



Republic of the Philippines
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Visayas Avenue, Diliman, Quezon City

DENR ASSESSMENT OF THE
RAPU-RAPU POLYMETALLIC PROJECT

EXECUTIVE
SUMMARY

SUMMARY REPORT

The exploitation of a country's mineral resources can only be justified if it does not irreparably damage the environment and if it benefits the community and the nation as a whole. This is beyond all argument.

The mine tailings spills that occurred at Lafayette Philippines Inc.'s polymetallic project site at Rapu-Rapu Island in Albay on October 11 and 31, 2005 must be looked at from this solitary and singular perspective. Accordingly, it is necessary to objectively assess the effects and environmental impact of those spills, determine whether such environmental incidents can be realistically prevented in the future, and then judge if the Rapu-Rapu operation - as designed and implemented - does not pose unreasonable risks of long-term environmental damage. These assessments and determinations must logically lead to the decisions to be made in this specific case, including the corrective actions to be taken and the penalties to be imposed on the company.

Further, it is also necessary to evaluate if the benefits that accrue to the local community and to the nation as a whole from projects like the Rapu Rapu mining operation are sufficiently large as to adequately compensate the country for allowing the extraction of non-renewable mineral resources at this time. While the imperative of the Philippine government honoring existing signed agreements with foreign investors is fully conceded, this review is important to guide government policy and action from this point onwards, especially in monitoring and administering all existing mining agreements.

In arriving at its conclusions and decisions, the DENR - in addition to the site investigations, tests, and analyses conducted by its own technical staff - relied greatly on the Report of the Rapu-Rapu Fact Finding Commission (RRFFC) chaired by Bishop Arturo Bastes and co-chaired by Mr. Charles Avila, the Dissenting Report of RRFFC Commissioner Gregorio Tabuena, the Lafayette Philippines Inc. response to this report, the independent studies of the spills by the National Science Research Institute of the University of the Philippines (UP-NSRI) and the Bureau of Fisheries and Aquatic Resources (BFAR), the opinions of technical experts like Dr. Aloysius Baes, Dr. Carlito Barril, Dr. Carlos David, Engr. Emilio Morales, Dr. Myrna Rodriguez, Dr. Arthur Saldivar-Sali, Dr. Graciano Yumul, and other participants in a forum held at the National Institute of Geological Studies (NIGS) in UP Diliman, and extensive discussions with various parties within the Rapu-Rapu community and outside it. The DENR is immensely gratified at the assistance and cooperation provided by all interested parties in trying to arrive at a fair and objective resolution of the important issues in this case. The DENR considers the participation of the local Rapu-Rapu community, local government officials in the provinces of Albay and Sorsogon, and environmentalist groups as particularly invaluable.

Based on an intensive study and analysis of the inputs from all concerned parties, the following summarize the conclusions and recommendations of the DENR.

What Actually Happened

On October 11 and 31, 2005, mine tailings spills occurred in the vicinity of Lafayette's polymetallic mine site in Rapu-Rapu, Albay. Mine tailings, or wastewater from the ore processing mill's operations, were released to the surrounding creeks and flowed into the sea, reportedly killing some fish, shrimps, and crustaceans. It was also alleged that the health of the people and that of the marine life in the host communities, reaching as far as Sorsogon Province, had been compromised. These incidents understandably caused fear and panic among the residents of the host communities and in the anti-mining groups. A fish scare ensued that disrupted the livelihood of the host communities.

With respect to the first incident on October 11th, an investigation conducted by the DENR Region V Field Office on the same day showed that the failure of the main discharge pump caused a backflow of mine tailings into what is called the events pond, essentially a sump where occasional processing spillages might collect in an emergency. This events pond, not having been designed to store tailings in the first place and being already 40% full (it should have been kept empty) when the incident occurred, naturally soon overflowed and the tailings that spilled on the mill grounds eventually drained to the Alma and Pagcolbon creeks. The failure of Lafayette's main discharge pump became critical because the spare, or back-up, pump could also not be immediately operated at the time because it lacked a knife valve.

This account of the first incident is shared by both the RRFFC and Lafayette itself. Clearly, it reveals a serious lapse on the part of Lafayette management and operating personnel.

With respect to the second incident on October 31st, the DENR finds that this was caused by an induced spill in the lower tailings storage facility after heavy rains raised the water levels in that pond to levels high enough to cause fear of dam breaching or collapse. The DENR team's investigation revealed however that, as early as eight (8) days before the incident, the water level in the lower tailings storage facility was already very high but, inexplicably, no remedial measures were taken by the company's management. The DENR team also found that rainwater flowed into the lower tailings storage facility (mixing with the effluents) primarily because the company had not yet completed the drainage canal for rainwater. Worse, Lafayette's management had compounded the problem by building a canal to redirect run-off from the rains to the tailings ponds, intending to re-use this water in the milling process. This redirection of rainwater to the tailings ponds was a clear and serious violation of Lafayette's own environmental infrastructure design. Further, the dam itself lacked the spillway designed to allow excess water to be released properly. In essence, DENR finds that Lafayette had wrongfully started to operate fully even before its completion of the required environmental infrastructure.

DENR shares RRFFC's view that the second incident reveals more serious lapses on the part of Lafayette's management and operating personnel.

It should just be pointed out however that it was not – contrary to the RRFFC contention – the failure of the company to comply with the height of the dam in the upper tailings storage facility as specified in the 2005 Annual Environmental Protection and Enhancement Program (AEPEP) that caused the incident since the dam overflow actually occurred in the lower tailings storage facility where the dam height already exceeded AEPEP specifications. (In the upper tailings pond, the dam height was at 175 meters, or 20 meters short of the requirement of 195 meters by October 2005; however, in the lower tailings pond, the dam height was at 122.5 meters, or 6.5 meters in excess of the AEPEP requirement of 116 meters.)

In any event, the DENR admits its own failure in not being able to monitor, prior to the incidents, Lafayette's crucial non-compliance with its approved EPEP schedules, particularly with respect to the non-completion of the drainage canal for rainwater, the improper introduction of another canal redirecting rain runoff to the tailings ponds, and the absence of the required dam spillways.

The Environmental Impact of the Spills

The two mine tailings spills released extremely high levels of cyanide into the nearby creeks and caused damage to the marine life there.

In the case of the first spill, six (6) samplings taken on the day of the spill by the DENR Region V Field Office showed cyanide levels along affected creeks and shorelines exceeding DENR standards by as much as 633 times (from 9.05 mg/L to 31.65 mg/L compared to the DENR standard of 0.05 mg/L). On the same day, DENR investigators collected about two (2) kilograms of dead small fish and crustaceans at the shoreline where the two affected creeks exit into the sea. Although the DENR RO did not analyze the presence of the toxic heavy metals like mercury, lead, arsenic, and cadmium, not only because the Field Office does not have the capability to analyze for toxic heavy metals (the DENR Central Office supports the Regional Office being equipped for this), the DENR RO found cyanide determination sufficient to verify the extent of the spill's effect on fauna, since it was the principal chemical used in the mill.

In the case of the second spill, water samplings taken by the DENR investigators on November 4 and 5 (three days after the incident) along the affected creeks and shoreline showed cyanide levels exceeding DENR standards by up to 356 times (0.244 mg/L to 17.82 mg/L compared to the DENR standard of 0.05 mg/L). The Barangay Captain of Binosawan reported that he had collected two sacks of dead shellfish, crustaceans, and small shrimps along the shoreline where the affected creeks exit. No other barangays reported any such fish kills. Once again, in a regrettable lapse, the DENR staff did not then obtain samples to analyze for the presence of the toxic heavy metals.

The RRFFC Report suggested that the damage assessment would have been greater had the DENR tested for heavy metals in the affected creeks. In this connection, several tests for possible heavy metal contamination were in fact conducted. Fish samples taken by BFAR from Bacon, Topaz, and Prieto Diaz on November 3, 2005 were within tolerable limits for mercury. However,

fish samples taken by BFAR from Lupi, San Ramon, and Binosawan showed mercury levels above the allowable limits.

BFAR also collected water and fish samples from different locations in the Albay Gulf from December 9, 2005 to January 26, 2006 and found that the mercury levels for both water and fish were within the acceptable standards of the DENR and the Food and Agricultural Organization (FAO) of the United Nations. A later UP-NSRI study in March 2006 based on fish, sediment, and water samples collected in the Albay Gulf showed that not a single sample exhibited a level of concentration above DENR standards for mercury, arsenic, lead, or copper.

Thus, although a 'fish scare' may have ensued following the spills and affected the livelihoods of fisherfolk and fish vendors in the area, there is no real evidence to indicate widespread contamination of the Albay Gulf.

It should be mentioned that Lafayette's ore processing operation uses cyanide but not mercury.

Significantly, DENR found that Lafayette's detoxification system for cyanide was inadequate and inefficient. In this, DENR concurs with the RRFCC. DENR found that the company had reduced the dosage of sodium metabisulfite – the chemical reagent used to reduce cyanide levels – to only 2.8 kg/ton of ore. This is an extremely serious violation of an ECC conditionality. The recommended dosage for the cyanide-neutralizing sodium metabisulfite dosage is 4.5 kg/ton of ore and current industry practice actually requires 5 kg/ton of ore.

The DENR inquiry into the RRFCC report that the operations of the Lafayette mining project have resulted in skin diseases among the residents of Sorsogon did not produce evidence to support this view. A certification submitted by the Municipal Health Officer of Rapu-Rapu stated that, based on a physical examination of the two children affected with skin infections on November 3, the skin diseases exhibited by the children were caused by bacterial infections typically found in people with poor nutrition and were not at all consistent with the effects of chemicals like cyanide or mercury which attack the blood and the neurological system.

What Has Been Done

On the day of the first spill, DENR personnel imposed measures to contain the spill (e.g., putting of sand bags to prevent and divert the spread of wastewater), ordered the company to immediately inform the affected barangays, and started its investigation by collecting water samples. DENR also ordered the suspension of grinding and milling operations to prevent the production of more wastewater, or tailings. Along with the suspension order, DENR imposed nine conditions to address the cause and prevent the recurrence of the incident. These conditions included remedial measures to prevent the backflow of wastewater (e.g., the immediate repair of the pumps), the improvement of the mill's storm drainage to ensure that rainwater does not mix with the contaminated wastewater and drain directly into the creeks, and the de-silting and regular draining of the events pond.

DENR allowed the company to resume its operations on October 17th after validating that it had implemented measures that were deemed adequate to prevent a repeat of the incident. DENR admittedly have focused solely on the immediate cause of the first spill, but did not conduct a more comprehensive assessment of the company's entire environmental infrastructures, and their deficiencies (the causes of the second spill).

In the case of the second spill, DENR investigated the incident and, on November 7th, suspended the milling required the company to: 1) submit a geotechnical evaluation of the integrity of the tailings impounding facility, 2) ensure that the cyanide level at discharge points is within DENR standards at all times, 3) ensure that the dam can accommodate the tailings volume and surface runoff, 4) submit a detailed rehabilitation plan for the affected drainage system, 5) correct the deficiency in the detoxification circuit, and 6) compensate the affected fishermen. On November 9th, the DENR suspended the company's wastewater discharge permit and suspended the use of cyanide. DENR also imposed a fine on the company of P300,000 for violation of three ECC conditions.

Subsequently, the Pollution Adjudication Board (PAB) issued a Cease-and-Desist Order and imposed an initial fine of P10.4 million on the company for pollution. The conditions for the lifting of the Order included: the submission and acceptance of an Environmental Management System or ISO 14001 Certification, the submission and acceptance of a Comprehensive Pollution Control Program, the employment of an accredited Pollution Control Officer, and the posting of a Surety Bond equivalent to 25% of the total cost of the pollution control program.

This Cease-and-Desist Order remains in effect at this time.

Meanwhile, Lafayette has already implemented measures to prevent future failure in the pumps, has de-silted the creeks, has increased the height of both tailings dams, has completed the rain drainage canal, and has submitted a comprehensive Environmental Management System.

In a corollary vein, DENR has taken cognizance of its lapses and is now determining how best to improve its monitoring and regulatory functions.

Beyond the Spills: Long-term Environmental Risks

Two major issues concerning the implementation of the Project remain pending: the integrity of the tailings dam structure and the Acid Mine Drainage, or AMD, problem. More exhaustive studies apparently need to be undertaken on these matters to finally resolve these issues.

Technical experts like Dr. Arthur Saldivar-Sali, an expert on dam design, noted that the Lafayette dams seem under-designed in the light of Philippine rainfall conditions. In high-risk areas such as Bicol, which is in the typhoon belt, Saldivar-Sali feels that a design based on 100 years probable maximum flood (PMF) is too low. Dr. Aloysius Baes also expressed concern regarding the use of acidic rocks in the dam filling materials since potentially acid forming (PAF) materials generate AMD and react with the clay core, something that could slowly erode the dam structures.

On the acid mine drainage, or AMD, problem, Lafayette still has to submit a viable solution. In fact, an important ECC conditionality for the project is the adequacy and effectiveness of its strategy to control AMD. Several technical experts, including Dr. Aloysius Baes, Dr. Carlito Barril, Dr. Carlos David, Dr. Myrna Rodriguez, Engr. Emilio Morales and Dr. Graciano Yumul did in fact express serious reservations concerning perceived shortcomings in Lafayette's strategy to prevent and control AMD. These perceived shortcomings pertain to such matters as the method of encapsulation to be used, the effectiveness of limestone in neutralizing acidic materials, the use of composite dry soil to seal waste rock, the sloping terrain of Rapu-Rapu that makes AMD treatment difficult, and the absence of a microbial control method. In any event, the long-term effects of AMD must definitely be adequately addressed in Lafayette's Final Mine Rehabilitation and Decommissioning Plan.

Expected Project Benefits

The Lafayette mining project began construction activities in 2003. Its mining (ore extraction) operations started in April 2005 while milling (processing) operations started three (3) months after.

The Project employs around 900 workers, mostly residents of Rapu-Rapu, Albay and its neighboring provinces. Direct benefits from the Project for the duration of its estimated 6-year life are projected to be as follows:

- ?? US\$1.4 million or P74 million in wages and benefits.
- ?? US\$56.70 million or P3.0 billion in taxes (US\$ 4.61 million or P244 million will be the share of the concerned Local Government Units).
- ?? P31.3 million in social development projects for the communities, as provided in the Social Development Management Program (SDMP).

The above projected figures based on the estimates contained in the feasibility study of the Project submitted to the DENR in 2002. The estimates were updated by DENR based on current mineral prices. The estimates are net of all the incentives given to the Project.

A Summing Up

The DENR's exhaustive review of the RRFFC findings, on-site validations, and consultations with technical experts and all concerned groups, yield the following summary findings.

1. **The two tailing spills were preventable.** To a very large extent, the incidents were due to human and management errors. The spills could have been prevented if management had taken proper care in doing regular systems and equipment checks, and in providing for the

required environmental protection infrastructure before operating full blast.

2. **Lafayette was guilty of lapses of an operational/technical and management nature.** The company's technical and management personnel were already aware of equipment malfunctions and deficiencies in the project's environmental protection infrastructure, yet continued to operate. Moreover, the decision to reduce the dosage of cyanide-neutralizing sodium metabisulfite in its processing operations so as to make it ineffective was completely irresponsible.
3. **The Lafayette project does not appear to measure up to the standards of responsible mining.** Lafayette failed to complete the necessary environmental protection infrastructure as scheduled. In fact, the project and system shortcomings revealed by the investigation of the spills indicate that the project does not comply with the "best available practices" as advocated by Environment Australia, or even by the Code of Conduct of the Philippine Chamber of Mines.
4. **The DENR failed to adequately monitor the Rapu-Rapu operation and, consequently, failed to immediately detect the violations that would indicate the possibility of environmental accidents.** This is due to existing systems processes and procedures that are currently deficient. In this connection, the DENR must modify and improve its systems for monitoring mining and other similar projects so as to allow it to immediately detect violations of ECC conditions and forestall future environmental accidents.
5. **The sharing of benefits from the mineral exploitation of Rapu-Rapu island has clearly been grossly unfavorable to the Philippine government.** The Rapu-Rapu Commission actually assailed the grant of incentives by the PEZA to RRPI, questioning the "sheer disparity" and "lack of equity in the way the benefits from the mining activity are shared". At present, the sharing of benefits between the Philippine Government and RRMI/RRPI is 23%-77%, based on the feasibility study of the Rapu-Rapu Polymetallic Project (updated to reflect rising metal prices). Modeling the same updated study with the assumption of "no incentives" will yield a 54%-46% sharing.

In connection with Lafayette's lapses, DENR has taken note of the fact that, at this time, Lafayette has substantially complied with the 21 remedial measures and conditions imposed by the DENR. The critical measures already implemented by the company include corrective measures to prevent future failure in the pumps at the detoxification plant and the events pond, de-silting of the creeks where the wastewater/tailings spilled, increase in the height of both tailings dams, completion of the rain drainage canal, and the submission of a comprehensive Environmental Management System. In addition, major changes have also been introduced in Lafayette's operations like a complete overhaul of top management and the replacement of twelve (of nineteen) Australian executives with Filipinos.

In connection with the disparity in the sharing of benefits, this is caused by the "excessive" incentives granted under R.A.7916. The two (2) major taxes foregone are the corporate income tax and the excise tax on

minerals collected by the BIR. On this score, the DENR intends to commission a study that will recommend ways to integrate and rationalize the granting of investment incentives to mining investors.

DENR's Decision

Taking into consideration all the facts and findings, and all the opinions expressed on the various issues, DENR feels that the best option to take is to allow Lafayette to resume operations subject to certain stringent pre-conditions.

In this connection, a 30-day Temporary Lifting Order (TLO) shall be issued to allow a 3-stage test run. This shall be conducted to determine the production efficiency of the base metal plant to process copper and zinc, the sufficiency and adequacy of remedial measures and environmental safeguards, and the responsiveness of the emergency response.

Before, during and after the test run, certain conditions would have to be met. After the Company complies with all these conditions, a final lifting order shall be issued to Lafayette for it to resume full operations.

The test-run shall be open to the public and 3rd party experts.

It is the DENR's considered judgment that this option will be the best for all concerned, particularly for the Rapu-Rapu community. An abandoned open pit mine is not an attractive proposition as it will simply cause small miners to descend on the area and they will operate without environmental safeguards and safety measures. Without proper decommissioning, the generation of acid mine drainage will certainly continue and worsen pollution in the area. In this case, the government and, ultimately, the Filipino taxpayer will have to shoulder the considerable cost of remediation and rehabilitation. Allowing Lafayette to resume operations will allow an ECC-consistent mine rehabilitation and decommissioning plan to be implemented. This will also bring about economic benefits to the host communities: 900 direct jobs, P3 billion in government revenues (over the life of the mine) and P5 million per year in Project commitments.

DENR: The Way Forward

Moving forward, the DENR will take the required appropriate actions to resolve hanging issues vis-à-vis Rapu-Rapu Fact Finding Commission Report. These actions will essentially consist of the following:

1. The undertaking of a feasibility study for the establishment of a People's Health and Environmental Protection Fund (PHEPF) in every region that can offer ready compensation for damage to health and livelihood brought about by tailings spill and other mine-related incidents.
2. Coordinate with DOH for the formulation of a program for the conduct of an epidemiological study in Rapu-Rapu and nearby coastal municipalities of Sorsogon.

3. The creation of Regional Multi-Sectoral Environmental Councils (RMECs) as a venue for discussing and resolving all environmental concerns (air, water, land, forest, biodiversity, geo-hazard and mining) and administer the PHEPF.
4. The organization of Provincial Multi-Sectoral Environmental Councils in provinces with active mining operations to augment the monitoring function of the DENR and the Multi-Partite Monitoring Team.
5. The forwarding of a request to the BIR to undertake an investigation of the issue concerning alleged underreporting of ore production.
6. The creation of a multi-sectoral, multi-disciplinary group that will conduct a study on the carrying capacity of Rapu-Rapu Island to determine the merit of imposing a moratorium on mining.
7. The creation of a working group that will study the proposal of creating an independent Mining Authority to focus on the mining industry alone.

The DENR also proposes to implement measures that will strengthen Permitting procedures and improve environmental monitoring systems and standards.

The DENR also intends to conduct a review of policies to enhance responsible mining, rationalize the granting of incentives to mining operations, and enable the DENR to better perform its functions.

A Final Note

Sustainable development is the anchor of Philippine growth and development, where economic goals, social equity, and the protection of the environment are important intertwined considerations. It is in this context that government fully supports responsible mining, as it will spark development in the less developed regions of the country. Mining, however, must be conducted by responsible mining companies, or they have no place in Philippine business.

It is important that lessons be drawn from the incidents at Rapu-Rapu. The experience gained must be used to influence both regulatory action and environmental policy with respect to the mining sector, now and in the future.



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DENR ASSESSMENT OF THE
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FULL REPORT

DENR ASSESSMENT OF THE RAPU-RAPU POLYMETALLIC PROJECT

I. BACKGROUND ON RAPU-RAPU

A. Mining History in Rapu-Rapu Island

The Rapu-Rapu Island has long been a mining area.¹ Copper ore mining in the Island is believed to have started during the Spanish occupation, since old mine pits were found in 1935. The Island was prospected by the Hixbar Gold Mines in 1936 and production started in 1939. During the war, the mine was operated by the Japanese. After the war, Hixbar Mining Company conducted also open pit mining until it closed in 1960s because of the depletion of direct shipping grade copper. There was an exploration conducted by Benguet Corporation, Incorporated (BCI) but was abandoned. BCI's interest was acquired by Toronto Ventures Incorporated (TVI), then eventually by Lafayette Philippines, Incorporated (LPI).

B. Geography and Demography

Rapu-Rapu Island is one of the three (3) islands comprising the Municipality of Rapu-Rapu in Albay. Rapu-Rapu got its name from the Rapu-Rapu tree, which once flourished in the Island. Rapu-Rapu was once a part of Prieto Diaz, a municipality in Sorsogon. In 1901, the Island was transferred as a municipality to Albay, through a plebiscite. The Island is composed of 13 Barangays.

Rapu-Rapu Island has a land area of 5,589 hectares, equivalent to the size of the Cities of Manila and Pasay, combined. The Island is sparsely populated. Per the 2000 census, its population is 9,755 people, with a density of about 2 persons per hectares.

II. PROJECT PROFILE

A. Geography and Salient Features

The Project is located in the southeastern tip of Rapu-Rapu Island, within Barangays Malobago, Pagcolbon and Binosawan. The Environmental Compliance Certificate (ECC) issued to the Project covers 180 hectares or 3.2% of the Island's land area. This is the area where mining development can be undertaken. Of the 180 hectares, 18 hectares (0.3% of Rapu-Rapu's total land area) is dedicated to the open mine pit and another 40

¹ Geology of Copper Deposits of the Hixbar Gold Mines, Inc., Rapu Rapu Island, Albay; Arthur Kinkel (U.S Geological Survey) and S. Samaniego (Bureau of Mines); published in 1956; page 12.

hectares (0.7% of total land area) for the milling plant. The balance of 122 hectares (2.2% of total land area) is devoted to various auxiliary facilities (e.g. temporary quarters for personnel) and environmental protection projects (e.g. reforestation).

The Project's primary impact areas are the three (3) Barangays of Pagcolbon, Malobago and Binosawan, which are within the 1-kilometer radius of the Project. The secondary impact areas are the three (3) Barangays of Sta. Barbara, Linao and Tinopan, which are within 1-5 kilometers from the Project. The Project site is about 12 kilometers from the Municipality of Prieto Diaz in Sorsogon and 45 kilometers from Legazpi City in Albay.

The Rapu-Rapu Polymetallic Mining Project is a US\$42 million or P2.2. Billion Project, which will produce gold, silver, copper and zinc. It has a life of 6-7 years (from 2005-2011/2012).

B. Corporate Structure

The Project is operated by two (2) companies:

- ?? The Rapu-Rapu Mining, Inc. (RRMI), the company in charge of ore extraction activities, is 60% owned by Rapu Rapu Holdings, Inc. [60% by F and N Property Holdings, Inc. and 40% by Lafayette Philippines, Inc. (LPI)].
- ?? The Rapu-Rapu Processing, Inc. (RRPI), which conducts the ore processing/milling activities, is a subsidiary of Lafayette Philippines, Inc.

Lafayette Philippines, Inc. provides mining-related financial, managerial and technical services to the two (2) companies. LPI is wholly-owned foreign company (74% Australian and 26% Malaysian).

C. Operational Systems:

1. Gold/Silver Processing:

The Project follows the standard mining procedures. Ores are extracted from the ground through an open pit or surface method. The ores are then transported to the milling plant, specifically to the crushing plant to reduce their sizes to 2 inches. This starts the milling process where the precious metals are liberated from the ore. Next, these 2-inches ores are grounded to powder-sized particles. Cyanide is then introduced to dissolve the gold/silver contents leaving the rest of minerals still in their solid form. Pellet-sized carbon materials are added in the gold-cyanide solution to attract the gold/silver. Cyanide solution mixed with sodium hydroxide is introduced to re-dissolve the gold/silver from the

carbon. The resulting gold-rich cyanide solution is passed through steel wool cathodes, where the gold is deposited. The gold coated steel wool cathodes are treated with acid to dissolve the steel leaving the gold/silver undissolved. The gold/silver then is melted in a furnace and then poured into molds to form the gold/silver bars. These bars are then transported to Manila and, then to Hongkong or London.

In these mining and milling operations, contaminated waste materials are produced. During the ore extraction, the excavated rocks, which do not contain gold/silver, are used as filling materials for the tailings dam. During the milling process, wastewater or tailings contaminated with cyanide are produced. These tailings are pumped to a detoxification plant to reduce the cyanide content to within DENR standard. The treated wastewater/tailings are then pumped to the tailings ponds.

2. Copper/Zinc Processing:

The gold and silver deposit in the mine site is almost exhausted according to the mine development plan. The next phase of the Project's operation is the mining and processing of copper and zinc bearing ores to produce copper and zinc concentrates.

The initial steps are generally the same as in the process for producing gold and silver. The ore is extracted from the same open pit, and also crushed and ground to powder-size particles. Instead of being dissolved in the solution and later recovered as bars like the gold/silver, the copper and zinc minerals are only physically separated from the rest of other non-valuable minerals through a process called flotation. Organic chemicals are added in the flotation tank containing the powdered-size ores. The chemicals will separate the copper and zinc from the ores. This process will produce a copper-rich product called copper concentrate and a zinc-rich product called zinc concentrate. The concentrates are then transported to the pier in the mine site and finally shipped out from the island.

The waste materials in the processing of copper and zinc ore deposits are also generated and disposed in the same manner as in the production of gold and silver; that is, discarded mine wastes are used as filling materials for the tailings dam and the wastewater is first treated in the detoxification circuit and then piped to the tailings dam for storage and re-use.

Whereas all of the process wastewater in the gold processing plant necessitates detoxification only 15% of

the copper/zinc processing tailings is detoxified. This is because the 85% of the tails is not contaminated with cyanide. Furthermore, the cyanide level of the flotation tails is only 10-15 ppm free CN as compared to the 300 - 500 ppm levels of the cyanidation tails.

3. The process of treatment, transport and storage of the tailings/wastewater, whether in the gold/silver or copper/zinc process, constitute the greatest threat to environmental pollution and damage, if appropriate facilities are not installed and if not properly managed.

D. Status of Operations

The Project has produced 1,258 kilograms of gold and silver, with cumulative sales of US\$2.4 million or P127 million. Per report of the Project, some P1.07 million has been spent for social development projects and another P4 million for additional projects (e.g., electrification, infrastructures, livelihood, health and sanitation, and education/training, etc.). The extraction of gold and silver is almost complete. Zinc and copper shall be mined next.

The Project operated for only four (4) months. In October 2005, two (2) wastewater/tailings spills happened that contaminated nearby creeks and the shoreline. This resulted in the suspension of the Project by the DENR. The Project still remains suspended.

E. Fiscal Incentives

The Project enjoys numerous incentives from the Government. In May 2005, 41 hectares of the Project area (milling/processing area) was designated as a Special Economic Zone, per Proclamation No. 625. The following month, the Project was registered with the Philippine Economic Zone Authority (PEZA) as a locator in the economic zone. PEZA status means that the Project is entitled to the following incentives:

- ?? Corporate income tax holiday for four (4) years from the start of commercial operation. This can be extended for another three (3) years, subject to PEZA approval. After the lapse of income tax holiday, the following incentives shall apply:
 - Exemption from national and local taxes and, in lieu thereof, payment of 5% final tax on gross taxable income (exempted from the expanded withholding tax).
 - Additional deduction for training expenses (1/2 of value) against the 5% tax on gross income earned.

- ?? Tax and duty free importation of merchandise, including raw materials, capital equipment, machineries and spare parts.
- ?? Exemption from wharfage dues and export tax, impost, fees.
- ?? VAT zero-rating of local purchases.
- ?? Exemption from payment of any and all local government impost, fees, licenses or taxes except real estate taxes.
- ?? Non-fiscal incentives:
 - Permanent resident status within the Ecozone for foreign investors.
 - Employment of foreign nationals
 - Simplified import and export procedures.

The above incentives are based on the PEZA registration certificate of Rapu-Rapu Processing, Inc. (RRPI) – Certification No. 2005-111, dated 27 January 2005.

F. Project Milestones and Projected Benefits

The Project construction activities started in 2003. Its mining (ore extraction) operations started in April 2005 while milling (processing) started three (3) months after. The Project employs around 900 workers, mostly residents of Rapu-Rapu, Albay and its neighboring provinces.

Based on the 2002 Feasibility Study of the Project, the direct benefits from the Project for the duration of its life are estimated as follows:

- ?? US\$1.4 million or P74 million in wages and benefits.
- ?? US\$56.70 million or P3.0 billion in taxes (US\$ 4.61 million or P244 million will be the share of the concerned Local Government Units).
- ?? P31.3 million in social development projects for the communities, as provided in the Social Development Management Program (SDMP).

III. THE RAPU-RAPU FACT FINDING COMMISSION

A. Mandate and Members of the Commission

The tailings spills heightened the concerns of the population and provoked greater opposition to the Project.

In response to these apprehensions, the President formed the Rapu-Rapu Fact Finding Commission (RRFFC) through Administrative Order (AO) No. 145, dated 10 March 2006. The Commission is composed of 9 members as follows:

Chairman	-	Bishop Arturo M. Bastes, SVD, DD
Vice-Chairman	-	Mr. Charles R. Avila
Members	-	Bishop Jose Rojas, Jr.
	-	Dr. Aloysius U. Baes
	-	Atty. Ronaldo P. Gutierrez
	-	Mr. Gregorio Tabuena
	-	Dr. Rodolfo A. Tamayo, Jr.
	-	Mr. Jojit G. Canada
	-	Ms. Marilou D. Barcelá

The Commission was mandated to “investigate the effects of the mining operations of Lafayette Philippines, Inc. on people’s health and environment safety in the Municipalities of Rapu-Rapu in the Province of Albay and Prieto Diaz, Gubat, Barcelona, Bulusan and Bacon in the Province of Sorsogon.” The A.O also provides that the “Commission shall evaluate all the facts and circumstances surrounding the alleged threat to people’s health and environmental safety and submit its findings and recommendations within one (1) month to the Office of the President, through the Department of Environment and Natural Resources.” The Commission submitted its report to the President last 19 May 2006.

The Commission indicated that its Report was based on individual and group studies and investigations according to current best practice; results of public hearings and key informant interviews; ocular inspections; laboratory tests and paper trail reviews.

B. Major Findings of the Commission

1. On the two tailings spills incidents:
 - a. The first incident was caused by the failure of the pump system to drain the events pond while the second spill was due to the insufficient tailings dam and environmental infrastructure of the company.
 - b. Both spill incidents resulted in fish kills in the adjacent creeks of the project, due to the elevated

cyanide levels of the tailings indicating insufficient detoxification at the mill facility.

- c. Studies by various groups indicate the presence of other toxic heavy metals and chemicals involved in the spill, endangering marine life over a long period.

2. Other Environmental, Health and Social Concerns:

- a. The system of controlling the acid mine drainage (AMD) being employed is not applicable to areas with hilly terrain like the Rapu Rapu Island.
- b. 100 people within 20 kilometer radius of the mine suffered from skin diseases.
- c. The fish kills and fears of toxic heavy metal contamination triggered a fish scare in Sorsogon, which in turn, caused “unwarranted and untold sufferings” to fisherfolks, their families and the fish consuming public.

3. On the violations of RRMI/RRPI

- a. The company violated 10 out of 29 conditions of their Environmental Compliance Certificate (ECC).
- b. The company is guilty of irresponsibility for starting operations even when tailings dam or containment infrastructure was not at par with best practices.

4. On Government Lapses:

- a. The DENR lacks the capability to effectively monitor mining projects.
- b. MGB failed to impose remediation measures after the incidents.
- c. DENR consistently allowed Lafayette to violate the provisions of its Environmental Protection and Enhancement Program (EPEP).
- d. It was wrong for DENR to allow the resumption of Rapu-Rapu’s operation 6 days after the first incident, considering that most of the DENR recommended measures were not yet accomplished.
- e. The DENR has a dysfunctional monitoring system.

- f. Nobody in the DENR is accepting responsibility for the incidents.
- g. The DENR failed to identify Sorsogon as a primary impact area/stakeholder.

5. Other Findings:

- a. Lafayette's corporate structure, its special economic zone, the several tax incentives that it enjoys, export sales and taxes, as well as the company's social acceptability to be questionable and tainted with irregularities.
- b. LPI/RRMI/RRPI or the Lafayette Group underreported the amount of ore and processed gold/silver produced.

C. Recommendations and Major Concerns of the Commission

1. Recommendations

Based on its findings and conclusions, the following are the recommendations of the Commission:

- a. Set up a People's Health and Environmental Protection Fund from the national government for compensation to health victims and those whose livelihoods have been affected by the October tailings spill incidents.
- b. Fund and support the epidemiological study proposed by UP-PGH and DOH.
- c. Cancel RRMI/RRPI PEZA registration on the basis of the irregularities found and for the reason that the Rapu-Rapu LGU has been unduly deprived of local taxes.
- d. The BIR should investigate LPI, RRMI, and RRPI (the Lafayette Group) for underreporting of ore/processed dore production and for violations of tax laws.
- e. Rescind all financial and economic incentives including PEZA and BOI tax incentives to LPI/RRPI/RRMI (the Lafayette Group).
- f. Order LPI/RRPI/RRMI (the Lafayette Group) to pay back all taxes equivalent to those waived because of incentives/privileges for the whole duration of their mining operations.

- g. Build the capabilities of DENR-MGB and EMB both nationally and in the regions to be able to manage and monitor effectively mining firms and mining operations.
- h. Issue a moratorium on mining in Rapu-Rapu and a suspension of MPSAs in the Island pending scientific and experts' favorable resolution of the issue of ecological conservation and the AMD problem, in a fragile small island ecosystem.
- i. Cancel the ECC of RRMI and RRPI.
- j. Review the Philippine Mining Act, specially the provision on the ownership and management of mining firms and operations, to protect the interest of the Filipino people and Philippine government.

2. Major Concerns

Despite the numerous measures instituted and installed by the Project and substantial compliance to nearly all of the DENR conditions, there appears to be two (2) major concerns that have not yet been satisfactorily addressed. These are as follows:

- a. The problem of the acid mine drainage (AMD):

Acid generation occurs when minerals containing sulfide and elemental sulfur are exposed to the weathering effects of oxygen and water.

At present, the waste rocks from the mining operations (i.e., open pit) containing acid are used as filling materials for the tailings dam as programmed in the AMD Encapsulation Strategy of the Project approved by DENR. On this matter, some experts have opined that contact of the acidic rock with rain water in the tailings dam may result in the formation of AMD which may cause permeability problems and eventually threaten the integrity of the dam. Encapsulation has been criticized as simply trapping potentially acid forming rocks between useless clay materials which would consequently be eaten-up by acids and cause AMD seepage out of the dam embankment. On the other hand, water run-off from the open pit containing acid is also drained to the tailings dam for storage. These methods, as well as additional mitigation measures put in place by the Project (i.e., Anoxic Line Drain, Wetland, etc) have not been fully accepted by some experts and the public as safe. In addition,

there is yet no concrete plan on the disposal of acidic rock upon closure of the mine. Practically all the members of the Panel of Rectors during the Forum were critical and not convinced of the Project's strategy to prevent and control the AMD.

b. The integrity of the tailings dam:

The integrity of the tailings dam is also under question. The Commission and the technical experts are concerned that the tailings dam may be threatened by the use of acidic rocks from the open pit, as filling materials, and deficiencies in Hydro-technical and Geotechnical parameters in the tailings dam design.

On the matter of the use of acidic rocks as filling materials, some experts have opined that contact of the acidic rock with rain water in the tailings dam may result in the formation of AMD which may cause permeability problems and eventually threaten the integrity of the dam.

Similarly, the dam experts consulted have highlighted the deficiencies in the hydro-technical and geotechnical parameters in the tailings dam design. Of particular issue is the use of a 1/100 flooding event which was described as very inadequate. The use of a 2 meter freeboard, no rigorous treatment of the factor of safety and the non- inclusion of the vertical component of acceleration in any earthen structures among others were raised. Practically all the members of the Panel of Rectors during the Forum were critical and not convinced of the Project's strategy to ensure the integrity of the dam.

D. Dissenting Opinion

Of the 9-member Commission, Mr. Gregorio A. Tabuena disagreed with the Commission's findings and recommendations, stating that the report falls short of the standards for determining facts based on accurate, reliable scientific data, in an objective and impartial manner. Deliberations were also conducted not as a collegial body but were dominated by 2-3 members and that the opinions contrary to the desired outcome, even if based on empirical data and scientific analysis, were vigorously opposed. Likewise, the Commission went beyond its mandate when it discussed other issues such as the PEZA issue, the tax issue, the process of the issuance of the ECC and the amendment of the mining act.

The points of dissent of Mr. Tabuena are as follows:

1. There are no computations nor evidence to show that the volume of slurry which overflowed during the first spill is much more than the reported 20 cubic meters.
2. The events pond could not have been used as storage of tailings/wastewater because at the rate the gold plant discharges tailings from the mill complex, the whole events pond would have been full in less than an hour. What is clearly established and admitted even by Lafayette is that the pumps malfunctioned.
3. It is erroneous to conclude that the dam should have been 190 meters high at the time of the second incident. In mining, dams are built up in stages as ore is mined because the waste will be used as material for the dam build-up.
4. There is no casual connection between the incidents in Rapu-Rapu and the fish kill in Sorsogon. As to the loss of livelihood, the proxy value used to estimate the extent of the fisherfolk's loss of livelihood does not take into consideration the seasonality of fishing in the Philippines. The months of October to February are lean months for fishing.
5. AMD is bound to happen in a sulfidic mining environment. To conclude that the barren and lifeless condition of the land left by mining in Hixbar will also happen to the Project is highly speculative and without basis. Hixbar was mined at a time when there were no environmental regulations in place and there were no compliance required of mining companies.
6. The BFAR analysis of 30 November 2005 showed high traces of mercury in fish samples submitted to it and unfit for human consumption. The BFAR director, however, said that he cannot use said study as basis because the sampling protocols were not followed. Subsequent tests showed that fish and waters in the Albay Gulf are safe.
7. The U.P study concluded that not one among the 28 water samples collected showed mercury and arsenic beyond DENR standards.
8. There is no basis for linking the skin diseases of residents in the host communities. The dermatology experts from UP found the skin diseases to be more fungal and bacterial infections rather than due to exposure to heavy metals.

9. The EMB, MGB and DENR personnel are most qualified and have in-depth knowledge of the mining process.
10. There is nothing irregular about the MPSA or the tax incentives as these are provided by law. Lafayette should not be punished for availing of such incentives.
11. The perceived under-reporting of ore production is probably a result of lack of understanding of the entire mining and milling process, metals accounting and the use of unrelated numbers in their comparison.

Foregoing, Mr. Tabuena disagreed with all the recommendations except the conduct of the epidemiology study and the capability building for the MGB and EMB. Likewise, he recommended that the MGB verify the under-reporting of ore.

IV. THE RAPU-RAPU MINES TAILINGS SPILLS

A. The Mine Tailings Spills

There is general agreement on what happened during the two (2) tailings or wastewater spills that happened in October last year:

1. On the October 11, 2005 Tailings Spill

The first spill occurred during the early morning of 11 October 2005. The pump transporting the tailings/wastewater from the detoxification plant to the tailings dam broke down. As a result, cyanide-contaminated tailings/wastewater backflowed and spilled into the events pond, which was intended to contain such spill. The events pond, however, overflowed and the contaminated tailings/wastewater found its way to two (2) nearby creeks - the Alma Creek and the Pagcolbon Creek.

2. On the October 31, 2005 Tailings Spill

The second spill occurred on the evening of 31 October 2005. Prolonged heavy rains caused run-off rainwater to accumulate at the lower tailings dam, together with the cyanide-contaminated wastewater/tailings. The water elevation in the dam rose and threatened to damage the embankment of the dam. As a result, wastewater/tailings were released. An emergency drain canal was dug where contaminated wastewater/tailings were allowed to flow out into the Ungay Creek and Hollowstone Gully.

B. Causes of the Tailings Spills

1. Company Lapses

a. Operational

During the first spill, the following lapses of the Project personnel were apparent:

?? The main pump pushing the wastewater/tailings to the tailings dam was already intermittently malfunctioning starting at 4:00 pm on 10 October 2005. As a result, wastewater/tailings were already backflowing to the events pond. The reserve pump was also not operational. And yet, no remedial measures were apparently done. At 2:36 am of the next day, or more than 10 hours after the pump started to malfunction, the pump finally broke down. At that time, the events pond was already overflowing.

?? The events pond could not also accommodate all the backflow as it was already 40% full when the pump malfunction started. The events pond should have been empty since it was designed to be used for emergency purposes. The pond was apparently improperly used.

?? Notwithstanding, the wastewater/tailings coming out of the detoxification tank should have had a level of cyanide already within the DENR standard. However, during the spill, the wastewater/tailings were still highly contaminated with cyanide. Per investigation of the Company's production record by the DENR, it was observed that the amount of chemicals used to detoxify and neutralize cyanide was greatly reduced -- from 4.5 kg/ton during the previous months to just 2.8 kg/ton in October. This resulted in an exceedance of cyanide and the contamination of the creeks where the wastewater/tailings found its way. This is a clear violation of DENR standards.

During the second spill, the following lapses were committed by the plant personnel:

- ?? Eight (8) days before the incident, the water elevation at the tailings dam was already very high but no remedial measures were undertaken.
- ?? The dam easily filled up since the run-off from heavy rains found its way to the lower tailings dam and mixed with the wastewater/tailings stored in the dam. This happened because the drainage canal for rainwater was not yet completed. Worst, the Project management deliberately constructed a canal to redirect run-off from rains to the tailings dam for reuse in the milling process.
- ?? When the dam was about to be filled up, and threatened the stability of the embankment of the dam, management constructed an emergency canal and allowed wastewater to flow into the nearby creeks. This is to prevent the dam from breaching.
- ?? Considering that the Rapu-Rapu area is frequently visited by heavy rains, the completion of the rain drainage canal or a spillway should have been prioritized. The redirection of run-off from rainwater to the tailings dam is a violation of their own environmental infrastructure design.
- ?? As with the first incident, wastewater/tailings released into the creeks had high cyanide concentration. It should have been within DENR standards, since it already passed the detoxification process.
- ?? The Rapu-Rapu Commission also alleged that the Project violated 11 out of the 29 conditions of the ECC. Closer validation by the DENR of the allegation showed that the Project may have violated as many as seven (7) conditions of the ECC. Some of the possible violations were admitted by the Project. Pursuant to existing administrative proceedings and the principle of due process, it is necessary that an investigation be conducted by the DENR while the Project should be given the opportunity to explain. Only then, can a

finding of violation be declared and the appropriate penalty determined. The findings of the Commission shall be treated by the DENR as complaints against the Project.

?? The dam also has no spillway where excess water in the dam can be released. As a result, the Project had to dig a canal as outlet for its wastewater/tailings.

b. Management

Critical decision making was absent when impending abnormal situations such as malfunctioning of pump or increase in water level were occurring. Timely decisions could have been made to address these situations.

2. DENR Lapses

- a. The Rapu-Rapu Commission likewise outlined the lapses of DENR, which might have been contributory to the occurrence of the spill incidents. The DENR was faulted for its inability to properly and effectively monitor the Lafayette Group's mining operations, citing its lack of resources, lack of capability of the NGO and LGU members of the Multi-partite Monitoring Team (MMT), failure to identify violations of the Project, and the lack of capability to analyze heavy metals.
- b. Although the technical experts have expressed diverse views on the effectiveness of DENR's monitoring system, the DENR takes responsibility over any monitoring lapses. The incidents provided the opportunity for DENR to undertake a self-assessment. The Rapu-Rapu incidents surfaced the need for closer, more frequent and more comprehensive monitoring of mining operations. The incidents also highlighted the need for a clearer regulatory system and standards. There is also an urgent need to upgrade the technical capability of the DENR monitoring partners (the NGO's and the LGU's).
- c. On this note, the DENR accepts the need to further review its standards (e.g., for tailings dam), processes and monitoring systems. The DENR also admits it lacks the capability to analyze heavy metals in its regional offices in Region V. At present, analysis for heavy metals is done in the DENR Central Office. This is an area that needs immediate improvement.

C. Impact of the Tailings Spills

1. Environmental Impacts

The high cyanide content of the wastewater/tailings that spilled during the two (2) incidents resulted in fish kills.

- a. During the first incident, the DENR gathered about two (2) kilos of dead fishes and crustaceans along the shoreline on the same day. Results of six (6) samplings conducted by DENR indicated cyanide levels in the affected creeks' shoreline exceeding DENR standard of up to 633 times (cyanide level of up to 31.65 mg/L compared to the DENR standard of 0.05 mg/L).
- b. During the second incident, a Barangay Captain reported to the DENR that about two (2) cement-sized sacks of dead fishes were gathered along the shoreline. Results of fourteen (14) samplings conducted by DENR along the affected creeks and shoreline also indicated cyanide levels exceeding DENR standard of up to 356 times the DENR standard (cyanide level up to 17.82 mg/L compared to the DENR standard of 0.05mg/L)
- c. A scientific study undertaken by the U.P National Science Research Institute (U.P-NSRI), based on water samples collected in 28 sites in Albay Gulf, also revealed that not one sample showed a level of concentration equal to or above the DENR standards, in terms of mercury, arsenic, copper and lead. Another study by the Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture, also indicated that the mercury levels in the water samples collected were within DENR standards and the mercury level in the fish samples were within the tolerable levels/standards of the Food and Agricultural Organization (FAO) of the United Nations.
- d. Regular water samplings conducted by the DENR along the Rapu-Rapu shoreline where the creeks exit showed intermittent levels of cyanide beyond the DENR standard. The cyanide level only stabilized starting 29 November 2005. The DENR technical experts attributed this to cyanide embedded in the soil at the bottom of the creeks that was occasionally disturbed. Nonetheless, no more fish kill was reported.

2. Economic Impacts

- a. Livelihood dislocations of small fishermen, fish vendors & sellers ensued when consumers refrained from buying fish in Sorsogon due to the fish scare.
- b. Reports of dead aquatic animals (pygmy sperm whale beached along the shores of Rapu-Rapu Island and dead fish with high mercury content allegedly found in the Municipality of Prieto Diaz) were attributed to the tailings spill. This news circulated in the area, especially in Sorsogon and led to the fish scare. As a result, consumers refrained from buying fish to the detriment of small fishermen. News also circulated that skin diseases among coastal residents in Rapu-Rapu Island and the Municipality of Prieto Diaz were due to the spill incidents. These were also the contention of the Rapu-Rapu Fact Finding Commission (RRFFC). In addition, the RRFFC has computed, based on proxy values, losses in forgone income of about ₱2.3 million per month. However, these reports were never supported nor proven by scientific studies.

3. Social Impacts

- a. Anti-mining groups from the academe, NGOs, religious groups and some LGUs made these spills their rallying point for them to stage protest rallies and organize a movement called Bicol Alliance Against Mining (BAAM). Occasional protest letters came out requesting government agencies and legislative bodies such as the LGUs, Congress, Senate and the Office of the President to investigate and if warranted close the mining company for environmental degradation.

V. RAPU-RAPU INTERIM REMEDIAL MEASURES

A. Immediate Responses

During the spills, the following were immediately undertaken by the Project:

1. For the October 11, 2005 Tailings Spill
 - a. Shut down the grinding circuit of the Plant.
 - b. Informed the DENR Regional Office of the spill.
 - c. Advised the barangay officials concerned.

- d. Putting of sand bags around the mineral processing plant and affected creeks.
 - e. Desilting of the events pond and of affected creeks.
 - f. Putting additional sandbags along the affected creeks.
2. For the October 31, 2005 Tailings Spill
- a. Shutdown mill operation.
 - b. Constructed emergency drain canal to prevent waste water from overtopping the embankment.
 - c. Advised the barangay officials concerned and provided update on the release of excess rain water.
 - d. Informed the DENR Regional Office of the spill 2 days after the incident.
 - e. Submitted within 48 hours a rehabilitation plan for the two (2) affected creeks.
 - f. Conducted clean-up of Ungay Creek and Hollowstone Channel.
 - g. Applied manual dosing to neutralize wastewater or effluent using sodium hypochloride and lime.
 - h. Instituted a second detoxification cycle in treating impounded effluent.
 - i. Siphoned-off water from the settling pond to the polishing pond.

B. Change in Management

As a result of the numerous lapses committed, a major revamp of the senior management of the Project was undertaken. Twelve (12) out of the nineteen (19) Australian Managers and Advisors were replaced, including the Managing Director and the General Manager. They were replaced mostly by Filipinos.

VI. DENR ACTIONS AND RESPONSES

A. Immediate Responses

1. For the October 11, 2005 Tailings Spill

The DENR was at the Project site on the day of the first incident. Thus, DENR personnel were able to

immediately investigate the incident, assist in the containment of the spill, and impose immediate containment measures (e.g., putting of sand bags around the processing plant to prevent the spread of wastewater/tailings, and desilting of the affected Creeks, etc.). Water samplings were also done in 6 critical points along the two affected creeks and at the exit points of the creeks to the shoreline to determine water quality.

2. For the October 31, 2005 Tailings Spill

During the second incident, the Project management informed the DENR Regional Office V of the spill only two (2) days after the incident. However, the DENR personnel managed to visit the site only a day after receipt of the report. Inclement weather and rough seas prevented them from taking sea transport to the site. An investigation was similarly conducted and measures were imposed on the Project to address the spill. Water samplings were conducted in 14 critical points along the affected creeks and where the creeks exit to the shoreline. A 3rd Party audit was likewise ordered to assess the Project's operating systems and determine problem areas and corrective measures. The Mines Rehabilitation Fund Committee (MRFC) eventually commissioned a 5-member group of experts from U.P., the Professional Regulatory Commission and the Chamber of Mines, as the 3rd Party audit team. The Team conducted its assessment in December 2005 and May 2006.

B. Imposition of Preventive Measures

For the two (2) incidents and, as a preventive measure, the DENR undertook the following:

1. Suspended the Project's milling operations, permit to discharge wastewater and permit on the use of cyanide.
2. Imposed a fine of P300,000 for violations of the ECC conditions.
3. Imposed 15 conditions to ensure that the incidents will not happen again:
 - ?? Institute remedial measures to prevent backflow of the mill's tailings.
 - ?? Improve the efficiency of the mill tailings discharge line.
 - ?? Regularly drain the events pond.

- ?? Improve the storm drainage of the mill complex to ensure that rainwater does not mix with the contaminated mill tailings and drain directly to the creeks.
- ?? Institute emergency measures to prevent or contain possible contamination of marine life.
- ?? Institute an emergency warning and alert system for the local population.
- ?? Conduct a total systems review.
- ?? Desilting and repair of the damaged silt traps.
- ?? Conduct weekly water quality monitoring.
- ?? Submit a geotechnical evaluation on the integrity of the tailings impoundment facility.
- ?? Ensure that at all times, the cyanide level in the water at the discharge points is within DENR standards and submit regular monitoring report thereto.
- ?? Ensure that the dam can accommodate the volume of mill tailings and surface run-off to satisfy freeboard requirement at anytime.
- ?? Submit detailed rehabilitation plans on the affected drainage system and coastal area.
- ?? Compensate the affected fishermen.
- ?? Correct the deficiency in and improve the efficiency of the detoxification circuit

C. Issuance of Cease and Desist Order

1. The Pollution Adjudication Board (PAB) also issued a Cease and Desist Order (CDO) against the Project with the following conditionalities:
 - ?? Comprehensive pollution control program.
 - ?? Surety bond equivalent to 25% of the total cost of the pollution control program.
 - ?? Proof of employment of an accredited Pollution Control Officer.

?? Detailed description of the interim remedial measures to mitigate pollution pending the completion of the pollution control program.

?? Notarized undertaking to comply with the conditions of the Cease and Desist Order.

2. The Pollution Adjudication Board (PAB) also imposed a fine of ₱10.4 million as an initial penalty for the pollution.

VII. RAPU-RAPU COMPLIANCE WITH DENR CONDITIONALITIES

The Project management has undertaken emergency remedial measures immediately after the incidents and instituted/installed the following improvements and safeguards in compliance with the 21 DENR/PAB conditions.

- A. To prevent a repeat of the backflow incident, an automatic system specifically for the main and the reserve pumps in the detoxification plant has been installed. This system shall automatically shut off the pumping of tailings in case of systems failure as compared to the manual system used during the spill incident. In addition, four (4) new pumps (2 for back-up purposes) were installed in the events pond to regularly pump to the tailings dam any wastewater accumulated in the pond. To relieve the pressure on the pumps, the layout of the pipes was changed to lessen the curving design. The DENR will also require a preventive maintenance schedule and record for the pumps.
- B. The capacity of the events pond was also increased from 660 cubic meters to 810 cubic meters. An alarm system was also installed that will automatically shut down the mill operation once the wastewater/tailings elevation reaches 30% of the pond. The standard operating procedure for the new system has been written into a manual for distribution to all personnel.
- C. A simulation model was also formulated to determine the ideal dosage of chemical to effectively detoxify the cyanide. The model shows that the required dosage to meet DENR standard is 4.5 kilogram/ton of ore. The DENR will require the Project to install a fixed cyanide monitoring device at the discharge point of the detoxification plant to monitor the cyanide levels of the wastewater at any point in time. The DENR will also monitor the Project's chemical importation and compare it with the volume of actual usage and ore processed to ensure that the correct amount of chemical is being used.
- D. To prevent a repeat of the tailings spill in the lower tailings dam, the Project has undertaken the following:

- ?? Increased the height of the lower tailings dam from 122.5 meters to 139 meters to cope with the rainy season. A safe allowance of 5 meters between the water elevation to the top of the dam (freeboard) shall be maintained.
- ?? Completed the rain drainage canal to prevent rainwater from draining in the tailings dam.

E. In addition, other remedial measures were instituted, to wit:

1. Storm water drainage around the mill complex will no longer drain into active waterways.
 - ?? Concreted all roads around and in the mill complex.
 - ?? Concrete bunding of the whole mill complex.
 - ?? Laid out drainage for surface runoffs to flow into the events pond.
 - ?? Divert all rainwater that are to be collected from the eaves to the storm drain.
 - ?? Provided detachable drain covers for easier maintenance of drainage system.
2. Emergency measures have been instituted to contain possible contamination of marine life..
 - ?? Installed and regularly maintain gabions and silt traps.
 - ?? Installed field detoxification modules made up of 3 sea containers tanks before the environmental ponds.
 - ?? Placed and maintain limestone pile along path of water flowing through the Pagcolbon Creek...
 - ?? Ensure sufficient stock and accessibility of cyanide neutralizing chemicals at all times
 - ?? Organized Quick Response Team
3. Instituted an emergency warning and alert system for the local population in case of accidents, spillage, etc.
 - ?? Developed and manualized the Emergency Notification Procedure.
 - ?? Established direct communication links with the local population.
 - ?? Organized Quick Reaction Teams.

- ?? Cascaded emergency procedures to the local communities.
- 4. Conduct a total system review
 - ?? Formulated new SOP's and reviewed existing ones.
 - ?? Familiarized and trained all employees of their respective work processes and emergency procedures.
 - ?? Conducted risk analysis on all critical equipment, facilities and processes.
 - ?? Established and implemented the Environmental Management System.
 - ?? EMS documentation initiated.
- 5. Desilting and repair of damaged silt control structures along Pagcolbon and Alma Creeks.
 - ?? Damaged gabions and silt fences were repaired and regularly maintained.
 - ?? Contracted labour from the direct impact barangay to work on the maintenance and repairs.
- 6. Weekly water quality monitoring for TSS, copper, lead, zinc, arsenic, iron, cadmium and daily water quality monitoring for cyanide, being conducted.
- 7. Ensured that the cyanide level in the water at the discharge points is within DENR standard. Submitted monitoring report on the level of cyanide and trace metals duly analyzed by DENR or accredited laboratories.
 - ?? Submitted the latest quarterly Self Monitoring Report, which included not only free cyanide and metals but other parameters as required under RA 6969, PD 984, and the EIS, among others.
 - ?? Latest free CN level of the effluent is <0.01 mg/L (within the DENR standard of 0.2 mg/L).
- 8. Submitted and implemented a detailed rehabilitation plan on the affected drainage systems and coastal areas.
- 9. Compensation has not been made since the Barangay Captain certified that there were no fishermen claiming damage or compensation. However, a MOA for livelihood project with the barangay was required.

VIII. OTHER ISSUES RAISED BY THE RAPU-RAPU FACT FINDING COMMISSION

The Rapu-Rapu Fact Finding Commission also raised numerous concerns relative to the corporate structure of the companies involved in the Project and incentives and taxation matters. Essentially, the concern is whether the Project is depriving the government of its rightful share.

A. Corporate Structure

The Commission reported that there is a confusing corporate set-up, that is, that there are at least two corporate entities (RRMI and RRPI) holding mining-related permits and operating inside the Rapu Rapu Island.

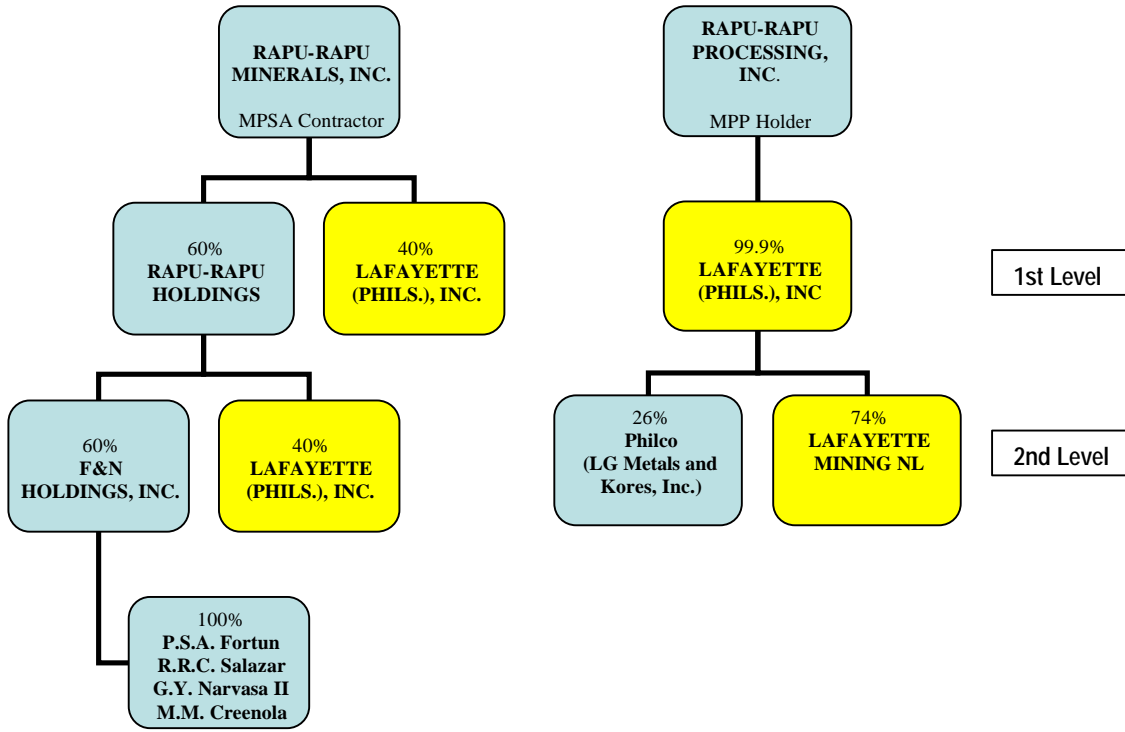
Upon closer scrutiny of the existing records of these companies, the DENR agrees with this finding. Under present circumstances, the concept of piercing the veil of corporate fiction is justified considering that the Supreme Court held that there are three (3) instances when piercing is allowed:

1. when the corporate entity is used to commit a fraud or to do a wrong (fraud causes);
2. when the corporate entity is merely a farce since the corporation is merely the alter ego, business conduit or instrumentality of a person or another entity (alter ego cases); and
3. when piercing the corporate fiction is necessary to achieve justice and equity

Additionally, the documents regarding F & N Property Holdings, Inc. reflected that there are only four (4) incorporators of this company. Clearly, this is a violation of a very basic requirement of The Corporation Code which under Section 10, Title 11 thereof, requires not less than five (5) incorporators to form a company.

Furthermore, records submitted by the Project to the DENR would show that these companies involved in the Rapu-Rapu Project are structured in a manner as shown in the diagram below, hence the need to pierce the corporate fiction:

OWNERSHIP DIAGRAM RE: RAPU-RAPU POLYMETALLIC PROJECT



RAPU-RAPU POLYMETALLIC PROJECT

CORPORATE OWNERSHIP PROFILE

Rapu-Rapu Minerals, Inc. (2003)		Rapu-Rapu Processing, Inc. (2003)		Rapu-Rapu Holdings, Inc. (2003)		Ungay-Malobago Mines, Inc. (2003)		Lafayette (Philippines), Inc. (2005)		F&N Holdings, Inc. (2005)	
Name of Subscriber	Number of Shares Subscribed	Name of Subscriber	Number of Shares Subscribed	Name of Subscriber	Number of Shares Subscribed	Name of Subscriber	Number of Shares Subscribed	Name of Subscriber	Number of Shares Subscribed	Name of Subscriber	Number of Shares Subscribed
Rapu-Rapu Holdings, Inc.	14,997	Roderick R.C. Salazar III	1	F&N Holdings, Inc.	3,745	Rapu-Rapu Holdings, Inc.	106,995	Roderick R.C. Salazar III	1	Philip Sigfrid A. Fortun	33,333
Roderick R.C. Salazar III	1	Lafayette (Phils.) Inc.	24,996	Philip Sigfrid A. Fortun	1	Roderick R.C. Salazar III	1	Roderick R.C. Salazar III	1	Roderick R.C. Salazar III	33,333
Philip Sigfrid A. Fortun	1	Roderick Watt	1	Roderick R.C. Salazar III	1	Philip Sigfrid A. Fortun	1	Gerard H. Brimo	1	Gregorio Y. Narvasa II	33,333
Raymond Parsifal A. Fortun	1	Andrew Mclwain	1	Gregorio Y. Narvasa II	1	Gregorio Y. Narvasa II	1	Lafayette Mining NL	93,979,995	Mylene Marcia-Creencia	1
Lafayette (Phils.) Inc.	8,998	David Mahony	1	Raymond Parsifal A. Fortun	1	Raymond Parsifal A. Fortun	1	Roderick R.C. Salazar III	1		
Roderick Watt	1			Jackson B. Berberabe	1	Ronald Imperial	1	Roderick Watt	1		
Andrew Mclwain	1			Lafayette (Phils.) Inc.	2,498			Philco Resources Ltd. (Malaysian)	33,019,999		
				Andrew Mclwain	1			Sung Sik Min (Korean)	1		
				Roderick Watt	1						
% Filipino/Foreign on shares subscribe	60 40		99.99		60 40		100		99.99		100
Total Subscribed	25,000		25,000		6,250		107,000		127,000,000		100,000
Total Capital Shares	100,000		100,000		25,000		107,000		127,000,000		100,000

Color Code :

 Foreign

 Filipino

The Interlocking Ownership and Directorship of the Companies Involved are:

Rapu-Rapu Holdings	RRMI	RRPI	RRHI	UMMI	LPI	F & N PHI
Rapu-Rapu Holdings	S/D			S/D		
Lafayette (Phils.), Inc.	S/D	S/D	S/D			
Roderick Watt	S/D	S/D	S/D		S/D	
Andrew Mcliwan	S/D	S/D	S/D		S/D	
Roderick Salazar RC	S/D	S/D	S/D	S/D	S/D	S/D
Raymond Parsifal Fortun A.	S/D		S/D	S/D		
Philip Sigrid A. Fortun	S/D		S/D	S/D	S/D	S/D
F & N Property Holdings, Inc.			S/D			
David Mahony		S/D				
Gregorio Narvasa II Y.			S/D	S/D		S/D
Jackson Berberabe B.			S/D			
Ronald Imperial				S/D		
Gerard Brimo H.					S/D	
Lafayette Mining NL					S/D	
Philco Resources Ltd					S/D	
Sung Sik Min					S/D	
Mylene Marcia-Creencia						S/D

Legend:
S - Stockholder
D - Director

Foregoing, another indication of seeming farcity and fraud that the DENR had observed is the use of common corporate addresses, office building and facilities of these companies. RRPI and LPI use a common business address as indicated in the General Information Sheet they submitted to the Securities and Exchange Commission (SEC), at 178 Salcedo St., Legaspi Village, Makati. Upon verification, RRMI is also holding office in the same address, while RRMI, RRHI and F & N Holding, Inc., use the common business address at 23/F Multinational Bancorporation Centre, 6805 Ayala Ave., Makati, which is actually the Law Office of Fortun, Narvasa and Salazar.

The DENR therefore has endorsed the issue of the corporate structures of the five companies to the National Economic Development Authority (NEDA), the SEC and the Bureau of Internal Revenue (BIR) for proper investigation and if warranted, the filing of appropriate charges.

B. Tax Incentives

As to the recommendation of the Commission on the cancellation of the PEZA status of the Company, the DENR finds that the potential taxes and revenues have indeed greatly reduced the share of government, particularly the amount due to the concerned local government units.

Financial modeling results (**See Annex ____**) showed that with Rapu-Rapu enjoying PEZA registration, the government share during the life of the mine (6-7 years) is 24% and the contractor's share is 76%. The Government will generate total taxes amounting to \$58.81 million and the contractor will have \$184.88 million. The bulk of the taxes collected by the Government are the excise taxes of \$10 million and \$ 40 million, which is the 15% tax on dividends repatriated by RRPI.

Without PEZA registration, the ratio will be more equitable with the Government having \$122.7 million (54%) and the contractor having \$104.2 million (46%). The increase in the Government share is due to the income tax payments of \$81.6 million.

Table 1 - Comparative Government Share

	Units	w/ PEZA Incentives	w/o Incentives
National Taxes	US\$M	53.62	117.87
Local Taxes	US\$M	5.19	4.82
Total Share of Government	US\$M	58.81	122.69
Total Share of Contractor	US\$M	184.88	104.23
% share of Government		24%	54%
% share of Contractor		36%	46%

While the situation would be acceptable for general manufacturing and processing sectors, where the inputs are mostly imported and generate substantial local employment, its application for natural resources extractive industries like mining should be reviewed.

The ecozone registration of RRPI as a mineral processor has caused negative response from local governments which have a stake in the project. The total expected amount is substantial for the development of the barangays and municipalities hosting the project. Removing PEZA tax incentives will be beneficial to the communities and local governments.

Some local officials of the Municipality of Rapu-Rapu alleged that the Resolution of the Sangguniang Bayan endorsing the PEZA application of the company was forged. In this regard, the National Bureau of Investigation (NBI) has been requested to undertake a thorough investigation on the subject.

If the results of the investigation show that, in fact, forgery is committed, then PEZA would have sufficient legal basis to take action on RRMI.

In its letter to DENR dated 19 May 2006 (Annex ___), PEZA expressed its concern for the environment citing Section 5 of Article V and Section 3 of Article III of RRPI's registration agreement that:

- ?? The registrant shall see to it that its operations during the course of manufacture or production will not endanger public safety or public health or violate the anti-pollution requirements of the government...
- ?? The registrant shall, by itself or through another, construct, install, provide, operate and maintain...pollution control devices...necessary and convenient...to effectively operate and pursue a viable business within the designated Ecozone.

To comply with due process, PEZA will require both companies (RRMI and RRPI) to explain why their registration agreement should not be cancelled for gross violation of the above-cited provisions. Once both companies fail to submit satisfactory explanation, PEZA shall cancel their respective registration agreement.

The reported environmental violation which led to the issuance of the Cease and Desist Order (CDO) by the Pollution Adjudication Board/DENR can likewise be a ground that PEZA can use as basis for its action.

Moreover, on 19 May 2006 (Annex ____), Secretary Romulo Neri of the National Economic Development Authority (NEDA) wrote DENR and recommended that the company's PEZA registration and its tax-free status should be cancelled. He stated that the government should maximize the benefits from these investments.

The resolution of this issue however rests on PEZA itself which granted the incentives in the first place.

Further, the DENR, PEZA and the Board of Incentives (BOI) will review the current laws, rules and regulations on incentives towards rationalizing the grant of fiscal and other incentives. In the meantime, however, PEZA has suspended the granting of any registration for all mining operations.

C. Production Reports and Exports Sales

1. Underreporting Of Production

This matter was raised by the Commission. The DENR feels that this matter should be looked into more deeply considering that corporate structure of Rapu Rapu where layering of companies makes it a fertile ground for transfer pricing. Transfer pricing effectively deprives the government of the proper taxes due it.

The DENR will request the BIR, through the Department of Finance, to investigate and collect all the tax liabilities of Rapu Rapu.

DENR will likewise strengthen its monitoring system on mineral production and sales.

2. Excise Tax on Minerals

RRFFC reported that the Rapu Rapu Project during its operation in 2005 generated gross revenues of P134.4 Million from the sale of 157 gold and silver dore. From this reported sales, it paid a total excise tax of P2.086 Million to the Bureau of Internal Revenue (BIR). Verification made from tax payment documents of RRMI showed the following:

Quarter Ending March 31, 2005.....P	0.00
Quarter Ending July 30, 2005.....	659,794.53
Quarter Ending September 30, 2005....	1,128,227.46
<u>Quarter Ending December 31, 2005.....</u>	<u>297,489.55</u>
<i>Total Excise Tax Paid.....</i>	<i>P 2,085,511.54</i>

The payments were based on the declaration and calculations made by Mr. Jaworski Garcia, Chief Accountant of RRMI, in the computation sheets attached

to BIR Form 2200-M. The computation of RRMI in its declaration can be summarized as follows:

Value of gold = Volume of Oxide Ore Processed X
Grade of Gold X Recovery Rate X LME
Price of Gold during date of
Declaration

Value of silver = Volume of Oxide Ore Processed X
Grade of Silver X Recovery Rate X
LME Price of Silver during date of
declaration

Net amount subject to excise tax =
Value of gold + Value of silver -
Processing Cost - Refining Cost -
Transport Cost

Excise tax payable =
2% X Net amount subject to excise
tax converted to peso

The following observations were made from the above calculations:

1. The basis of calculation is the volume and grade of the ore processed; and
2. The processing cost (or milling cost) was deducted from the estimated value of the gold and silver

The basis of excise tax payment, according to Section 151(a) of the National Internal Revenue Code (NIRC) as amended by R.A. No. 7729, is the actual market value of the gross output of the minerals at the time of removal.

Gross output is defined by the National Internal Revenue Code (NIRC) as the actual market value of minerals or mineral products from each mine or mineral land operated as a separate entity, without any deduction for mining, processing, refining, transporting, handling, marketing or any other expenses; *Provided*, That if the minerals or mineral products are sold or consigned abroad by the Contractor under C.I.F. terms, the actual cost of ocean freight and insurance shall be deducted; *Provided further*, that in the case of mineral concentrates which are not traded in commodity exchanges in the Philippines or abroad, such as copper concentrates, the actual market value shall be the world price quotations of the refined mineral products content thereof prevailing in the said commodity exchanges, after deducting the smelting, refining, treatment, insurance, transportation and other charges incurred in the process of converting mineral concentrates into refined metal traded in those commodities.

The following can be gleaned from the above definition of gross output:

1. The basis for computing excise tax is the “actual” market value, not the estimated market value. Should there be a difference in the actual and estimated values, the company should reconcile its payment with the BIR based on the final “actual” payment of the gold and silver.
2. The definition of gross output excludes processing cost as a deductible expense in computing the net value of the metals subject to excise tax.

Assuming that the estimated values are the same as the actual market values, and the processing cost excluded as a deduction, then the adjusted excise tax payment is P6,686,731.21. This amount is significant and needs to be investigated by the Bureau of Internal Revenue (BIR).

Based on its letter to the DENR dated 22 May 2006 (Annex ___), the BIR was totally unresponsive as it merely stated the following:

“.....In reply, please be informed that, while we cannot comment on aspects of the case other than tax, our records show that the above-mentioned taxpayers have generated revenues for the government which would not otherwise have been generated. We would encourage more investments like this, subject to compliance with other laws”

DENR will strongly recommend to the BIR, through the Department of Finance, to investigate the basis of the computation to determine the proper amount of excise tax be paid by RRPI.

3. Withholding Taxes

The Commission also stated that the Lafayette companies are mere withholding agents. Withholding taxes are simply the means by which the government collects taxes due from the actual taxpayers.

The Commission is correct in saying that the company should not claim credit for its remittance of withholding taxes paid by employees and contractors. It is even doubtful that the company can claim credit for withholding taxes on foreign interest and dividend to foreign owners.

4. Mandatory Sale of Gold and Silver to Bangko Sentral ng Pilipinas

The Commission recommended the mandatory sale of all gold and silver from mining companies to the Banko Sentral ng Pilipinas (BSP) at least during their first four years of mining operations. While there could be some merit to the proposal, there are technical and economic consideration relative to the proposed mandatory sale of gold and silver to the BSP.

On the technical side, the current refining facilities of the BSP cannot accommodate the low gold content (12%-20%) and high level of impurities of the silver dore output of RRPI. For BSP to set up a new facility for RRPI may not be economical at the moment considering the low volume of output from RRPI and other mines. In the future, however, the DENR sees an increase in the number of mines producing gold and silver.

The DENR will therefore recommend to BSP to conduct a study on the feasibility of putting up refining facilities to accommodate low grade gold bullions and silver dore produced by Philippine mines.

Imposing mandatory sale of gold and silver to the BSP is anathema to the global practice of hedging and forward selling by mining companies to enable them manage the risks of metal price fluctuations in the market. This practice is allowed under the mining regulations.

Also, the current policy of the BSP for its purchases of gold and silver is to pay sellers in Philippine currency. This arrangement may not be acceptable to foreign investors.

D. Social Acceptability

To determine the social acceptability of a project, the EIA review process allows the conduct of first level and second level scoping, public consultation and public hearing in order to give identified stakeholders to present their issues and concerns about the project. Records of DENR can show that the EIA review process for the Rapu-Rapu Polymetallic has covered all these procedures. Public notices were made for the public hearing that held in December 2000.

All parties who came for the public hearing were given the opportunity to present their issues and concerns, including Sagip Isla-Sagip Kapwa, one of the primary groups opposing the project. However, it can be recalled that the venue was

secured from groups, particularly to some who were unruly and wanted to disrupt the proceedings.

The Province of Sorsogon may not have directly participated during the Public Hearing held at the Project mine site in December 2000, however the major issues and concerns that some sectors from Sorsogon wanted to raise about the project, even after the ECC was granted, were all given consideration during the EIA review of the project. Other issues were again given consideration by then DENR Secretary Elisea G. Gozon, who called for a re-review of the project and a public forum that was held at Sorsogon on 28 March 2003.

It can therefore be stated that the primary stakeholders of the project were given utmost consideration during the EIA review and evaluation.

E. Compliance of Statutory Requirements

The Commission has cited that “only RRMI holds an ECC as transferee of LPI, the original grantee, and finds such confusion that the direct and necessary result of the intentional and deliberate decision by the Lafayette group to set up their companies as such and should be held accountable for all its legal consequences.”

DENR records will show that the Environmental Compliance Certificate of the Rapu-Rapu Polymetallic Mining Project was originally granted to Lafayette Philippines, Inc. (LPI) on 12 July 2001, but was subsequently Rapu-Rapu Minerals, Inc. (RRMI). As embodied under ECC Condition No. 27, the transfer of ownership of the project carries the responsibility on the conditions of the ECC. Despite RRPI being the operator of the processing plant, the entire project in Rapu-Rapu remains to be one whole project that covers both the mining operation and the mineral processing plant and is the responsibility of RRMI.

Currently and until there is no legal transfer made on the ECC to RRPI, all the responsibilities and accountabilities for the compliance of the ECC and its terms and conditions remains with Rapu-Rapu Minerals, Inc.

IX. SUMMARY OF FINDINGS

A. What Happened

Two tailings incident occurred successively on 11 and 31 October 2005. The first incident involved the discharge of about 20 tons of tailings that overflowed from the processing plant. This resulted in the contamination of the Alma and Pagcolbon creeks with cyanide and probably other heavy

metals. On the second incident, a series of heavy rainfall caused the fast filling up of the tailings dam. To ensure the integrity and safety of the dam, the company had to construct an emergency drain canal and release contaminated wastewater in the Hollowstone and Ungay creeks. Just like the first incident, about two cement bag-sizes of fish and other marine life were found dead in the coastal waters near the river mouths.

B. What caused the Tailings Spill

The main cause of the two incidents can largely be attributed to the negligence and un-preparedness of the company to address such emergencies.

The 11 October incident was caused by a chain of events: pumps that failed to operate, lack of knife blades as safety valves, an event pond that was found 40% filled and therefore very much reduced impoundment capacity, silt fences and cement bunds that were damaged or have not yet been constructed. Poor organizational set-up, delayed reaction and indecisiveness of company officials, and lack of emergency response procedures exacerbated the situation.

Tailings dam are supposed to be designed and constructed in a manner that they could handle projected heavy rainfalls. However, in the 31 October incident, it was apparent that the dam and other support structures were not yet built according to DENR-approved plans and schedules. The dam height has not yet attained the desired levels, insufficient storm drains to divert rainwater from the dams, and lack of spillways and/or drain canals to allow the proper discharge of excess dam water. To reduce the dam water level and to ensure the safety and integrity of the dam, an emergency canal had to be constructed to release water in the dam. These caused the discharge of apparently contaminated dam wastewater and most probably, also some fine tailings materials.

C. What were the impacts of these tailings spills?

The tailings spills caused several serious environmental, economic and social impacts that affected not only the Rapu Rapu Polymetallic Project but the whole minerals industry.

The discharges of contaminated effluents and tailings discharges led to the death of several kilos of fishes and other marine lives. However, more than the few kilos of dead fishes collected was the bigger impact to the local economy and public perception on the mining industry.

Allegations of “fish kill” led to “fish scare” were given much latitude in the local and national media. Residents in the locality suddenly became afraid and averse to eat marine products and the livelihood of local fisherman were much

affected. In the broader front, the incident again ignited anti-mining sentiment and led to various protests in various parts of the country.

D. Were the tailings spill incidents preventable?

The two incidents were very much preventable.

Proper maintenance and constant check up of pumps, and the installation of automatic safety knife valves in such critical areas as the processing plant are basic industry practices. The possibility of mill spillages are expected, and that is why an events pond was constructed. And yet, it was being used for other purposes and was left filled up to unacceptable levels. In the submitted Environmental Risk Assessment (ERA) and the EPEP submitted by the company to the DENR, concrete drains, cement bunds and silt fences are clearly provided. However, either these were not in place or were not properly maintained.

With regards to the tailings storage facilities, these were clearly inadequate and yet incomplete at the time of the incident. It was quite surprising that while the company has prepared and submitted to the government well laid-out plans and schedules, these were not strictly followed on the ground.

A detoxification circuit, a component of the processing plant, was built as one of the major environmental protection measures. As planned, effluent materials coming out of the mill were supposed to be detoxified such that the discharged effluents would be brought to within DENR standards. If the detoxification plant was properly working, even if there were accidental discharges of effluents, their toxicity levels could have been at quite low and acceptable levels. Then, there would have been no “fish kills” and “fish scare”.

On the other hand, concerned DENR personnel are not also without blame and responsibility. While more frequent and diligent monitoring work could not have fully ensured that such incidents would not have happened, perhaps the company would have been put under more pressure to properly implement their plans and programs.

E. As to the Lapses of Rapu-Rapu

Considering that the spills were preventable, Rapu-Rapu can be faulted for its numerous lapses:

1. Lafayette already started to operate even without completing all the environmental infrastructures. The Project violated the schedule of the upper tailings dam build-up at the time of the incident. The upper tailings storage facility was only 175 meters or 20 meters short of the dam construction schedule as indicated in their

2005 annual environmental protection and enhancement program.

2. Failure of the detoxification system. During the incident, the dosage of sodium metabisulfite was decreased from 4.24kg/ton ore to just 2.8kg/ton. Sodium metabisulfite is used to neutralize cyanide.
3. Violation of 7 of the 29 ECC conditions.
4. Non-implementation of Environmental Action Plan including a Tailings Management Plan
5. Non-implementation of an Environmental Management System (EMS), a major indicator that shows that due diligence has been conducted. With an EMS, a site-based and integrated responses to environmental challenges, especially response and procedures, would be establish.
6. Non-Compliance with limits for liquid effluents within and outside the project site.
7. Non-Conformity with mine tailings dam safety standards and procedures, including a review by independent experts and periodic inspection.
8. Absence of a Cyanide Management Plan to ascertain the use of a minimum amount or as required; and the continuous monitoring of all operations and discharges to detect and deal with an escape of cyanide and any resultant impact.

F. DENR Monitoring Lapses

On the other hand, the DENR cannot also escape its responsibility of ensuring a monitoring system and standards that can immediately detect violations and indications of potential accidents is in place. A system that will improve monitoring in terms of frequency, coverage and substance is needed.

G. As to the Adequacy of Rapu-Rapu's Compliance to Remedial Measures Imposed by DENR

The Project has complied with 18 of the 21 conditions of the DENR. The critical measures that have been complied with include the following: corrective measures in the pumps at the detoxification plant and the events pond, desilting of the creeks where the wastewater/tailings spilled, increase in the height of the tailings dam, completion of the rain drainage canal, and the submission of an Environmental Management System, etc.

Further, the following major changes have already been introduced in Lafayette's operations:

1. Change in top management, from a mainly Australian-run company to a Filipino-run company. Twelve (12) of the nineteen Australian expats have returned home and have been replaced with Filipinos.
2. Management has put in place facilities that will ensure safe operations. Manual operations have been automated and personnel trained in handling the business processes and in emergency situations. The critical measures that have been complied with are as follows: corrective measures in the pumps at the detoxification plant and the events pond, desilting of the creeks where the wastewater/tailings spilled, increase in the height of the tailings dam, completion of the rain drainage canal, etc.

Lafayette has owned up to its mistakes and agreed to undertake the necessary corrective measures.

H. As to the Issue on Acid Mine Drainage and Integrity of the Dam

Likewise, two major issues hamper the implementation of the Project: the acid mine drainage and the integrity of the tailings dam. More exhaustive studies would need to be undertaken on the matter.

Dr. Arthur Zaldivar-Sali, an expert on dam design noted that the dam is under-designed to cope with Philippine rainfall conditions. In high-risk areas such as Bicol, which is in the typhoon belt, a design based on 100 years probable maximum flood (PMF) is too low. The ideal is to use at least 100-1000 years probable maximum flood. If Lafayette does not change its design criteria for a higher PMF, the probability of spillages and over-topping of the dam will occur again.

I. As to the Other Issues Raised Against Rapu-Rapu

1. The DENR finds that there is a confusing corporate structure at the two (2) entities. There is a violation of The Corporation Code by the incorporators of the companies. The concept of piercing the veil of corporate fiction is warranted.
2. On tax incentives, the DENR finds that the potential taxes due the government have indeed greatly reduced the share of government, particularly the amount due to the concerned local government units because of the PEZA incentives. Removing PEZA tax incentives which

entirely rests on PEZA itself will be beneficial to communities and to the local and national governments.

3. On underreporting of mine production, DENR finds no basis for fraudulent reporting. However, it is appropriate for the Bureau of Internal Revenue to conduct an investigation into the matter as it has direct implications on the tax payment of the RRMI and RRPI. If the Commission's contention is found valid, then BIR should collect all the tax liabilities of these companies.

On excise tax payment, DENR finds the basis of excise tax computation incorrect. The BIR should review the tax payments of RRMI to ensure that it has paid the correct amount of excise tax to government.

On withholding taxes, the DENR finds that the Rapu Rapu companies should not claim credit from the taxes it has withheld from its employees payroll and contractors.

On the mandatory sale of gold and silver to Bangko Sentral ng Pilipinas, the DENR finds it impossible at the moment for the bank to refine low grade gold bullion and silver dore from RRPI. However, it finds it important to request BSP to conduct the feasibility of improving its facilities to accommodate these types of gold and silver products in the future.

4. On the social acceptability of the Rapu-Rapu Project, DENR finds that the EIA review process has fully covered the consultation and public hearing process and all stakeholders were given the opportunity to air their issues and concerns.
5. On compliance to statutory requirements, the DENR finds that although RRPI is an operator of the processing plant, the entire Rapu Rapu project remains to be one whole project that covers both the mining and milling operation wherein the ECC is the responsibility of RRMI.

X. DENR OPTIONS AND DECISION ON THE RAPU-RAPU CASE

To come up with an informed decision and as part of the consultation process, the DENR convened a Forum on 31 May 2005 at the National Institute of Geological Studies (NIGS), University of the Philippines in Diliman, Quezon City. It was attended by about 180 participants representing the professional groups, NGOs, Chamber of Mines, media, DENR, etc. A Panel of Reactors, composed of science experts, was invited to comment on the environmental safeguards of the Project. The following is the composition of the Panel:

1. **Dr. Aloysius Baes** (Managing Director, Center for Environmental Concerns)

2. **Dr. Carlito Barril** (Senior Scientist, Institute of Chemistry, U.P Los Banos)
3. **Dr. Carlos Primo David** (Associate Professor, U.P-NIGS)
4. **Engr. Emilio Morales** (Fellow, Association of Structural Engineers of the Philippines)
5. **Dr. Myrna Rodriguez** (Institute of Chemistry, U.P Los Banos)
6. **Dr. Arthur Saldivar-Sali** (President, Geotecnica Corporation)
7. **Dr. Graciano Yumul** (Undersecretary, Department of Science and Technology)

Generally, the comments of the reactors revolved around the adequacy of the measures to control acid mine drainage and the integrity of the dam structures.

Consultation dialogues were also conducted on June 7 and 8, 2006 at the Tower Club in Makati City with the Rapu-Rapu Fact Finding Commission, the Rapu-Rapu Project proponents, the Chamber of Mines of the Philippines and the Panel of Reactors. Discussed were the five (5) options, as follows:

A. Options available

Option # 1 - Issue closure order for the Project

Option # 2 - Maintain Status quo (i.e., the Cease and Desist Order issued by the Pollution Adjudication Board remains)

Option # 3 - Revoke the ECC of the Project and impose moratorium on mining operations in Rapu-Rapu until best available technology is applied to address AMD and dam integrity

Option # 4 - Issue a Temporary Lifting Order (TLO), subject to pre-conditions (i.e., allow test run)

Option # 5 - Issue a Final Lifting Order (i.e., Rapu-Rapu Project can start operations as soon as it is ready)

The following are the perceived advantages and disadvantages of each option and a discussion of each:

1. **Option # 1** – Issue Closure Order for Mining Operations:

Advantages

- ~~///~~ Open pit where ore extraction has commenced remain at its present size and lower potential for AMD generation
- ~~///~~ No more use of toxic chemicals, thereby removing risk of chemical and heavy metal contamination
- ~~///~~ Possible health risks due to chemicals and heavy metals to be mitigated, if not stopped
- ~~///~~ Preserve mineral resources in the island for future generations

Disadvantages

- ✂ Open pit area and other areas affected by mining operations will be left unattended, exposed to the environment, and allow continued generation of acid rains
- ✂ Various infrastructures in the area will deteriorate, causing various environmental and physical risks (e.g. mill plant, chemical and fuel storage facilities, etc.)
- ✂ Government, and eventually the Filipino taxpayer, will have to shoulder tremendous cost of rehabilitation of affected sites and infrastructures (e.g. Bagacay Mine at initial cost of PhP 40 million)
- ✂ Send negative signal to investors, specially to foreigners, on the government's inability to honor contracts, with serious implications to the mining industry and the whole economy
- ✂ Will cost the job of about 900 direct employees in the area, at PhP 6.2 million in monthly salaries and wages
- ✂ Loss of projected PhP 3.1 billion in government revenues (PhP 28 billion for national and PhP 278 million for local)
- ✂ Cessation of company's commitments for socio-economic development and livelihood projects to the community estimated at least PhP 5.0 million per year.

Discussions:

The issuance of a closure order for the Rapu Rapu Polymetallic Project will terminate operations. The open pit mining area where ore extraction has commenced would remain at its present size, thereby limiting the area exposed to the atmosphere and potential acid generation. Since there will be stoppage of milling operations, the use of toxic chemicals would also stop, and the risks of chemical and heavy metal contamination would be removed. The threat of possible health risks to the residents in the area, including the potential effect on marine life, will accordingly be mitigated. And lastly, the mineral deposits in the area would be preserved for the future generation and/or until such time that technologies that would be able to adequately address the concerns on acid mine drainage would be available.

On the other hand, there are also several disadvantages attendant to the issuance of such a closure order. The current open pit area, acid-forming rock waste dumps and other areas affected by mining operations, including various mine infrastructures (e.g. mill plant, chemical and fuel storage facilities) will be left unattended. These could lead to dam failures, uncontrolled acid mine

generation, toxic chemical spillages, and physical risks to residents. Worse, leaving the area at this time when gold and other metal prices remain at all-time high levels, could invite the entry of numerous small scale miners, creating bigger environmental risks and social problems similar to what we have, and continuously, encountered in Diwalwal.

While it is true that the closure of the mining operations does not negate the legal responsibilities and liabilities of the company, this could lead to lengthy and expensive litigation. Since the project involves several foreign entities, the filing and litigation of cases would not be limited to Philippine courts but could also lead to international arbitration like that of the International Court of Commerce or UNCITRAL. A closure order could also lead to the bankruptcy of the company, leaving no recourse but for the government (and eventually, the Filipino taxpayers) to undertake the very expensive mine site rehabilitation and environmental mitigation measures.

Closure of the mine would also have impact to the local and national economy. Per estimate of the Project, it is infusing about PhP 6.2 million per month on salaries and wages, annual commitments of at least PhP 5.0 million for socio-economic development and livelihood projects, and the projected PhP 244 million in local taxes over the 6-year life of the mine.

The projected loss of national government revenues is estimated at some PhP 28 billion over the next six years. But more than this amount, the decision would send a negative signal to foreign investors in terms of the inability of the government to honor contracts, and the instability of our investment climate. Unfortunately, such negative perception of investors, both local and foreign, would impact not only on Lafayette or the mining industry, but the whole Philippine economy.

2. **Option # 2** - Maintain Status Quo, i.e. the “Cease and Desist” Order issued by the Pollution Adjudication Board (PAB) remains.

Advantages

- ~~///~~ Open pit where ore extraction has commenced remain at its limited size and lower potential for AMD generation
- ~~///~~ No more use of toxic chemicals thereby removing risk of chemical and heavy metal contamination
- ~~///~~ Possible health risks due to chemicals and heavy metals to be mitigated, if not stopped

Disadvantages

- ~~☞~~ Open pit and other areas already exposed remain as potential acid generators, and continued threat of water pollution due to possible spillages of contaminated mine/mill wastewaters
- ~~☞~~ Infrastructures/systems improvement (e.g. detoxification plant, drainage & pump/pipe systems, emergency procedures) remain untested and used to address existing environmental and pollution problems, and physical risks of infrastructures/facilities
- ~~☞~~ Revenues to the government and socio-economic benefits to the community remain suspended
- ~~☞~~ Negative assessment of the Philippine investment climate leading to reduced investments, not only in mining but also other sectors of the economy.

Discussions:

For all intents and purposes, the continued imposition of the Cease and Desist Order of the Pollution Adjudication Board, would have very much similar implications (*advantages and disadvantages*) as that of a closure order.

The prolonged suspension order has already caused continued strains on the company's financial resources. Further extension of the CDO and undefined timeline when they could resume operations could lead to bankruptcy and abandonment of the project.

On the other hand, there has to be also some level of recognition on the various efforts of the company to comply with the various impositions of government to upgrade their facilities, operational systems, environment and health safeguards, and even rationalization of their organizational structure and decision-making processes. With the continued imposition of the CDO, said improvements will never be tested and leaves everybody hanging on what could have been.

- 3. Option # 3 - Revoke ECC and impose moratorium on mining operations in Rapu-Rapu until best available technology is applied to address acid mine drain (AMD) and dam integrity.**

Advantages

- ~~☞~~ Provide a venue for the complete review of the "flawed" ECC and the environmental protection strategies and safeguards, particularly the AMD mitigation techniques and dam design

- ~~///~~ No additional environmental damage that may be caused by the mining operations
- ~~///~~ Sends a signal to foreign investors and the mining industry that the government is serious in enforcing responsible mining
- ~~///~~ No mining in a small island fragile environment

Disadvantages

- ~~///~~ The company could run away from the project leaving the area to further degradation; threat of AMD and the inappropriate dam design will continue
- ~~///~~ Government will spend for the required environmental protection and rehabilitation measures
- ~~///~~ Send negative signal to investors

Discussions:

The proposition is primarily hinged on three major premises: a) the dam parameters and design, as well as the proposed AMD control measures, are flawed and inadequate; b) there were irregularities and shortcomings in the project's securing of social acceptability; and c) need for mining moratorium to prevent possible transfer of mining rights ownership.

The cancellation of the project's current ECC will certainly provide a venue for the total and thorough review of the dam and other structural designs, environmental protection measures, and clarify once and for all issues on social acceptability. Such an exercise is expected to raise the level of confidence of government and other stakeholders on the integrity and safety of the whole mining operations.

The assumption is that the company will be that willing to re-apply for an ECC and go through the very long and socio-politically charged EIA process.

On the other hand, revocation of the ECC could be taken by the company and its investors negatively, leading to bankruptcy and the abandonment of the project. The disadvantages would then be similar to as if the mining operations have been closed. Again, such an act would bring forth forward questions on the credibility of the government that has already reviewed and approved the previous ECC, and on the overall stability of the country's investment climate.

The rationale for the mining moratorium is due to the fear that the project ownership may just be passed on to another company who would then be given a clean bill of health. However, it is highly suspect that another company would so willingly accept the current levels of

responsibilities and liabilities. This is so because as a matter of legal practice, the new owner will have to pick up not only the assets of the company but also its responsibilities and liabilities.

4. Option # 4 - Issue a temporary lifting order, subject to pre-conditions (i.e. allow test run).

Advantages

- ~~///~~ Allow company, government and other stakeholders to test adequacy and efficacy of the alleged improvements and remedial measures undertaken by the company
- ~~///~~ Provide government and other stakeholders necessary observations and experience for future decisions on the Rapu Rapu mining operations, and other future mining operations in the country
- ~~///~~ Allow resumption of government revenue collections, resumption of jobs for the about 900 employees, and socio-economic benefits to the community
- ~~///~~ Demonstrate to local and foreign investors the rationality and fairness of Philippine investment climate, particularly in honoring contracts it has entered into
- ~~///~~ Cater to the demand of various local government units and residents for the resumption of operations
- ~~///~~ Show resolve of government to promote only responsible mining, and never at the expense of the environment

Disadvantages

- ~~///~~ Possible attendant risks on toxic spillages during test run
- ~~///~~ Continue doubts of certain society sectors on the sincerity of government in the protection of the environment

Discussions:

The issuance of a Temporary Lifting Order (TLO) would basically allow the company to conduct their test run on the new base metal plant and the various systems improvements that they claim to have set in place. Only by issuing a TLO would the company, the government and other stakeholders be afforded the chance to check and validate the claimed new efficacies and adequateness of these improvements.

While the test run would be limited in scope, it is expected that the financial and socio-economic benefits to the government, the community and local economy would have some impact. Perhaps, this is the reason

why in fact, some local officials and residents have been demanding the resumption of the mining operations.

As it is, the government's future decision on the requested TLO is now the focus of attention of both local and foreign investors. The issuance of the TLO will give a positive signal on the resolve of government to honor contracts it has entered into. Furthermore, this would strengthen investors confidence on the stability of the country's investment climate.

The issuance of the TLO is, of course, not without any attendant risks. Since chemical reagents and ore materials containing heavy metals are again going to be used, untoward incidences could lead to spillages and river/coastal water contamination.

Considering, however, the recent fish-scare and allegations of health risks, this move of government can be taken by some society sectors that the government is not serious in protecting the environment and the health and safety of the community.

- 5. Option # 5** - Issue a final lifting order (i.e. Rapu-Rapu project can start normal operations as soon as it is ready).

Advantages

- /// Initiate the resumption of revenue payments to both local and national governments
- /// Resumption of full employment and various socio-economic benefits to the community, with expected corresponding improvements of local economy and the residents quality of life
- /// Increase level of investment confidence on the country

Disadvantages

- /// Limited assurance on the environmental measures and safeguards since these have not yet been tested
- /// Should another accident happen, negative public perception on mining will tremendously increase, affecting the whole minerals industry
- /// Risk of another accident still remain high and should something untoward happens, would greatly affect credibility of government

Discussions:

Given that two tailings spill incidences have occurred, the government and the stakeholders still have doubts on the efficacy and adequateness of the remedial measures that have been accomplished by the company. While there really are revenues and socio-economic

benefits that will be generated, the attendant environmental and political risks are given more weight, both from the perception of government and the general public.

Should the project be allowed to resume operations immediately and another accident happens, this would have a tremendous impact not only on the project. It would also strongly impact on the whole mineral industry and the credibility of government relative to its seriousness on environmental protection. Even the investors should have no difficulty in understanding the potential implications.

B. DENR Decision on the Rapu-Rapu Case

GIVEN THE VARIOUS OPTIONS, THE DENR DECISION IS TO ISSUE A TEMPORARY LIFTING ORDER (TLO), SUBJECT TO PRE-CONDITIONS SUCH AS THE CONDUCT OF A TEST RUN, IMPLEMENTATION OF REMEDIATION AND REHABILITATION MEASURES, ETC. THIS IS DUE TO THE FOLLOWING REASONS:

1. Open pit and other areas used in mining operations will be left unattended, exposed to the elements and result to continuing generation of acid mine drainage (AMD).

This is a serious concern as it has already happened in the Rapu Rapu Island especially in the shut down areas of Hixbar, which were mined earlier by the Japanese, Benguet and Hixbar Mining Company. There is extensive acid mine drainage being observed in the underground workings and other exposed mine areas of Hixbar. In the present open pit, the high sulfide orebody is already exposed. The lower tailings dam embankment uses PAF as construction material. In time acid mine drainage will propagate in these two areas. And without the proper decommissioning and acid prevention measures (guniting, encapsulation, etc), AMD will certainly become an environmental problem.

2. Prevent the Entry of Small Scale Miners and prevent the open pit from becoming a “gold rush area”.

There are still gold veins in the oxide zone which will be sources of gold mining by small scale miners. The open pit has been stripped and has exposed these veins. While the mining by Lafayette

last year has already extracted a large portion of the oxide zone and sent it for processing in the mill, there are still gold ores remaining. These will be mined by small scale miners once the mine is abandoned. Small scale mining use mercury in the recovery of gold. Mercury is a more serious pollution problem as experienced in gold rush areas. The problem in Diwalwal can be duplicated in Rapu Rapu.

3. No opportunity to get the EPEP program of Lafayette in 2006 to Cover the End of Mine Remediation

Should the company not proceed with its operations, the Government and eventually Filipino taxpayers will have to shoulder the tremendous cost of remediation and rehabilitation of affected sites and infrastructure. These will be the same story as Bagacay Mines in Samar, which is a high sulfide orebody and was mined and eventually abandoned by MMIC and Philphos. Bagacay Mine is on top of the list of legacy mines in the Philippines. The people in Samar are against mining because of Bagacay and the pollution caused by AMD to its creeks and rivers.

4. By allowing the resumption of operations, the Government will be sending a positive signal to investors, especially foreign, on its ability to honor contracts.
5. It will provide the economic benefits to the community with 900 direct jobs, P3.0 billion in Government revenues and P5.0 million per year in Project commitments
6. This will be consistent with the mining industry's principle of sustainable development. Three (3) conditions are required for sustainable development to happen: economic growth, environmental protection and social equity.

IN THIS REGARD, THE POLLUTION ADJUDICATION BOARD (PAB) WILL ISSUE A 30-DAY TEMPORARY LIFTING ORDER OF THE CDO, BUT WITH THE FOLLOWING STRINGENT CONDITIONS TO ENSURE THAT THE ENVIRONMENT IS NOT COMPROMISED:

?? **Conduct of a TEST RUN.** The test run is intended to determine the following:

- Production efficiency of the base metal plant to process copper and zinc. This will include the debugging process for the system and the machines/equipment.

- Sufficiency and adequacy of remedial measures and environmental safeguards instituted and installed.
- Responsiveness of emergency response.

The test run will be conducted in three (3) stages:

- Stage 1 - Clean water will be allowed to circulate into the system to check for leaks in the pipe network and efficiency of the pumps at the detoxification circuit and events pond.
(5 days)
- Stage 2 - Non-ore rocks from the open pit will be added to the wastewater and circulated into the system to test the electro-mechanical systems. Lime and acid neutralizing agents will be added to address acid that may be released by the rocks.
(9 days)
- Stage 3 - Actual production but only up to 30% of rated capacity to simulate normal operations. All systems will be tested for to determine the efficiency of the electro-mechanical system, pipes, pumps, detoxification system, tailings flow, events pond, etc.
(15 days)

o BEFORE the TEST RUN, the following conditions must be complied with:

- Pay the P10.4 million initial fines.
- Extend the validity of its surety bond.
- The following environmental safeguards/instrumentations should be completed:
 - Storm drainage canal, to ensure that a spill in the tailings dam is prevented in case of heavy rains during the test run.
 - Installation of dam monitoring instruments (i.e., piezometers, inclinometers, seepage weirs) to effectively monitor the stability of the dam during the test run.

- Emergency control mechanisms in order to stop or minimize the damages in case accidents during the test run.
- Sumps along concentrate lines, process water and fuel lines in order to contain small spillages that may occur.
- Proper storage facility for chemicals.
- Installation of necessary monitoring equipment to measure the levels of cyanide, pH and other chemicals and reagent feeding at the detoxification circuit.
- Collect baseline data on the levels naturally-occurring mercury, pH, AMD and other heavy metals in the ores/rocks, water, etc. to determine impact of the mining operation.
- Submit the schedule of the dam build up for the period when the test run will be conducted.
- Secure the following permits/clearances from DENR:
 - Wastewater discharge permit.
 - Lifting of the suspension on the use of cyanide
 - Lifting of suspension of milling operation
- Require RRPI and RRMI to execute a Memorandum of Agreement identifying their specific responsibilities and accountabilities on their compliance to the conditionalities stipulated in the Environmental Clearance Certificate.

o DURING the TEST RUN, the following should be observed:

- Institute transparency and validating mechanisms:
 - Open the test run to the public and results of test run to be made public.
 - Commission 3rd Party experts to observe the test run and the results.
- Adopt environmental measures and strictly adhere to standards:

- Maintain freeboard in the lower tailings dam of at least 5 meters, to ensure adequacy to contain wastewater even during heavy rains.
- Construct the spillway in the lower tailings dam.
- Manage and prevent the formation of AMD in exposed potentially acid forming rocks being used as filling material for the dam.
- Conduct regular sampling of water and tailings for physico-chemical and trace metals to ensure compliance with DENR standards for pH, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Dissolved Oxygen (DO), Cyanide (CN), Arsenic (As), Iron (Fe), Mercury (Hg), Cadmium (Cd), Lead (Pb), Zinc (Zn), Copper (Cu) and Chromium (Cr).
- Improve existing laboratory at the minesite for analysis of heavy metals in water and sediments.
- Operationalize the Emergency Preparedness and Response Program to include the communities.
- Commission a 3rd Party experts to assess and recommend measures on the following:
 - Integrity of the tailings dam, especially with respect to the design parameters and materials for the dam construction.
 - Adequacy of the preventive and control measures to address the acid mines drain (AMD).
- Submit agreement with EMS Auditor to ensure that the EMS process for ISO certification for 14001 is started.

o AFTER the TEST RUN, the following conditions will be imposed:

- Regular sampling of water and tailings for physico-chemical and trace metals.
- Water quality maintained within DENR standards for pH, TSS, TDS, DO, CN, As, Fe, Hg, Cd, Pb, Zn, Cu and Cr.
- Submit Final Mine Decommissioning and Rehabilitation Plan by December 2006 and

deposit 50% of the Plan budget, within 6 months after approval.

XI. DENR : THE WAY FORWARD

A. POLICY DIRECTIONS

1. To enhance responsible mining and sustainable development

- 1.1 Ensure environmentally responsible mining by taking into consideration risk assessment, ISO Certification, site specific management solutions, financial guarantees, etc.
- 1.2 Maximize benefits of mining to affected stakeholders through: direct remittance of LGU shares from excise tax, increase of mandatory allotment for Social Development and Management Program, etc.
- 1.3 Implement good governance of mining projects through transparency, third party review, etc.

2. To capacitate the DENR to better perform its functions

- 2.1 Improve the laboratory facilities and provide the necessary training to its personnel to both the Central and Regional Offices

3. To rationalize the grant of incentives

- 3.1 **Formalize the exclusion of** initial mineral processing in the scope of the Special Economic Zone Act; i. e., in the case of processing of minerals, **limit** the establishment of Special Economic Zones to processing in the downstream and/or manufacturing industries only.
- 3.2 **Require** the execution of a MOA by and between the DENR and the Philippine Economic Zone Authority, which shall clearly delineate the respective functions and areas of responsibility and fields of coordination of the said agencies in connection with the operation of mineral processing plants inside Special Economic Zones.
- 3.3 **Submit** a position paper to Congress, in consultation with concerned agencies to include DENR in the pending bill seeking to

integrate and rationalize the granting of investment incentives.

4. To ensure equitable Government Share in mining operations

4.1 **Recommend** the conduct of joint verification on all mineral shipments by the DENR and BIR to ensure a uniform basis of estimating the initial payment of excise tax which shall at least be 90% of the estimated value.

4.2 **Recommend** to the Bureau of Customs that all export declaration of mineral shipments shall be accompanied by a valid OTP which should physically match with the quantity and volume of the mineral products to be shipped.

5. To ensure that strategic mineral resources are preserved as raw materials for industries critical to national development through the declaration of mineral reservations

5.1 Identify, explore and declare as mineral reservation mineralized areas in the country with strategic minerals

B. DENR Action Implications

The DENR shall issue Department Administrative Orders that will:

1. Resolve hanging issues vis-à-vis Rapu-Rapu Fact Finding Commission Report

1.1 **To establish** a People's Health and Environmental Protection Fund (PHEPF) in every region, for the primary purpose of providing readily available fund to compensate for damage to health and livelihood brought about by tailings spill and other mine-related incidents.

1.2 The proposal to conduct an epidemiological study shall be endorsed to the Department of Health for their evaluation.

1.3 **To create** Regional Multi-Sectoral Environmental Councils (RMECs), as a venue for discussing and resolving all

environmental concerns (air, water, land, forest, biodiversity, geo-hazard and mining) and administer the PHEPF. The RMEC shall be chaired by the DENR Regional Executive Director, co-chaired by the National Economic Development Authority Regional Director and composed of the various stakeholders concerned, including business, civil society groups, religious organizations and other government agencies. The RMECs shall submit their quarterly reports to the DENR Central Office, copy furnished the Regional Development Council.

- 1.4 **To organize** Provincial Multi-Sectoral Environmental Councils in provinces with active mining operations to augment the monitoring function of the DENR and the Multi-Partite Monitoring Team. The Provincial Council will be chaired by the DENR Provincial Environment and Natural Resources Officer (PENRO), with membership from the LGU ENRO, Provincial Agrarian Reform Officer (PARO), DTI, and NGOs/ POs/religious sector representatives.
- 1.5 To request BIR to undertake investigation of the issue on underreporting of ore production.
- 1.6 To create a multi-sectoral group that will conduct a study on the carrying capacity of Rapu-Rapu Island to determine the merit of imposing moratorium on mining.
- 1.7 To create a working group that will study the proposal of creating an independent Mining Authority to focus on the mining industry alone.

5 Strengthen Permitting Procedures:

- 2.1 **To ensure** that Mineral Processing Permits shall only be granted to downstream processing, and not to initial processing which should be integrated with ore extraction.

- 5.2 **To formulate** the implementing rules and regulations to operationalize Joint Venture Agreements and Co-Production Agreements as provided for under the Philippine Mining Act to provide alternative modes whereby government can gain more control in managing and developing mining program.
- 5.3 **To institute** a mandatory “Notice to Proceed” mechanism for every mining project **after** the approval of its Declaration of Mining Project Feasibility or Mineral Processing Permit (MPP) **but prior** to commencement of the commercial operation in order to ensure that operating and back-up systems are in place. The important provisions of this mechanism shall be as follows:
- a. Inspection of the debugging operation by the DENR is mandatory; and
 - b. Submission of a proof of readily available fund to meet the project cost is one prerequisite.
 - c. The Notice to Proceed will cover every stage of the mining operation.
- 5.4 **To strengthen** the existing mechanism in the evaluation of Mining Project Feasibility Studies through the inclusion of the following measures:
- a. **Require** the submission of more detailed mineral processing plant design, including the tailings dam engineering design, as integral part of the Mining Project Feasibility Study; and
 - b. **Include** as member(s) in the existing DENR-Mines and Geosciences Bureau (MGB) Technical Committee on Mining Feasibility Studies independent experts in mining engineering and metallurgy, including dam engineering, ore dressing and mine rehabilitation.
- 5.5 **To increase** the fines and penalties for violations of environmental standards.

3. Improve Environmental Monitoring Systems and Standards

- 3.1 **To put in place** a round-the-clock **Resident Government Mine Inspector** in critical and/or large-scale mining operation, who shall be primarily responsible for:
 - a. **Monitoring** the daily operation of the mine, including production outputs, shipments and the pertinent records;
 - b. **Calling the attention** of mine management to every aspect of the mining operation, which needs to be remedied or requires emergency action; and
 - c. **Reporting** immediately any violations of the law and rules and regulations committed by the mine.
- 3.2 **To amend** the existing Memorandum of Agreement (MOA) by and between the MGB and EMB for the purpose of clearly delineating the respective functions and areas of responsibility of the said Bureaus in the case of mining projects. In particular, overlapping areas of responsibility shall be eliminated, areas of coordination identified and the relationship between the Environmental Compliance Certificate (ECC) and the Environmental Protection and Enhancement Program (EPEP) demarcated under the amended MOA.
- 3.3 **To institute** 3rd Party Environmental Audit or independent assessment of mining and milling operations.
- 3.4 **To update and expand** the coverage of DENR standards, to include design and safety parameters for tailings dam, spillways, storm drain canals, detoxification system and related mine and mill infrastructure.
- 3.5 **To develop** the technical capability of DENR Regional Offices in regulating and monitoring mining operations.

- a. Conduct on-the-job training in all aspects of mining operations;
- b. Formulate and implement a comprehensive training module for mine inspectors; and
- c. Set up or upgrade DENR laboratory facilities in all regional offices.