani naa jud mo apekto jud ni sya sa intong panglawas?
Miner 10	Dili siguro, kay dugay dugay nako minero wala man gud me na apekto ana
Interviewer	So bisag katong sulti sila nga ma expose ka ani pag ma subrahan kag exposure mao ni mo epekto bisag gi detalye nila sa symposium sa imuha murag feeling nimo murag dili jud sya
Miner 11	Dili kay ang mga uban minero mga tigulang naman , pero papa ani tigulang naman pero hangtod karon wa man gihapon . lagsik man gihapon Arthritis ray sakit mercury na pasanginlan
Miner 13	Mo tuo ko kaning mga cyanide sa bomelan kana ang aso ana may ma agto sa kuan. No. 1 jud na sya pero ang mercury layo .
Miner 15	kay kana lang mag aso mag refine diha kay bryan mag tagbaw me panabon
Interviewer	So kadaghanan o almost tanan sa inyuha kini sya sa tan aw ninyo dili sya epektibo So unsa sa tan aw ninyo na ma sulti mo nga dili ni sya epektibo
Miner 12	Wala pa man me nakitang epekto diri
Interviewer	So halimbawa mo sulti silag mercury unsa ka hilo ngano ka nga gi sulti man jud ni sa agency halimbawa sa bantok 6 , mercury usa ka hilo pero nganong sa tan aw nimo dili jud sya epektibo
Miner 11	Maliban lang siguro kung inumon niya na . pero kung dili jud na inumon dili jud maka daot na
Sarsy	Dili ang pasabot niya sa pagtanaw nimo sa picture ma kombense ba ka , epektibo ba ni ilang ginabuhat sa ato nga ma bombense ta nga dili nata mo gamit og mercury mga ing ani na picture , ma kumbense ba ta
Miner 12	Ako gahi kaayo ma kombense ana

Interviewer	Ngano sa tan aw nimo dili sya epektibo
Miner 11	Kay kung sa ano lang base lang sa amoa experience . hangtod karon wala pa me nakitang ingun ana diri sa minero lang. maliban lang kung sa mga bolemalan basin na exp. Na nila mao na . nganong sigihon pa man nilag gamit na dba?
Interviewer	Ikaw koy, sa tan aw nimo dili sya epektibo
Miner 10	Dili jud na sya epektibo, kay kung epektibo pana katong sa bolmelan naay tab didto nangahilo na tong mga tilapia dagko na man gani ron
Interviewer	Kay naa mo gi gikanan nga base sa inyong exp. Nga pila na man mo ka tuig nag gamit ani wala man gihapoy epekto sa inyuha
Miner 14	Kay kami man gud na mga minero, dili kami kada adlaw naga gamit sa mercury , kay kung tinood na mka epekto na mercury , ang kalolooy ana ang bolmelan kay ang operator ana ang ga gunit . kami makagamit lang me mercury mag pabolmel pag abot didto pwede man namo na ipa process sa ilaha. Dili man kami naga kuan ang sa amoa murag gahi me pa tuohon ana kay wala kami gagamit sila didto ang gagamit .
Interviewer	Kani sya usa pud sya sa material pd na gipagawas sa DNR , gina sulti nila na mao ni gina gamit nila sa consultation , training sa mga miners, para ma educate ang miners unsa ang mercury. Halimbawa kani what is mercury ? What are the uses? How does mercury enter our body? Gi unsa pag sulod sa mercury sa atong lawas Unsay epekto sa mercury sa atoang health Sa tan aw ba ninyo pag mabasa ni ninyo ma kombense mo? Ang sulti ganina observation ganina ni sir Sars kuan sya gagmay ang text tapos dili sya binisya dili sya ma sabtan daun .
Miner 8	Kami lagi na mga minero gahi kaau me ninyo pakuanon ana mercury kung may epekto , kay kami talagsa ra jud me gagamit og mercury
Interviewer	Dili jud ni sya enough sa inyuha?
Miner 12	Dili jud na sa amoa , base lang sa akong experience kay naga simenar man ko sa safety . ang ginabawalan ana ang bolmelan kay may epekto kuno . pero sa amoa dili namo Makita epekto kay bantero ra man me didto jud na sa bolmelan
Sars	Pero naka experience man gihapon mo gamit
Miner 14	Ginapabalo na. gina pa undang na man gani ng mercury diha sa poblacion pero kay mga gahi man ulo. Kay kung wa mercury naay may loading. Tinood mana di sa mag loading kay basig naay survey ron
Interviewer	Halimbawa dili jud ma totally ban ang mercury pero tagaan mo sa gobyerno alternative na process na I extract ang gold gikan sa ore mao bana kuan na dili na mo gamit og mercury .

Miner 9	Uu kay kung makadaot pa lang , nganong sigihon pa mana diba?kay sa amo wala na gina lantaw namo didto sa ila. Di nalang nato na gamiton kung gina bawal na
Interviewer	Although sulti sila makadaot pero wala jud order na banned jud
Miner 10	Kung gi hugtan nila na bawal kadaghan pamaagi kuha sa bulawan
Miner 11	Kung undangon ang mercury wa jud tay ma himo, way mercury sunod jud me sa process na para lain makuha ang bulawan
Miner 14	Kung mo ingun ang finansya na nga di na jud ta mo gamit og mercury ani , wat ay mahimo trabahante lang man kami ,. Halimbawa sa babaw ang finansya dili na mo gamit kay ingon undang wa kami ma himo kay mao mana desisyon didto financer man jud mag kuan ana
Miner 8	Ako sugot kay ko walaon ng mercury
Miner 9	Ay bisan ako
Miner 12	Ang financer ang mo ano ana ang trabahante ana agad2 lang mana mga trabahante , kung ano desisyon nya didto nga wa na jud tay mercury ani banlason ba kaha ninyo na . pero ang bato di man jud na ma banlas . planta nlng
Interviewer	Pero personal ninyo na opinyon sa inyong mga tan aw kaning mga ing ani , communication materials , sa inyong kuan dili jud ni sya maka kombense
Miner 13	Wala gani me na kombense ana gina poster nila na sigarilyo
Interviewer	Mao pud to gi example namo. Diba kanang sigarilyo mo palit ka naa na jud cancer diri , nalata na diri so actually mao pud na sya kuan ani . unsa kaha rason ana koy?
Miner 14	Adik na ba, kabalo na bawal ngano gipabaligya pa mana nga bawal man diay na. kaning mercury karon kung ma dako na taxes ana di gihapon nila ibawal na masking makadaot na
Interviewer	Isa pud ba sa rason na kadaghanan sa mga small scale miners naga gamit mercury tungod sa kapaspas sa pag process
Miner 9	Isa na. kay hapon pagkabuntag kwarta na
Interviewer	Katong sulti sila gravitational dako ba to na process?katong water ang gamiton
Miner 13	Parehas ato sa Palawan gud katong gi demo sa Palawan
Miner 9	Pero dili jud sya ing ana ang recovery sa kuan, pareha nga graba ang gigamit ang isa gi mercury ang isa kadto gigamit mas dako recovery ang mercury
Miner 13	Daghan man minero supak ato kay ang mga bantero ato gamay ra man ma kwarta jud. Ang financer man dako kuan ato jud kay pa planta man ilang waste
Interviewer	Isa pud siguro challenge na sa LGU no na mag provide og planta na dili sya private own na planta halimbawa walaon jud ang mercury naay facility nga ang tanan tao

Miner 15	Kung sa ako lang kung walaon gani na mercury no choice na mana financer namo ma pugos jud syag planta kay wala na juy mercury
Miner 13	Pareha ba diay na mo ingun sila buddy nga a di ko ko sugot planta pareha atong proseso na I agi og banlas gamay ra man kaayo tog kuan tapos imo pang ayagon
Interviewer	So samtang karon nga wala pa jud final order sa gobyerno na totally banned ang kuan jud sa mga miners mag padaun gihapon gamit sa mercury . so kini sya wala jud ni sya epekto bisan unsa mga seminar
Miner 12	Pag kuan sa una pag renew sa mga small scale miner ilahang mga permit sa tunnel gi seminar jud me ana ginabawal man jud na nila pero hasta kuan naa pa man so no choice na me sige lang gihapon me kay naa pa gud , pero kung walaan na jud na nila daghan pamaagi pag kuha sa bulawan . sugot gani kami ugma na wala na. kay kana amo graba dha ipa planta nalang namo na
Interviewer	Ok so daghan kaayo salamat , salamat pud ko kay sars pag tabang na ma storya tamo. Sa storya nako ganina na dili man identify inyung mga name so ang mo gawas ani sa paper kay miner 1 miner2 miner 3. So ang inyung openyon lang jud nakuha nako about aning mga communication materials unsay effect ani gikan jud sa inyo nga naa sa front line jud , nahadlok ba me Opinyon pud ninyo ani murag kuan ra sya English sya gamay
Miner 9	Ang pasabot niya kani oh, kung mo tan aw ba mo ani epektibo ba sya ma kombense ba mo basa mo ani
Miner 10	Dili jud kay kung tigulang tigulang mo tan aw ana di kabasa ana
Interviewer	Halimbawa kani ang sulti niya dri what are the health impact of mercury? pwd daw sya magka kuan og thremor. kanang mag kurog2 gani dili nimo ma control imong muscle mo lihok lang sya
Miner 9	Kung wala mo gi ingnan sa meaning sa thremor maka sabot ba mo?
Miner 33	Dili jud
Interviewer	Kana gani mag lihok2 imong skin in voluntary movement mao daw na sya result sa mercury
Miner 12	Pasmado ra siguro
Interviewer	Muscle weakness kanang mag luya imong mga muscle
Miner 15	Tanan tao basta magkatugulang mag luya
Interviewer	Headeache tapos pwede pd daw sya kidney failure, naa moy na ilhan na nag handle of mercury na nagka kidney failure? Pero daghan mag facture ang kidney failure karon
Miner 12	Oo daghan kaau
Miner 13	Pag magsakit na sa kidney mao na mercury nana ipasangil daun
Interviewer	Sulti pud nila diri ang mga terms na gigamit nila ba kuan kaayo halimbawa kani

	Occupational exposure limits of mercury , mode of exposure, skin contact daw dapat .05ml lang ang pwedeng ma handle sa tao nga mag contact sa imong skin . how about kato mga kinilo na So insert ang buttom line jud sa tanan ang kining mga communication materials bisan unsaon bisan unsaon pa ni ila pa ning I tarp ipadako pa nila ni kamo nan aa sa frontline sa tan aw ninyo dili jud maka kombense Sige salamat kaayo
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