TABLE OF CONTENTS

GENERAL ADMINISTRATION AND SUPPORT SERVICES

OPERATIONS

001: NATURAL RESOURCES SUSTAINABLY MANAGED - PROGRAM 1: MINERAL RESOURCES ENFORCEMENT AND REGULATORY PROGRAM

MINERAL INVESTMENT PROMOTION PROGRAM

- Issuance of mining permits/contracts and other related permits
- Use it or Lose it Policy
- Review of the Performance of Existing Mining Operations per EO No. 79
- Approval of SHES Program
- Development of Small-Scale Mining - Assistance to Provincial/City Mining Regulatory Board (P/CMRB)/ LGUs/ Citizen Stakeholders

MINING INDUSTRY DEVELOPMENT PROGRAM

- Monitoring/Audit of Mining Permits/Contracts/Leases/Claims/ Resolution of Complaints/Cases/Conflicts
- Anti-Illegal Mining Campaign
- Strengthen Multi-party Monitoring System

001: NATURAL RESOURCES SUSTAINABLY MANAGED - PROGRAM 2: MINERAL RESOURCES AND GEOSCIENCES DEVELOPMENT PROGRAM

MINERAL RESOURCES SERVICE

COMMUNICATION PLAN FOR MINERAL RESOURCES AND GEOSCIENCES DEVELOPMENT

- Conduct of Awareness and Advocacy on Mineral Resources and Geosciences Development (MRGCD)
- Generate/Publish/Disseminate Information, Education and Communication (IEC) Materials
- Capacity Building Program on MRGCD Laws, Rules and Regulations
- National and International Linkages

003: ADAPTIVE CAPACITIES OF HUMAN COMMUNITIES AND NATURAL SYSTEMS IMPROVEMENT - PROGRAM 1: GEOLOGICAL RISK REDUCTION AND RESILIENCY PROGRAM.

Geological Assessment for Risk Reduction and Resiliency Program: Geohazard Assessment - Identification and Mapping of Geohazards for Critical Land Areas

- Field Mapping and Survey
- Geohazard IEC Materials Dissemination
- Capacity Building on Geosciences
- Conduct of IEC to LGUs
- Geohazards Operations Center

Coastal Geohazard and Impact of Climate Change
Geologic Mapping
Groundwater Resource and Vulnerability Assessment
Miscellaneous Geological Services

GENDER AND DEVELOPMENT

PHYSICAL AND FINANCIAL ACCOMPLISHMENT MONITORING REPORT

PERFORMANCE INFORMATION REPORT
MANDATE, MISSION AND VISION

MANDATE

The Mines and Geosciences Bureau is the primary government agency under Department of Environment and Natural Resources (DENR) responsible for the conservation, management, development and proper use of the country’s mineral resources including those in reservations and lands of public domain. In pursuing the mandate, it envisions a mining and minerals industry that is not only prosperous but also socially, economically and environmentally sustainable, with broad community and political support while positively and progressively assisting in the government’s program on revitalizing the minerals industry and contribution to the general economic well-being of the nation.

MISSION

The MGB, as steward of the country’s mineral resources, is committed to the promotion of sustainable mineral resources development, aware of its contribution to national economic growth and countryside community development. It fully recognizes that the development of a responsive policy framework in partnership with stakeholders to govern mineral exploration, mining and investment decisions and an effective institutional structure, are fundamental requisites for the sustainable utilization of the country’s mineral resources. It is adherent to the promotion of geological studies as an integral element of socio-economic development, environmental protection and human safety. Yet, it is sensitive to the known environmental impacts of mining and the need for restoration and rehabilitation of mining affected areas and the development and adoption of environmental and geo-scientific technologies.

VISION

MGB envisions a minerals industry that is not only prosperous but also socially, economically and environmentally sustainable, with broad community and political support while positively and progressively assisting in government’s program on poverty alleviation and contributing to the general economic well-being of the nation. MGB also aims to be the leading geoscience and geo-resources Bureau serving the public and nation with scientific reliability.
FUNCTIONAL STATEMENT
MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. 1

OFFICE OF THE REGIONAL DIRECTOR
The Office of Regional Director shall implement the pertinent laws, policies, rules and regulations and programs; exercise the management functions of planning, organizing, directing and controlling; undertake Information, Education and Communication campaign; and perform such other duties and functions as may be provided by law or delegated by the Director.

FINANCE AND ADMINISTRATIVE DIVISION
The Finance and Administrative Division (FAD) shall provide general administrative services pertaining to human and financial resources and property and records management.

GEOSCIENCES DIVISION
The Geosciences Division (GSD) shall undertake land and marine geoscientific surveys including mineral exploration, geological mapping, geohazard assessment, groundwater resource exploration and vulnerability assessment, and engineering geological and geoenvironmental studies and provide geological laboratory and information services.

MINE MANAGEMENT DIVISION
The Mine Management Division (MMD) shall undertake initial evaluation of mining and mining-related applications, monitoring of the disposition and utilization of mineral lands and resources, and survey of mineral lands.

MINE SAFETY, ENVIRONMENT AND SOCIAL DEVELOPMENT DIVISION
The Mine Safety, Environment and Social Development Division (MSESDD) shall conduct the evaluation and monitoring of implementation of programs and investigate incidents/complaints on mine safety and health, environmental management and social development.
2018 was yet an extraordinary year for the Mines and Geosciences Bureau Regional Office No. 1. Targets were accomplished, challenges were conquered and we remained one MGB. Through the years, we have introduced initiatives and new endeavours which are helping to unleash personnel development in innovative ways.

It is also another year for the environment as we support our DENR Secretary’s mission on effecting “real change” through strategies and programs designed to propel our nation’s development plan. This is to respond to environmental challenges with broader perspective and relevant strategies. Further, we want to improve the quality of the environment especially our mineral resources. As well as implement policies and enforce ENR laws and regulations, strengthen partnerships with our environmental allies and pursue sustainable development in our communities.

We have been continuously promoting responsible and sustainable mining towards mineral resources development on these activities.

In line with MGB’s commitment to the call to strengthen the enforcement of mining and environmental laws in the community and provincial level, MGB I embedded four (4) newly hired contract of service (COS) personnel to the Provincial Environment and Natural Resources Offices in the Ilocos Region. The said personnel shall be the bureau’s counterpart on mining and geological concerns in the community and provincial offices of the DENR. Earlier, it has been mentioned by Sec. Cimatu that the public will generally benefit from this personnel movement as they have easy access to the bureau’s frontline services to sustain efforts towards responsible mining and disaster-resilient communities.

A conference on addressing Environmental Crimes in Luzon through an integrated enforcement of environmental natural resources was conducted. This was organized as our DENR Secretary Roy A. Cimatu emphasized to provide the much-needed policy reforms to bridge the gap between
achieving environmental justice and enforcement of environmental laws. He directed DENR officials to crack down violators and act immediately on activities related to the destruction of the environment particularly on priority ENR law enforcement issues including illegal logging, illegal and destructive mining, environmental pollution, illegal wildlife collection & trade and illegal land conversion. MGB have identified several mining-related environmental crimes and common modus operandi in illegal mining. In response to this, MGB launched a campaign against illegal mining, collaborated with other government agencies/task forces, NGOs/POs and continues the public awareness campaign on mining regulations and responsible mining.

The 1st Costal Watch Summit was also conducted to identify issues and problems confronting effective management of beach areas especially the quality of the water. Also it intended to enhance the level of understanding of different stakeholders on the various laws, rules and regulations governing the management of the coastal areas.

MGB I discussed on the Coastal Geohazard Mapping and Assessment Program which shall give the public substantial information on coastal areas or shorelines that are experiencing erosion or prone to erosion and accretion. The said program aims to provide vital information to policymakers and the public in order to make them understand the risk of hazards, enhance preparedness, reinforce response, foster resilience and minimize the adverse impacts of disasters.

We have also issued a cease and desist order to 14 quarry operators along the Bolo river covering the municipalities of Bangui, Dumalneg, Pagudpud for operating without the necessary permits from the MGB or from the provincial government of Ilocos Norte. Prior to this, a field inspection and assessment was done by our office in coordination with PENRO Ilocos Norte. Based on the report, these sand and gravel quarrying activities along the Bolo river are not in accordance with the concept and parameters of aimed at promoting Responsible Mining. The extraction of sand and gravel had been carried out irresponsibly and unsystematically. Thus, allowing this to continue may put harm to the lives and properties of the communities.
We also have conducted the orientation on the standardized checklist for the Monitoring of Tenements and Safety, Health, Environmental and Social Development Programs. This is in line with the streamlining of checklists of requirements of various mining applications for their guidance in compliance with the directives of President Rodrigo R. Duterte to simplify procedures, streamline requirements and cut red tape in Government operations.

To further enhance the scientific understanding of participants towards Global Earth Observation System of Systems (GEOSS), only on the fields of disaster, health, and water through ocean and land based system approach, IT specialists from the MGB Central Office conducted a training on Geographic Information System (GIS). The basic training on ArcGIS software application shall enable our technical personnel to interactively navigate the earth spatial features and attributes towards realistic outcome that will be used for real and present situation decisions.

And to keep up with our international recognition through the ISO certification which we have attained last year, we have done our management review to discuss and set our game plan for the upcoming ISO audit. Further, we would like to ensure that our Quality management system, Environmental Management System, and the Occupational Health and Safety Assessment remains suitable, adequate and effective. We have envisioned to develop a more professional culture, increase customer satisfaction and understand and communicate the bureau’s processes and services well fit for global standards.

Through these activities, we aim to restore and enhance the quality of our environment and mineral resources and be more responsible stewards of the Earth and learn to co-exist with nature.

As we move forward to another year, we shall carry on the knowledge and learnings we gained and remain steadfast in our commitment to building a more resilient and sustainable environment through effective policies and urgent action.

CARLOS A. TAYAG
OIC, Regional Director
ADMINISTRATIVE SECTION

The Region has fully complied with all the requirements of the conditions of Good Governance by posting the Transparency Seal on the MGB-I Regional Website which consists of the mandate and function of the Office, List of personnel, approved Work and Financial Plan, Annual Procurement Plan and PHILGEPS certification; the Citizens’ Charter and each divisions SEC SIME were also posted in a conspicuous area in the office;

The Human Resource and Management Service maintains records of 37 permanent, 5 Co-Terminus with the Incumbent (CTI) and 27 Contract of Services.

Various trainings were coordinated, attended/ conducted for bettering the performance, gaining more knowledge of individuals and sharpening their skills.

All plantilla personnel submitted their respective Statement of Assets, Liabilities and Networth (SALN) for CY 2017 in compliance to Section 8 of Republic Act No. 6713 otherwise known as “Code of Conduct and Ethical Standards for Public Officials and Employees”, updated Personal Data Sheet (PDS), Individual Performance Commitments Review (IPCR), among other as required by the Civil Service Commission.
FINANCE SECTION

The Department of Budget and Management (DBM), through the General Appropriations Act (GAA) has released P51,343,000.00 budget for CY 2018, P28,109,000.00 for Personnel Services (PS) and P23,234,000.00 for Maintenance and Other Operating Expenses (MOOE). Personnel Services (PS) has P1,177,000.00 for Administration of Personnel Benefit (Terminal Leave Benefit) of Ms. Natividad Fabella, Mining Claims Examiner III who retired on December 25, 2018. Additional budget for Other Professional Services amounting P513,108.36 Maintenance and Other Operating Expenses (MOOE) was released by MGB Central Office, for the Integration of MGB Programs and staff to PENROs and CENROs also MGB Central Office downloaded P449,866.31 Personnel Services (PS) for the Hazard Pay of the three approved MGB RO I personnel. An allotment of P1,000,000.00 budget was granted for the conduct of National Mineral Reservation Program under SAGF Fund338. For the C.N.A. Benefits an amount of P1,075,000.00 was re-aligned from Maintenance and Other Operating Expenses (MOOE) to Personnel Services (PS) and approved by the DBM. Thus, the total allotment for the year ending December 31, 2018 amounted to P53,305,974.67, of which PS of P29,633,866.31 and MOOE Fund 101 P22,672,108.36 and Fund 338 P1,000,000.00.

As of December 31, 2018, Allotment for MOOE was P23,672,108.36, Budget Utilization Rate (BUR 1) (Obligation/Allotment) for MOOE have reached 100%, Obligation of P23,526,433.95. Budget Utilization Rate (BUR 2) (Disbursement/Obligation) reached 98%, Disbursement of P22,997,429.12. A new Budget Utilization Rate (BUR 3) (Disbursement/Cash Allocation) to measure financial performance of an operating unit was introduced by DBM. As of December 31, 2018, Budget Utilization Rate (BUR 3) (Disbursement/Cash Allocation) reached 100% at year-end.
All advances to special disbursing officers and employees were liquidated and aging of cash advances was verified by Commission on Audit (COA).

An orientation on the Proper Liquidation of Cash Advances of Special Disbursing Officers (SDOs) was conducted by the Mines and Geosciences Bureau I-Finance and Administrative Division last May 15, 2018 at the Max’s Restaurant in San Fernando City, La Union. This aimed to properly guide the SDOs on the processes and emphasize on the importance of accomplishing timely liquidation reports equipped with the required supporting documents and attachments. This is in line with the Commission on Audit rule that cash advances must be liquidated within the prescribed periods depending upon the nature and purpose of the particular cash advance, as provided under COA Circular No. 97-002 dated February 10, 1997, restating with amendments (the rules and regulations on the granting, utilization and liquidation of cash advances).

Chief Geologist Mr. Socrates Gaerlan discussing issues and concerns of SDOs with Accountant III Ms. Haydee Ofiaza
Also, it served as a venue to achieve improvements in accountability and
government performance by combining transparency with participation and
collaboration, through partnerships to lay down the true cost and benefit of
government activities.

In addition, Budget and Financial Accountability Reports (BFARs) were
submitted accurately and timely to MGB Central Office, COA and DBM.
Budget Proposals, Cash Programs, Monthly and Quarterly Financial Reports
were all prepared and submitted. Likewise, activities such as processing of
vouchers and payrolls, reports preparation, and other related financial matters
were 100% accomplished.

**PLANNING MANAGEMENT SERVICES**

Monthly Physical Accomplishment Reports, Performance Information Report
and Fund Utilization Reports were regularly submitted to MGB Central Office.

To improve the reporting of accomplishments of every Division as well as
records filing and safekeeping, planning coordinators were designated in the
respective divisions to effectively coordinate with the planning officer for the
timely submission of reports.

Periodic assessment of accomplishments vis-à-vis target is conducted and
timely feedbacks are provided to the division concerned for immediate and
appropriate course of action.
On May 28 to June 1, 2018, Mr. Ralph Vasquez and Ms. Marietta Tan of MGB-CO Planning, Policy International Affairs Division (PPIAD) conducted the validation of the 2017 accomplishments. The objective of the activity is to validate the reported 2017 accomplishments; to determine actions taken on the recommendations of the validation of 2016 accomplishments; and to determine other concerns in the implementation of plans and programs.

Presentation of the Results of Validation.
On September 12-14, 2018, the Regional Planning Officer also attended the Workshop for MGB RO Planning Officers where strategies on the reporting of Monthly Accomplishments through the online system and reportorial requirements of the implementation of programs/projects/activities were discussed.

**01: NATURAL RESOURCES SUSTAINABLY MANAGED - PROGRAM 1: MINERAL RESOURCES ENFORCEMENT AND REGULATORY PROGRAM**

**MINERAL INVESTMENT PROMOTION PROGRAM**

**Issuance of Mining Permits/Contracts**

The Mining Tenement Evaluation Section (MTES) issued seventeen (17) Industrial Sand and Gravel (ISAG) Permits, two (2) Mineral Processing Permits (MPP), a total of one hundred fifty three (153) Ore Transport Permits, one hundred twenty seven (127) Mineral Ore Export Permits (MOEP), and four (4) Certificates of Accreditation.

Nine (9) Certificate of Environmental Management and Community Relations Record (CEMCRR) together with one (1) Certificate of Exemption of the new ISAG application of Mark Bradley A. Salcedo were also issued.
Use it or Lose It Policy

In compliance to the Department Memorandum Order No. 2010-04 “Reforms in the Department Mining Tenement System”, which directs the Bureau to expedite the grant of mining contracts and permits, cleanse and process all pending mining applications and strengthen all compliance requirements, the Office have issued seventeen (17)
Industrial Sand and Gravel Permit and two (2) Mineral Processing Permits.

<table>
<thead>
<tr>
<th>TENEMENT HOLDER</th>
<th>Mining Applications Approved/ Denied/ Endorsed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CONRADO IGNACIO</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>2. MATHEW O. LIIS</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>3. NORTHPOINT AGGREGATES INC.</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>4. BENITO Y. CO</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>5. Omnico Natural Resources, Inc</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>6. MYRA R. CRUZ</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>7. ADORACION M. CEPERIANO</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>8. MELCHOR S. DE LEON</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>9. ALMA L. KHO</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>10. A.D. MARRERO ENTERPRISES</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>11. DESTINY MIGHTY ROCK CORP.</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>12. SABLE LE VARGE, INCORPORATED</td>
<td>Mineral Processing Permit</td>
</tr>
<tr>
<td>13. FELIX P. SANCHEZ</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>14. WILLIAM K. DY</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>15. DELIA B. DIZON</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>16. EFRAIM BALITAO</td>
<td>Industrial Sand and Gravel</td>
</tr>
<tr>
<td>17. N. CANLAS</td>
<td>Industrial Sand and Gravel</td>
</tr>
</tbody>
</table>
Review of the Performance of Existing Mining Operations per EO No. 79

Approval of SHES Program

1. Environmental Protection and Enhancement Program (EPEP)

Seven (7) Environmental Protection and Enhancement Program (EPEP) were approved.

Five (5) of the approved EPEPs are for the ISAG permit renewal applications of William K. Dy, Efhraim B. Balitao, Ignacio B. Balitao, Delia B. Dizon and Felix Sanchez. The other two (2) EPEPs are Isla Verde Mining and Development Corporation and Destiny Mighty Rock Corporation.

2. Annual Environmental Protection and Enhancement Program/Care and Maintenance Program (AEPEP/CMP)

The 2018 Annual Environmental Protection and Enhancement Programs (AEPEP) of forty seven (47) contractors/permit holders involving seven (7) MPSA contracts, three (3) MPP and thirty seven (37) ISAG permits including one (1) Care and Maintenance Program were approved for CY 2018.

3. Social Management and Development Program/Community Development Program (SDMP/CDP)

The Section evaluated and issued Certificate of Approval (CA) on nine (9) SDMP’s and two (2) CDP’s for a total of eleven (11) Certificates of Approvals for the period against the target of six (6) CA’s for 183% accomplishments. Very high accomplishment was recorded because some of the Programs were evaluated last year but some rectification/revisions were done and approved only during the period in review.
4. **Annual Social Development and Management Program (ASDMP) evaluation and issuance of certificate of approval.**

The Section had evaluated and issued Certificate of Approval (CA) on forty seven (47) ASDMP’s for the period against the target of eighteen (18) CA’s for 261% accomplishments. Very high accomplishment was recorded because seventeen programs by Permit Holders operated by Omnico Natural Resources, Inc. (ONRI) and other newly approved mining permits which are not included in the universe had their ASDMP’s approved during the period in review.

5. **Annual Safety and Health Program (ASHP)**

Forty (40) ASHP’s were evaluated and approved for the CY of 2018.

6. **Environmental Work Program endorsed to MMD (EWP)**

One (1) EWP was endorsed to Mine Management Division for the renewal of the Exploration Period of Cunickel Mining and Industrial Corporation.

7. **National Greening Project**

Four (4) Consolidated Quarterly National Greening Program (NGP) Reports were submitted for the period in review. The said reports belonged to Holcim Phils, Inc., Northern Cement Corporation and Heirs of Elias E. Olegario which are holders of Mineral Production Sharing Agreement Contracts located in Bacnotan, La Union and Agno, Pangasinan, Sison, Pangasinan and Mangatarem, Pangasinan, respectively.
The Provincial Mining Regulatory Board conducts regular meetings per province. The four (4) provinces, Ilocos Norte, Ilocos Sur, La Union and Pangasinan imparted their concerns and issues to the board for deliberation and action. The Provincial Mining Regulatory Board among others, accept, process and evaluate applications and determine administrative charges and fees for Quarry, Sand and Gravel, Guano, Gemstone Gathering and Small-Scale Mining Permits.
MINING INDUSTRY AND DEVELOPMENT PROGRAM

Monitoring/Audit of Mining Permits/Contracts/Leases/Claims/JOAs (including those within Mineral Reservations) as to compliance with the Terms and Conditions/Requirements and implementation of approved Work Program/Safety, Health, Environmental and Social Development Programs

MONITORING OF WORK PROGRAM

The Monitoring and Technical Services Section (MTSS) is primarily responsible for validation of mineral reserves of mining operations, mineral statistical analysis and monitoring of the disposition and utilization of mineral lands and resources. It aims to monitor existing contracts and permits once a year to ensure full compliance of the contractors, permittees and permit holder to the terms and conditions of the approved mining contracts/permits, and other applicable mining laws, rules and regulations. Compliance monitoring also emphasizes on the implementation of the approved work program, timely submission of reportorial requirements, attendance to fiscal obligations and even employment equity.

For the period in review, MTSS has audited a total of twenty-seven (27) contracts and permits. These include fourteen (14) MPSA Contracts, one (1) FTAA Contract, one (1) Mineral Processing Permit, and eleven (11) Industrial Sand and Gravel Permits. Following the issuance of MGB MC 2018-02, otherwise known as Guidelines for Compliance Monitoring and Rating/Scorecard of Mining Permits/Contracts, dated July 3, 2018, MPSAs were monitored using the standardized Tenement (Exploration) and Tenement (Development/Operating) checklists.

The table below shows the list of contracts/permits monitored for the Calendar Year of 2018:

<table>
<thead>
<tr>
<th>Tenement No.</th>
<th>Tenement Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FTAA 06-2010-I</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
</tr>
<tr>
<td>2</td>
<td>MPP 17-001</td>
</tr>
<tr>
<td>3</td>
<td>IP 02-002</td>
</tr>
<tr>
<td>4</td>
<td>IP 13-001</td>
</tr>
<tr>
<td>5</td>
<td>IP 16-001</td>
</tr>
<tr>
<td>6</td>
<td>IP 13-003</td>
</tr>
<tr>
<td>7</td>
<td>IP 92-003</td>
</tr>
<tr>
<td>8</td>
<td>IP 13-002</td>
</tr>
<tr>
<td>9</td>
<td>MPSA 042-1995</td>
</tr>
<tr>
<td>10</td>
<td>MPSA 043-1995</td>
</tr>
<tr>
<td>11</td>
<td>MPSA 295-2009</td>
</tr>
<tr>
<td>12</td>
<td>MPSA 236-2007</td>
</tr>
<tr>
<td>13</td>
<td>MPSA 238-2007</td>
</tr>
<tr>
<td>14</td>
<td>MPSA 068-1997</td>
</tr>
<tr>
<td>15</td>
<td>MPSA 302-2009</td>
</tr>
<tr>
<td>16</td>
<td>MPSA 106-1998</td>
</tr>
<tr>
<td>17</td>
<td>IP 07-018</td>
</tr>
<tr>
<td>18</td>
<td>IP 07-017</td>
</tr>
<tr>
<td>19</td>
<td>IP 07-019</td>
</tr>
<tr>
<td>20</td>
<td>IP 07-020</td>
</tr>
<tr>
<td>21</td>
<td>MPSA 224-2005-I</td>
</tr>
<tr>
<td>22</td>
<td>MPSA 252-2007-V-Amended I</td>
</tr>
<tr>
<td>No.</td>
<td>MPSA/ISAGP No.</td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
</tr>
<tr>
<td>23</td>
<td>MPSA 200-2004-I</td>
</tr>
<tr>
<td>24</td>
<td>ISAGP 08-006</td>
</tr>
<tr>
<td>25</td>
<td>MPSA 332-2010-I</td>
</tr>
<tr>
<td>26</td>
<td>MPSA 164-2000</td>
</tr>
<tr>
<td>27</td>
<td>MPSA No. 145-99-I</td>
</tr>
</tbody>
</table>

**INTERVIEW OF PERSONNEL AND REVIEW/VALIDATION OF DOCUMENTS**

The monitoring team composed of Engr. Mario A. Pamittan, Ms. Gemmalyn G. Dyquiangco and Engr. Carl F. Dion validates the reports, proof of payments and other relevant documents/records of Janette Lao, through her authorized representative, Ms. Mildred Panabang together with Engr. Antonio Casulla. The said validation took place at the motor pool/stockpile area of Janette Lao.
The Monitoring Team validated the documents of Heirs of Elias E. Olegario. These documents ranged from proof of payments of taxes, survey plans and plant layouts, up to statistical and other reportorial requirements.
The Monitoring and Technical Services Section from the Mine Management Division (Validating Team) in coordination with the Mine Safety, Environment and Social Development Division, both of the Mines and Geosciences Bureau Region 1 conducting the Tenement, Safety, Health and Social Development Monitoring of Rigid Aggregates and Mining Corporation (MPSA 302-2009). The contractor is represented by Engr. Danilo L. Licudine, Mining Engineer and Project Manager of the corporation.
One of the parameters being monitored is the implementation of the work program particularly the mode of quarrying within the permit area. As seen during the monitoring of the industrial sand and gravel operation of R. J. Flores Construction along Naguilian River, they are undertaking systematic quarrying wherein extraction starts upstream and moving downstream.
It is essential during monitoring that discussions are made on site to fully appreciate what was reported and what could be observed on the field. Such is the case during the TSHES monitoring of Holcim Mining and Development Corporation limestone quarry operation at Barangay Quirino, Bacnotan and Barangay Paraoir, Balaoan with Engr. Romel C. Akuking, Mining and Operations Manager.
Aside from quarrying, the other half of an industrial sand and gravel operation is the processing of the extracted river aggregate materials from the permit area. It was noted during monitoring of the crushing operation of Engr. Felix P. Sanchez at Barangay Acao, Bauang, La Union that he is compliant to the work program as far as the establishment of a processing plant is concerned.

The monitoring team conducts a site inspection and interview with Engineer Antonio Casulla. The queries addressed and field verification are aimed to determine the compliance of the permit holder to its approved Tenement/Work Program.
The TSHES Monitoring Team visited the Contract Area of Gulf Estates Mining Corporation on October 16, 2018. During the field observation, no exploration/mining activities were present. The said inactivity is attributed to the under process renewal of the final exploration period of the said Contractor.

EXIT CONFERENCE

After completion of field validation, the TSHES team conducts an exit conference with the concerned officers of the Contractor as in the case of HMDC. The findings and observations are presented to the company for their comments and to seek their commitment to comply.
An exit conference was conducted between MGB Regional Office No. I Tenement/Work Program Compliance Monitoring Team and authorized representatives of Mr. Jennifer Bantolina, wherein documents and reports were validated. The company representatives were made aware of their lacking documents and non-compliances. In the end, the conference led to an agreement that Mr. Jennifer Bantolina shall submit the necessary requirements within a prescribed period.
The photo above depicts the monitoring team together with the representative of Cunicel Mining and Industrial Corporation (CMIC), Mr. Pantaleon Montero. Despite the status of the renewal of the exploration period of the MPSA being under process, the team still emphasized the Contractor’s need to comply with the submission of certain reportorial requirements and programs. In the end, a commitment to submit the lacking requirements within fifteen (15) working days from the time of monitoring (October 19, 2018) was signed between the monitoring team (on behalf of MGB) and Mr. Montero (on behalf of CMIC).
Integrated-Safety, Health, Environmental and Social Development Program Monitoring

A total of twenty seven (27) contracts/mining permits were semi-annually monitored relative to the physical and financial compliance of their approved Safety and Health Program (SHP), Environmental Enhancement and Protection Program/Annual Environmental Enhancement and Protection Program (EPEP/AEPEP) and Social Development Management Program/Annual Social Development and Management Program (SDMP/ASDMP).

(Solid Waste Management of Mr. Ignacio Baltao being checked during the ISHES Monitoring)
Ocular inspection on the contract area of Gulf Estate Mining Corporation Located in Alaminos, Pangasinan

Validation of reportorial compliances as well as updates on the status of its application for renewal of exploration period of Cunickel Mining and Industrial Corp.
Provision of construction materials for the installation of ceiling of Labayug Elementary School conference room (ASDMP 2018)

I-SHES monitoring on the SDMP implementation of Northern Cement Corporation its host and neighbouring communities
Medical apparatus (Nebulizer, Weighing scale and Spengomanometer) was provided to Brgy Acao, Bauang, La Union for the health program of Felix Sanchez.

Backfilling of the new Barangay Hall of Barangay Malabobo, Mangatarem, Pangasinan conducted by Heirs of Elias E. Olegario as their infrastructure project.
Medical mission sponsored by HEEO intended for the residents of their host and neighboring barangays. Conducted on May 23, 2018 and incurred Php 61,098.17 expenses for food medicines.

Installation of Signages for Social Development Management Program projects of HMDC in Barangay Almeida, Balaoan, La Union by Holcim Mining and Development Corporation.
Provision of multi-purpose trike to Barangay Almeida, Balaoan, La Union as sponsored by Holcim Mining and Development Corporation

I-SHES monitoring on the SDMP implementation of Holcim Mining and Development Corporation on its host and neighbouring communities
Monitoring Standard Operating Procedures (SOP) of Felix Sanchez to ensure tire pressure and proper inflation.

**Monitoring of Mining Forest Program**

Two (2) Consolidated Semi-Annual Mining Forest Program (MFP) Report was submitted for the period in review. The said report belonged to Holcim Phils, Inc., Northern Cement Corporation and Heirs of Elias E. Olegario which are holders of Mineral Production Sharing Agreement Contracts located in Bacnotan, La Union and Agno, Pangasinan, Sison, Pangasinan and Mangatarem, Pangasinan, respectively.
Occupational Safety and Health Inspection

Occupational Safety and Health Inspection (OSHI) is divided into two (2) activities the quarterly conduct of OSHI for large scale mining companies (HMDC comprising of 5 MPSA areas, NCC and HEEO) and the semestral conduct of OSHI in all MGB issued Permit Holders. The MSHS accomplished thirty one (31) OSHI for CY 2018.

Nursery and reforestation area of HMDC located in Bacnotan, La Union and Agno, Pangasinan, respectively.
Tool Box Meeting

First Aid Kit Inspection for Isla Verde Mining Corporation
Mechanical and Electrical Inspections and Permit Issuance

This activity is client dependent. For CY 2018, the MSHS conducted fourteen (14) ME/EE inspections on mining companies that filed their intention to renew permit to operate mechanical/electrical installation.

Nelson C. Chan (NCC) issued with one (1) Permit to Operate Internal Combustion Engine (ICE), one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.

Naguilian Aggregates and Development Corporation (NADECO) issued with one (1) Permit to Operate Internal Combustion Engine (ICE), one (1) Permit to Operate Mechanical Equipment/Machinery Installation and two (2) Certificates of Electrical Inspection.
Destiny Mighty Rock Corporation (DMRC) issued with one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.

RJ Flores Construction (Sudipen, La Union Plant) had a pending release of one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection. The pending issuance of permit and certificate is subject to submission of compliance report.
Heirs of Elias E. Olegario (HEEO) issued with one (1) Permit to Operate Internal Combustion Engine (ICE), one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.

North Point Aggregates, Inc. (NPAI) issued with one (1) Permit to Operate Internal Combustion Engine (ICE), one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.

North West Luzon Mining Corporation (NWLMC) issued with one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.
Destiny Mighty Rock Corporation Plant 2 (DMRC) issued with one (1) Permit to Operate Mechanical Equipment/Machinery Installation and one (1) Certificate of Electrical Inspection.

Northern Cement Corporation (NCC) issued with five (5) Certificates of Electrical Inspection and three (3) Permits to Operate Internal Combustion Engine.
Sable Le Varge, Inc. (SLVI) issued with two (2) Permits to Operate Mechanical Equipment/Machinery Installation and two (2) Certificates of Electrical Inspection.

Omnico Natural Resources, Inc. (ONRI) issued with four (4) Permits to Operate Mechanical Equipment/Machinery Installation, five (5) Certificates of Electrical Inspection, four (4) Permits to Operate Internal Combustion Engine and four (4) Permits to Operate Pressure Vessel.
Jennifer Bantolina/George C. Aquino has pending issuance of two (2) Certificates of Electrical Inspection and two (2) Permits to Operate Mechanical Equipment/Machinery Installation pending approval of ISAGP to be issued by MGB1. The approval of ISAGP of George C. Aquino was only issued on December 21, 2018. Hence, the ME/EE Permits/Certificates will be issued on January 2019.

Ignacio Balitao/N Canlas Crushing Plant has pending issuance of one (1) Permit to Operate Mechanical Equipment/Machinery Installation, one Permit to Operate Internal Combustion Engine and one (1) Certificate of Electrical Inspection pending approval of ISAGP to be issued by MGB1. The approval of ISAGP of N Canlas Crushing Plant was only issued on December 21, 2018. Hence, the ME/EE Permits/Certificate will be issued on January 2019.
Resolution of Complaints/Cases/Conflicts

1. Complaint on the alleged Illegal mining/ Treasure Hunting at Brgy. Ora West, Bantay, Ilocos Sur;

2. Unsystematic Extraction of Sand and Gravel along Bolo River within the municipalities of Bangui, Pagudpud and Dumalneg, Ilocos Norte;

3. Alleged Small Scale Mining Operation inside MAYKAN RESTAURANT, Brgy. Bautista, Caba, La Union;
4. Alleged Illegal Beach Mining along the seashore of Brgy. Quirino, Bacnotan, La Union;
5. Complaint against Mary Ann Calica re: CSAG operations in Brgy. Baraoas Norte, Naguilian, La Union;
6. Investigation on the complaint against HBMA and Mr. Primo Mariano located at Comilias South, Cervantes, Ilocos Sur and the present situation of Libeg Bridge;

9. Alleged Illegal Mining Activity at Brgy. Amaronan, Umingan, Pangasinan


11. Investigation On Illegal Quarrying Activities In Binday River, San Fabian, Pangasinan.

13. Investigation on the reported Construction Of Dike By The Dpwh Within The Isag Permitted Areas Under Operating Agreement With Omnico In Sarrat, Ilocos Norte

15. Investigation on Illegal Quarrying Activities In Binday River, San Fabian, Pangasinan (2).

16. Investigation and EVALUATION OF REHABILITATED QUARRIES ALONG BOLO RIVER IN ILOCOS NORTE AS PREREQUISITE TO LIFTING OF CEASE AND DESISTS ORDERS (CDO'S)
17. Investigation and ASSESSMENT OF THE PEBBLE PICKING ACTIVITY ALONG THE BEACHES /SHORELINES OF LUNA, LA UNION PARTICULARLY RIMOS 1, 2 AND 3.

Anti-Illegal Mining Campaign

**Cease and Desist Orders issued/implemented**

For the year, a total of sixty three (63) Cease and Desist Orders/ Suspension Orders were issued and implemented by the office.

As a result of the field investigation made by the Office and pursuant to the provisions of the Republic Act No. 7942, otherwise known as the “Philippine Mining Act of 1995”, and its Revised Implementing Rules and Regulations, as amended; or Republic Act No. 7160, also known as the ‘Local Government Code of 1991”, fourteen (14) persons were issued **Cease and Desist Order** (CDO) due to their engagement in the extraction of sand, gravel and other loose and unconsolidated materials along Bolo River without necessary permit from MGB-I or from the Office of the Provincial Government of Ilocos Norte.
The sand and gravel quarrying activities along the said river system were found to be undertaken irresponsibly, unsystematically and not in accord with the concept and parameters promoting responsible mining.
In addition, the office issued a total of 49 suspension orders to quarry and industrial sand and gravel operations in the Region on September 24, 2018. This is in view of the landslide incidents occurred in Naga City, Cebu and Itogon, Benguet.

**Charges filed with the Provincial/City Prosecutors Office**

1. Criminal complaints filed for violation of BP Blg. 265 and for theft of minerals pursuant to Section 103 of R.A. No. 7942 against individuals namely: **Lida B. Ayala, Filipino, of legal age and Mr. Francisco B. Aguinaldo, Jr., Filipino, of legal age** who are both residents address at Brgy. Magallanes, Luna, La Union in extracting / removing / performing other activities such as buying those 100 sacks of Luna pebbles (minus 5mm sizes) and 180 sacks of Luna pebbles (20-30 mm sizes) from the beach/es of Brgy. Magallanes, Luna, La Union without any permit to do so.
2. Complaints filed as to the violation of Section 103 of R.A. 7942 against TERESITA N. SIY and her driver JOHNNY PASCUAL y CLAVERIA in the extracting of minerals (500 sacks of white coralline sand) from the beaches of Burgos, Ilocos Norte and on the process of disposing the same by transporting it en route to Novaliches, Quezon City where Siy’s client is located.

Strengthen Multi-partite monitoring system

**MMT Operationalized**

Eleven (11) Multi-Partite Monitoring Teams were operationalized for the year.

<table>
<thead>
<tr>
<th>Multi-partite Monitoring Team</th>
<th>Date of Inspection 1st Qtr</th>
<th>Date of Inspection 2nd Qtr</th>
<th>Date of Inspection 3rd Qtr</th>
<th>Date of Inspection 4th Qtr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. MMT-Holcim Philippines, Inc.</td>
<td>February 19-23, 2018</td>
<td>June 4-8, 2018</td>
<td>August 23-25/August 29-31, 2018</td>
<td>November 14-16, 2018</td>
</tr>
<tr>
<td>3. MMT-Pangasinan Group III &amp; IV</td>
<td>February 21-23, 2018</td>
<td>May 15-17, 2018</td>
<td>August 15-17, 2018</td>
<td>October 18-19, 2018</td>
</tr>
<tr>
<td>4. MMT-Pangasinan Group II</td>
<td>February 8-9, 2018</td>
<td>May 10-11, 2018</td>
<td>August 9-10, 218</td>
<td>November 6-7, 2018</td>
</tr>
<tr>
<td>5. MMT-Pangasinan Group IV</td>
<td>February 27-28, 2018</td>
<td>May 24-25, 2018</td>
<td>September 4-5, 2018</td>
<td>November 13-14, 2018</td>
</tr>
<tr>
<td>6. MMT-ISAG La Union</td>
<td>February 27-March 2, 2018</td>
<td>June 5-6, 2018</td>
<td>September 18-21, 2018</td>
<td>November 13-16, 2018</td>
</tr>
<tr>
<td>7. MMT-ONRI</td>
<td>February 7-9, 2018</td>
<td>May 2-4, 2018</td>
<td>July 24-27, 2018</td>
<td>November 6-9,</td>
</tr>
<tr>
<td>MMT-ISAG Ilocos Sur</td>
<td>February 13-16, 2018</td>
<td>May 8-11, 2018</td>
<td>August 7-10, 2018</td>
<td>November 6-9, 2018</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>9. MMT-Pangasinan Group 1 &amp; 2</td>
<td>February 6-7, 2018</td>
<td>May 3-4, 2018</td>
<td>August 7-8, 2018</td>
<td>November 8-9, 2018</td>
</tr>
<tr>
<td>10. MMT-Northern Cement Corporation</td>
<td>January 30-31/February 1-2</td>
<td>April 17-20, 2018</td>
<td>August 14-16, 2018</td>
<td>October 29-30, 2018</td>
</tr>
<tr>
<td>11. Isla Verde Mining Corporation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>November 12-14, 2018</td>
</tr>
</tbody>
</table>

Multi-partite Monitoring Team (MMT) Monitoring

**001: Natural Resources Sustainably Managed – Program 2: Mineral Resources and Geosciences Development Program**

**Communication Plan for Mineral Resources and Geoscience Development**

Conduct of Awareness and Advocacy on Mineral Resources and Geosciences Development (MRGD)
Dialogues with Sangguniang Panlalawigan / Bayan / Panlungsod/Barangay:

Awareness and Advocacy on Mineral Resources and Geosciences (MRGS)

Dialogues with Sangguniang Bayan

MGB I reported significant accomplishments for the calendar year 2018 pursuant to its mandate. As part of its Awareness and Advocacy campaign for Minerals Development, MGB I remained steadfast in building and maintaining better and productive partnerships amongst its environmental partners such as the Local Government Units.

Further, MGB I acknowledges the importance of these partnerships as they take a strong role in the promotion of sustainable development on planning & implementing policies and mobilizing local public participation. Moreover, the office believes that good governance is the foundation of sustainable development particularly in the mineral-based plans and programs in the Ilocos Region.

For the year 2018, several awareness and advocacy on mineral resources were made with the different LGUs in the region to heighten their awareness and understanding on the minerals industry.

1. LGU - Aguilar, Pangasinan.

Unsystematic and indiscriminate mineral resources utilization had prompted the Local Government of Aguilar, Pangasinan to pass an Ordinance prohibiting the extraction of sand and gravel along its major creeks and rivers. Land degradation resulting in the erosion and siltation of farmlands is another concern.
During the regular session of the Sanggunian Bayan, the following discussion points were explained and discussed for the information of the Honorable SB Members relative to the Ordinance prohibiting sand and gravel quarrying within their territorial jurisdiction, viz:

A. To prohibit sand and gravel extraction along the creeks and river systems in the municipality shall not help the problem of unsystematic and indiscriminate mineral extraction in the area. The Ordinance only increases the incidents of illegal mining activities in the area. The better option therefore is for these quarry operators operating in a “guerilla” manner to be legalized for the LGU to have a better control over them.

B. Unsystematic and indiscriminate quarrying can be properly addressed by implementing an efficient monitoring protocols. The rule of law must prevail, excepting no one. It was stressed that it is only in this manner that illegal quarrying can be curbed, and the MGB may take a greater role in empowering the local officials and residents in terms of effecting apprehension and confiscation of illegally mined, extracted, removed and disposed sand mineral resources in their area.

C. The prohibition runs counter to the constitutional provision as enunciated in the declaration of policy mandating the state to promote the exploration and rational development of the country’s mineral resources at the same promoting
environmental protection and preserving options of future generations.

2. LGU – Cervantes, Ilocos Sur.

Honorable Mayor Benjamin Maggay III and the entire Sanggunian Bayan Members of the municipality were present. The discussion is focused on the opposition of the residents of the municipality to the application for exploration permit of Cordillera Exploration Company, Inc. (CExCI), the area of which covers nine (9) barangays.

Mayor Maggay informs the MGB of the following adverse impacts the application had cause to the local community, viz:

1. It has caused “division” among the local residents, thus, he urgently requested the MGB to temporarily hold the processing of said application until such time that the issue has been resolved at the local level.

2. The issue may cause disruption of the peace and order being enjoyed in the area.

3. The sentiments of the residents may be heard and given weight, letting to them to decide, considering that it is their fate and destiny that are at stake.

The MGB shares the sentiments of the Honorable Mayor, the entire membership of the Sanggunian Bayan and the people of Cervantes.
However, it was explained that the issue which concerns the settlement of the opposition raised by the Indigenous Peoples of Cervantes, Ilocos Sur is within the mandate of the National Commission on the Indigenous Peoples. The MGB is a mere “observant”.

As to the request for the temporary holding of the application, the Honorable Mayor was informed that the MGB has no legal basis to do so considering that the Philippine Mining Act of 1995 does not provide for it. The Honorable Mayor and his group was however, assured that their issues, complaints, protests and oppositions against application for Exploration Permit must have to be resolved prior to its approval.

3. LGU – Bangui, Ilocos Norte

The observations of the Honorable Secretary of the DENR on the sand and gravel quarrying/processing along Bolo River was the major point of discussion.

The LGU Officials headed by Honorable Mayor Fidel A. Cimatu was informed of the events that had transpired which led to the issuance of Cease and Desist Orders. To date, fourteen (14) Cease and Desist Orders were issued to various quarry/crushing plant operators along the said river system. The seriousness of the Honorable Secretary in protecting the river systems was echoed to the local officials.

The 2nd dialogue with Honorable Mayor Fidel A. Cimatu and the member of the Sanggunian Bayan was very engaging, informative and productive for the reason that the major focus was the preservation of
the aesthetic and ecological value of the Bolo River. DENR officials led by Regional Director Reynulfo A. Juan led the discussion and provided insights on the effects of the sand and gravel quarrying in the area without due regard to the environment thereby placing in harm’s way the lives, limbs and properties of local residents.

Among the matters discussed were:

A. The proposed Bolo River Quarry Development Plant (BRQDP);
B. The protocol for the possible lifting of the CDOs;
C. The creation of a 24/7 monitoring team;
D. The conduct of deputation seminar; 24/7 monitoring personnel;
E. The conduct of a seminar on acceptable and prescribed quarrying methodologies to promote Responsible Mining.

4. LGU– San Fabian, Pangasinan

The appearance of personnel from the MGB Regional Office No. 1 before the Members of the Sanggunian Bayan of San Fabian, Pangasinan was precipitated by the “ban” on sand and gravel quarrying in Brgy. Binday, San Fabian, Pangasinan issued by the MGB, Regional Office No. 1.

A query was posed by the local officials on the following:
a. Unabated extraction of sand and gravel in the area despite the existence of the “ban”;

b. The level of coordination between the MGB and Provincial Government of Pangasinan in terms of monitoring the sand and gravel quarrying in the area;

c. The participation of the LGU in the processing, issuance and approval of sand and gravel permits, specifically in the issuance of the required Endorsement; and

d. Possible entry points of the LGU in addressing the issue on illegal mining; and

e. Sharing of the proceeds derived from the sand and gravel quarrying in the area; and

f. Status of the boundary dispute the Municipalities of San Fabian and San Jacinto.

It was clarified that there is no ban issued by the MGB. Instead a Suspension Order was issued to certain quarry operators in the area for violations to the terms and conditions of their permits.

The dialogue was attended together with DENR PENRO Raymund Gayo of the Province of Pangasinan, DENR CENRO Celso Salazar of Dagupan City, Mr. Mixon Flores of the Environment and Natural Resources Office/Natural Resources Regulatory Group of the Province of Pangasinan.

5. LGU – Tagudin, Ilocos Sur

On July 2018, a team from the Mine Management Division participated in a dialogue with the Sangguniang Bayan of Tagudin, Ilocos Sur to
discuss the alleged illegal mining activity in Brgy. Pallogan, Tagudin, Ilocos Sur.

6. LGU – Burgos, Ilocos Sur

The Local Government of Burgos in the Province of Ilocos Norte discussed with MGB on the non-acceptance of occupation fees by Shuley Mine on October, 2018.

7. LGU – San Fabian

8. LGU – Tayug, Pangasinan

An IEC Campaign on mining was conducted in Binday, San Fabian with a follow-up investigation on the bued river issue along san Fabian, Pangasinan. Meeting with the Hon. Mayor Agabas of Tayug on Sand and Gravel activities in Agno River. Meeting with Mayor Uy of Sison, Pangasinan with the CSAG & ISAG Permittees re: sand and gravel activities within the Bued River and proposed quarry channel upstream of Bued River.

9. LGU – San Nicolas, Pangasinan,

10. LGU – Sudipen, La Union

11. LGU – San Juan, La Union

Officials from LGU San Nicolas, Pangasinan participated in the IEC on the creation of the Municipal Anti-Environment Task Force. Also, the Sangguniang Bayan meeting discussed on the issues on illegal sand and gravel quarrying in Sudipen and San Juan in the Province of La Union

12. LGU – Bangui, Ilocos Norte

Discussed with LGU officials on the result of the ocular inspection and survey of the Bolo River in Bangui, Ilocos Norte for the preparation of the Proposed Bolo River Quarry Development Plan.
The MGB Regional Office No. I is cognizant of the role played by the civil society in the implementation of mineral–based programs and projects and in the enforcement of Environment and Natural Resources laws, rules and regulations. The need to continuously solicit their proactive participation, unwavering support and cooperation is therefore imperative.

### Dialogue with other groups (Religious Groups, CSO, Academe, etc.)

The MGB Regional Office No. I is cognizant of the role played by the civil society in the implementation of mineral–based programs and projects and in the enforcement of Environment and Natural Resources laws, rules and regulations. The need to continuously solicit their proactive participation, unwavering support and cooperation is therefore imperative.

For the year, six (6) dialogues were conducted.

1. **Quarry Operators and Concerned Residents in the Municipality of Bangui, Ilocos Norte.**

   A dialogue explaining to the quarry/crushing plant operators on the impacts of their respective quarry operations to the Bolo River ecosystem and to the local residents residing within the immediate vicinity of said river system was conducted.

   An urgent call was made requiring them to immediately rehabilitate the disturbed areas within their respective permit areas. It was emphasized that sand and gravel quarrying may only resume after the necessary rehabilitation measures had been implemented and properly validated by DENR PENRO Ilocos Norte and MGB Regional Office No. I personnel.

   The quarry/crushing plant operators agreed to the terms laid out to ensure Responsible Mining is carried out in their subsequent quarrying/crushing operations.
2. Selected College Students of Pangasinan State University.

The college students were treated to a presentation on the following:

   a. Operational structure of the MGB Regional Office;
   b. Programs and projects and their impacts to the target beneficiaries;
   c. A profile of the minerals industry in the region and its direct contributions to local and regional and national economy;
   d. Linkages ad networking strategies to widen the backbone of participation of the civil society in the mineral development and utilization process.
   e. Problems and opportunities faced by the industry; and initiatives aimed at making it a catalyst for economic development at the grass root level.


A dialogue was done with personnel of the National Commission on Indigenous Peoples – Ilocos Sur Province (NCIP-IS) in relation to the status of the Free and Prior Informed Consent (FPIC) being secured by Cordillera Exploration Corporation, Inc. (CExCI), of which most of the area is in the Municipality of Cervantes, Ilocos Sur.

Initially, the Local Government of Cervantes, Ilocos Sur passed a number of Resolutions expressing their opposition to the application of CExCI for Exploration Permit.

Led by Atty. Jonathan Bansigan, OIC – Regional Director of NCIP, he informed the body of the retraction of the “YES” votes of some of the affected barangays to the proposed exploration activity. And considering that the issue has become very intense and at times resulted in the misunderstanding between and among the residents,
the NCIP have decided to momentarily stop the processing of the FPIC.

The MGB for its part committed to call CEPCI to a technical conference to get some information in relation to the extent and coverage of the “ground works” they are doing in the area.

MGB RI Regional Director Carlos A. Tayag stressing a point during the discussion with local officials headed by Mayor Fidel A. Cimatu regarding the stoppage of sand and gravel quarrying along the Bolo River.
A dialogue with the quarry/crushing plant operators and some of the affected residents was made to impress upon them the impact of the unsystematic and indiscriminate sand and gravel being done in the area and so with the actions and interventions being done by the DENR/MGB/EMB Regional Offices. DENR PENRO Victor Dabalos of the Province of Ilocos Norte giving an inspirational talk. Also present were Engr. Roland Fravalde, Atty. Mario S. Timario, Engr. Paula Blessie Morante, Engr. John Rhod Sonson, the mining engineer embedded in the Province of Ilocos Norte and Engr. Darryl Sagid of EMB RI.

**PROPOSED BOLO RIVER QUARRY DEVELOPMENT PLAN**

**THE PROPOSED BOLDO RIVER QUARRY DEVELOPMENT PLAN (PBQRDP) CALLS FOR:**

1. THE SUBDIVISION OF THE ENTIRE STRETCH OF BOLO RIVER INTO REGULAR LOTS TO BE ALLOCATED TO ALL EXISTING PERMIT HOLDERS.
2. THE SIZES OF THE LOTS SHALL DEPEND ON THE WIDTH OF THE RIVER SYSTEM. THE PRESENCE OF THE CONCRETE RIVERBANK PROTECTION STRUCTURE SHALL ALSO BE CONSIDERED.
3. DENR-PENRO IN COORDINATION WITH DSWD SHALL DETERMINE THE LAYOUT OF THE QUARRY LANE.
4. DENR-PENRO SHALL ISSUE THE CORRESPONDING ECC.
5. THE DENR ILOCOS NORTE SHALL FACILITATE THE PERMITTING PROCESS.
6. A MULTI-SECTORAL TEAM SHALL BE CREATED TO MONITOR THE IMPLEMENTATION.
The findings led to the issuance of CEASE AND DESIST ORDERS.
The MGB Regional Office No. I in close coordination with the Local Government Units takes a greater role in the monitoring on the level of compliance to the Cease and Desist Orders earlier issued. Non-compliance means non-lifting of the CDO.

Honorable Mayor Fidel A. Cimatu and some local officials were briefed on the proposed Bolo River Quarry Development Project, an initiative of the MGB regional Office No. I to address the issue on indiscriminate and unsystematic quarrying along the Bolo River.

Capacity Building
For MGB Personnel
1. Seminar on the Standardization Checklist for the Monitoring of Tenements, Safety, Environment and Social Development Programs;

2. 6th Mines Adjudication Board and Panel of Arbitrator’s Seminar-Workshop on Mining Conflict/Dispute Resolution;

3. 5th Mining Engineer’s Convention;

5. Environmental Law Enforcement Management Information System (ELEMIS) Regional Roll-Out

The Knowledge and Information System Service (KISS) introduced Environmental Law Enforcement Management Information System (ELEMIS) to facilitate the preparation of necessary documents in filing of case/s in violation of environmental laws and record all these to generate reports.

The main objective of the training program is to introduce ELEMIS as a tool to facilitate in the preparation of filing of cases for person / business that violated specific environmental laws for the Biodiversity, Forestry and Mining sector.

The seminar aims to train all DENR personnel who are involved in Law Enforcement to use the system, develop an action plan and to gather recommendation to enhance the system.

During the Seminar, the following was conducted:

- Lecture on the function and features of ELEMIS was presented by one of the members of the ELEMIS Development Team;
- Participants profile was gathered in preparation of their user credentials for the system;
- Step by step demonstration of ELEMIS was introduced for the participant’s familiarization of the system;
- Hands-on training proceeded using the existing cases brought by each agency;
- Discussion on the system issues, comments and recommendations; and
- Action Planning Workshop.
ELEMIS is a great tool especially for field personnel since the system will be available and accessible through the internet. Forms needed during seizures/confiscation or apprehension are already present in the system and are ready for printing once the information has been filled, thus saving more time. It also serves as an online data base for all the cases occurring in the country therefore enforcers could easily search if a certain violator has committed several transgressions.

During the seminar, it was observed that fields for some modules were incomplete and does not contain the necessary information needed. It was also noted that the system cannot be used on areas with no internet connection (dead spot) therefore, a suggestion of offline ELEMIS was raised. ELEMIS is indeed helpful for field personnel, especially for those who are involved in law enforcement but the system has a lot of things to improve before it is officially released.
6. 65th Annual National Mine, Safety and Environment Conference (ANMSEC)

For LGUs and other stakeholders (NGAs, CSOs, etc.) and Small Scale Miners

1. 17th Regional Mining Summit;

2. Orientation Seminar on the Standardization Checklist for the Monitoring of Tenements, Safety, Environment and Social Development Programs;
3. IEC on Centralized Records Systems of Various Mining Permits/Contracts issued by LGU and PMRB

**Radio and TV Guestings**

A total of twelve (12) Radio/TV Broadcast/Guesting were completed for the year. This includes media interviews and press conferences conducted by local media outfits in the Ilocos Region.
Generation/Publication/Dissemination of Information and IEC Materials:

MGB-1 Website www.region1.mgb.gov.ph is being maintained by the Office for better and easier access of clients to the services being offered by the Office;

Twenty four (24) articles were posted on the Website;

Three (3) IEC materials were produced, reproduced and distributed during fora, conferences, dialogues and meetings. Some were requested by walk-in clients;
Thirty three (33) Statistical Reports were prepared and submitted to MGB-Central Office;

Twenty six (26) updating of tenement maps which is done on a bi-monthly basis; and

Thirty Five (35) MRGS reports were prepared. These are the databases of the Mining Tenement Statistics Report, SHES Database Management, Mining Tenement Database, Mine Rehabilitation Fund Report.

003: ADAPTIVE CAPACITIES OF HUMAN COMMUNITIES AND NATURAL SYSTEMS IMPROVED – PROGRAM 1: GEOLOGICAL RISK REDUCTION AND RESILIENCY PROGRAM

Geohazard Assessment - Identification and Mapping of Geohazards for Critical Land Areas

1. **Vulnerability and Risk Assessment (VRA) and Updating of 1:10,000 Geohazard Maps**
The Philippines, being an island arc system; situated at the Pacific Ring of Fire and Typhoon belt at the equator, is bombarded by many geologic hazards induced by plate tectonics and extreme weather conditions that are aggravated by climate change in the recent years. As an attempt to assess the risk exposures of the people, road networks, and built-up areas to geologic hazards, more specifically, rain-induced flooding and landslide, the Mines and Geosciences launched the Vulnerability and Risk Assessment Program. The output of this program aims to give a general assessment and quick overview on the levels of exposure of each barangay to said hazards.

For CY 2018, a total of 12 municipalities, three (3) for each province in Ilocos Region, were targeted for the VRA and Updating project.

Below the list of the targeted and accomplished municipalities:

<table>
<thead>
<tr>
<th>Municipality/City</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. San Nicolas</td>
<td>Ilocos Norte</td>
</tr>
<tr>
<td>2. Vintar</td>
<td></td>
</tr>
<tr>
<td>3. Batac City</td>
<td></td>
</tr>
<tr>
<td>4. Santa Catalina</td>
<td>Ilocos Sur</td>
</tr>
<tr>
<td>5. San Vicente</td>
<td></td>
</tr>
<tr>
<td>6. San Emilio</td>
<td>La Union</td>
</tr>
<tr>
<td>7. Aringay</td>
<td></td>
</tr>
<tr>
<td>8. Bacnotan</td>
<td>Pangasinan</td>
</tr>
<tr>
<td>9. Nagulian</td>
<td></td>
</tr>
<tr>
<td>10. Alcala</td>
<td></td>
</tr>
<tr>
<td>11. Calasiao</td>
<td></td>
</tr>
<tr>
<td>12. Binmaley</td>
<td></td>
</tr>
</tbody>
</table>

The said assessment consists of two components namely: data gathering and Geographic Information System (GIS) analysis.
A. Data Gathering

During assessments, spatial and non-spatial data were gathered from both Municipal and Barangay Government Units. The 1:10000 scale Geohazard maps were updated and validated by obtaining geographic coordinates of barangay halls or multi-purpose halls, schools, churches, hospitals or health centers and other critical infrastructures for each barangay and historical data of the occurrence of rain-induced landslides and flooding gathered through interviews of barangay officials in every barangay.

Site visits of areas prone or affected to/by landslide and flooding provide a more detailed information of the current situation of the barangay. Changes in conditions through the years were also gathered from anecdotes of locals to discern the worst-case scenario that the area has experienced to provide a proper rating of the hazard susceptibility.

One of the main hitches encountered during the conduct of the assessment is the gathering of data provided by the LGU. On several occasions, the interviewees or barangay officials are unavailable or preoccupied with an equally important task and for another, it is difficult to obtain data/updated information from these concerned officials (exempli gratia: population data).

B. Data Processing

Using the updated geohazard maps as the main basis, the data gathered will serve as thematic layers that are processed and interpreted using a software called Arcgis 10.3 to generate the risk exposure maps. The output maps produced provide information regarding the exposure of different elements, namely: population, road network, and built-up areas to different flood and landslide hazard susceptibility which may be utilized by the municipality/city in their comprehensive land use planning, development and infrastructure projects and disaster and risk management programs.
Integral part of the VRA is the conduct of interview with the LGU. Data gathering with Barangay Kagawad and Chairman of different Barangays.

Affect
ed
Areas that are vulnerable to rain-induced landslides among the targeted municipalities are generally along road cuts in mountainous region commonly along the eastern highlands of Ilocos region, several barangays along Bacnotan, La Union are also prone to landslides due to high elevation. On the other hand, target municipalities in Pangasinan are situated in low elevation which makes them prone to different flood susceptibility. Similarly, areas situated near peripheries of main river channels or small tributaries and coastal regions are prone to low to very high flooding.
2. **Ground Subsidence Assessment**

The Mines and Geosciences Bureau (MGB) of the Department of Environment and Natural Resources Regional Office No. 1 (DENR Region 1) has expanded its National Geohazard Mapping and Assessment Program to include Karst Subsidence Mapping and Hazard Assessment in areas of the country that are characterized by Karst topography. Thus, during the period, March 16-26, 2018 and April 16 to May 7, 2018, Karst Subsidence Mapping and Hazard Assessment was conducted in the Municipality of Bolinao, province of Pangasinan.

A solution sinkhole located at Purok 2 in Barangay Patar. Situated inside Costa Del Fuego Resort and within the intersection of geographic coordinates 16°18′13.5″N latitude and 119°46′47.9″E longitude. Presence of underground river channel was observed in the photo with multiple cave windows.
The main objective of the said survey and assessment is to identify and locate existing sinkholes as well as to delineate areas of possible sinkholes, in order to produce sinkhole inventory and Karst subsidence susceptibility map. It also aimed to increase awareness on sinkholes and other Karst subsidence hazard, and to issue threat advisories to LGUs and recommend possible prevention and mitigation relative to the hazard.

3. Production of Geohazard Maps

Geohazard IEC Materials Dissemination

IEC materials consisting of maps (324), posters (1,050), VCD (60), pamphlets and/or flyers (572) on “BAHA” and “GUHO” were distributed to LGUs, students and clienteles. Geohazard maps with a scale of 1:10,000 scale were uploaded in the website. Advisories were
likewise re-issued to all cities and municipalities in the region. Two (2) signages were also installed in Brgy. Amigued, Candon, Ilocos Sur.

4. Capacity Building

   a. Sir Socrates G. Gaerlan attended on Seminar Workshop on Strategic Planning for Marine Geological Survey and Research last January 22-25, 2018 at Tagaytay City;

   b. Sir Socrates G. Gaerlan together with Ms. Vilma A. Vecino, Zipporah Seth A. Oliveros, Louie Francis U. Oliver, Clara Mia P. Namingit and Mr. Crispin G. Ebuen, Jr. attended the Geoscience Workshop of the Mines and Geosciences Bureau which was re-scheduled on February 1-7, 2018 at Patio De San Jose, Malilipot, Albay as per amended Special Order 2018-19 dated January 30, 2018;

   c. Ms. Vilma A. Vecino attended the forthcoming consultation workshop with the National Economic Development Authority (NEDA) in tracking up the steps in the formulation of SIAD Action Plan for the Cabugao Watershed at the Municipality of Cabugao, Ilocos Sur on February 7-8, 2018;

   d. Mr. Crispin G. Ebuen Jr. attended the Training Program on GEOVIA SURPAC scheduled on March 5-14, 2018 as per Special Order No. 2018-47 held at Selah Garden Hotel Park, Pasay City;
e. Sir Socrates G. Gaerlan together with Mr. Louie Francis U. Oliver attended the Basic Training in Safety Of Life At Sea (SOLAS) scheduled on March 21-26, 2018 as per Special Order 2018-61 at Angeles City, Pampanga;


h. Sir Socrates Gaerlan and Louie Francis Oliver attended to the training on open water scuba diving in connection with the "Geological studies mineral exploration of the Philippine rise project" on Dec. 13-20, 2018
Conduct of IEC to LGUs

**SEMINARS/ WORKSHOPS FOR LGUs**

In order to increase awareness and provide additional technical input to the LGU regarding Risk Exposure Analysis and its importance to attain sustainable development through comprehensive land-use, development and disaster risk management planning, Information, Education and Communication Campaign for VRA project was conducted.

**IEC ON VULNERABILITY RISK ASSESSMENT (VRA) MAPS**

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>DATE</th>
<th>NUMBER OF BARANGAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vigan City, Ilocos Sur</td>
<td>April 26-28, 2018</td>
<td>39</td>
</tr>
<tr>
<td>2. Candon City, Ilocos Sur</td>
<td>April 19-21, 2018</td>
<td>42</td>
</tr>
<tr>
<td>3. Santa, Ilocos Sur</td>
<td>April 23-25, 2018</td>
<td>26</td>
</tr>
<tr>
<td>4. Urdaneta, Pangasinan</td>
<td>May 24-26, 2018</td>
<td>34</td>
</tr>
<tr>
<td>5. Villasis, Pangasinan</td>
<td>May 9-11, 2018</td>
<td>21</td>
</tr>
<tr>
<td>6. Alaminos City, Pangasinan</td>
<td>May 29-31, 2018</td>
<td>39</td>
</tr>
<tr>
<td>7. Dagupan City, Pangasinan</td>
<td>July 18-20, 2018</td>
<td>31</td>
</tr>
<tr>
<td>8. City of San Fernando, La Union</td>
<td>July 24, 2018</td>
<td>59</td>
</tr>
<tr>
<td>9. Mangaldan, Pangasinan</td>
<td>August 2-4, 2018</td>
<td>30</td>
</tr>
<tr>
<td>10. San Nicolas, Pangasinan</td>
<td>August 7-11, 2018</td>
<td>23</td>
</tr>
</tbody>
</table>
11. Santa Maria, Pangasinan  
August 7-11, 2018  
33

12. Laoag City, Ilocos Norte  
October 17-19, 2018  
80

**LECTURES PRESENTED**

1. Lecture on Geohazards last January 17-19, 2018 at Barangay Namalangan, Rizal, Sacuya, Santa Ilocos Sur as part of their Development of Mining Technology and Geosciences (DMTG) of Ms. Jennifer Bantolina. (Socrates G. Gaerlan/Randie Ceasar A. Apilado);

2. Ms. Vilma A. Vecino attended as Lecturer / Learning Service Provider to discuss on the topic “Geohazard Assessment Groundwater Assessment and Responsible Mining “ which is scheduled on February 15, 2018 as per invitation of PENRO La Union who will be conducting a Learning
Event on Environmental and Natural Resources (ENR) Concerns on February 13-15, 2018 at Puerto San Juan Resort, San Juan, La Union;

3. Ms. Vilma A. Vecino attended as lecturer/speaker re: “Understanding Geological Hazards and Understanding Landslides and Subsidence Hazards” on the Two-day DRRM Course for Cooperative Sector for the Province of Ilocos Norte held at Rivermount Hotel and Resort, Brgy. 18, San Isidro, Sarrat, Ilocos Norte last February 22-23, 2018;

4. Ms. Vilma A. Vecino attended as lecturer/speaker re: “Understanding Geohazards” and “Geohazard Map Reading” and “Rain Induced Landslides” on the One Day DRRM Management Course for Women Sector for the Province of La Union held at Oasis Country Resort, San Fernando City last March 6, 2018;

5. Mr. Socrates G. Gaerlan attended as Resource Speaker re: “Building Climate Change Resiliency in the Coastal and Marine Environment:
6. Mr. Socrates G. Gaerlan attended as Resource Speaker on the “Workshop for the Formulation of Foreshore Area Management and Development Plan RE: Resource Profiling and Mapping” to discuss the results of geologic analysis of the region which will be used as part of the baseline data for the foreshore baseline mapping last April 12-13, 2018 at Dagupan Village Hotel, Dagupan City;

7. Ms. Vilma A. Vecino attended as Subject Matter Expert/Lecturer re: "Understanding Geological Hazards and Understanding Landslides and Subsidence Hazards" on the two-day Disaster Risk Reduction and Management (DRRM) Course for Workers in the Informal Sector of the Province of Ilocos Norte on May 3-4, 2018 at Rivermount Hotel, Sarrat, Ilocos Norte;

8. Ms. Vilma A. Vecino attended as Subject Matter Expert (SME) to discuss the topics on “Understanding Geological Hazards and Understanding Landslides and Subsidence Hazards” on the One-day Basic Disaster Risk Reduction and Management Training for Youth and Student Sector scheduled on May 23, 2018;

9. Ms. Vilma A. Vecino attended as Resource Speaker in the DRRM Training Course for Senior Citizens in Dagupan City and facilitate topics for the World Vision’s Training on Disaster Preparedness in Lingayen last June 18-20, 2018; and
10. Ms. Vilma A. Vecino attended as Subject Matter Expert (SME) to discuss the topics on “Understanding Geological Hazards and Understanding Landslides and Subsidence Hazards” on the One-day Disaster Risk Reduction and Management Training for the Victims of Disaster in Sector of Ilocos Norte (June 25-27, 2018).

11. MGB Regional Office- I Ms. Vilma Vecino acted as resource speaker in COA San Fernando La Union Re; the topics on Understanding Geological Hazards and Hydro-Meteorological Hazards on October 08,2018.

12. On October 22 to 23, 2018, Ms. Vilma A. Vecino acted as Resource Speaker regarding the “Overview of Geohazards in Region I” to strengthen the disaster preparedness and resilience as per invitation of DepEd Divisions.

13. Ms. Vilma A. Vecino attend as Resource speaker at San Juan LU gender mainstreaming program of Benguet State University basic concepts of geohazard.
Coastal Geohazard

Mines and Geosciences Bureau – Regional Office No.1 Coastal Geohazard Assessment and Mapping Team conducted surveys along the coastal area/barangays in the province of Ilocos Norte.

The general purpose of this study is to investigate the coastal erosion, accretion and other coastal geohazards that could cause vulnerable impacts on the residents situated along the coastal areas. Thus, this study creates an effort to help or at least mitigate the possible effects of these hazards identified in the area. In this manner, the observations of the residents are collected through interview to further establish a conclusion that could define the past coastal setting in their area.
The historical accounts are also collected during the survey which includes the coastal geohazards that are present in the area and personal view of the residents about hazard mitigations. The Beach Profiling Program was also done by the team to determine the present outline or slope of the beach through the implementation of Emery Method. The data collected are used to compare the beach slope to other areas. The beach profiling program was done only in areas where beach are exposed both in the mainland and island barangays.

The study shall benefit the local residents and Local Government Units in promoting awareness to the Coastal Hazards in their area and also possible mitigations that could lessen the effects of identified coastal vulnerabilities.

Ten (10) Municipalities/Cities were surveyed and given threat advisories. These municipalities are:
1. Badoc, Ilocos Norte;  
2. Currimao, Ilocos Norte;  
3. Bangui, Ilocos Norte;  
4. Pagudpud, Ilocos Norte;  
5. Burgos, Ilocos Norte;  
7. Bacarra, Ilocos Norte;  
8. Laoag City Ilocos Norte;  
9. Paoay Ilocos Norte; and  
10. Pinili, Ilocos Norte  

The team conducted beach profiling and coastal tracking along the coastlines of Burgos, Ilocos Norte. Coordinates: 18° 30' 02.9"N  120° 34' 05.0"E (Paayas)  

13. Geologic Mapping  

Geologic quadrangle mapping is one of the priority projects of the Government under the Geological Assessment Program of the Mines and Geosciences Bureau (MGB) Regional Office I. This project is being conducted in order to produce and complete geological maps of the Region I.
The generated 1:500 scale geologic maps will serve as the base map for other geological surveys like geo-hazard assessment, hydrogeological survey and other geological resources mapping and can be used for land use development planning of the local government units (LGUs).

**SURVEYED AREAS**

There are three (3) updating quadrangle maps and two (2) no data quadrangles that were accomplished this year 2018 by the quadrangle mapping team of Geosciences Division. The three (3) updating quadrangles with unpublished geological maps are the areas of **Sinait, Cabugao** and **Vigan** Quadrangles while the two (2) no data quadrangles are the areas of **Solsona** and **Maruayo** Quadrangles.

On March 20 to March 28, 2018, a team of geologists from Mines and Geosciences Bureau – Regional Office No. 1 conducted geological mapping in **Sinait** Quadrangle. This quadrangle is bounded by Geographical coordinates of North 17° 50' 00" – 18° 00' 00" Latitude and East 120° 15' 00" – 120° 30' 00" Longitude. Sinait Quadrangle comprises of four (4) municipalities such as Sinait, Badoc, Pinili and Currimao in the provinces of Ilocos Sur and Ilocos Norte.

On April 17 to May 31, 2018, the office conducted a geological mapping in **Solsona** Quadrangle. Solsona Quadrangle is bounded by geographic coordinates of 18°10'0" to 18°0'0" North latitude and 120°45'0" to 121°0'0"
East longitude. Solsona Quadrangle covers the municipalities Solsonsa, Piddig, Carasi, Dingras, Marcos and Nueva Era, province of Ilocos Norte.

On July 2 – 30, 2018, we have conducted geological mapping in Cabugao and Vigan Quadrangles. Cabugao Quadrangle covers the municipalities of Magsingal, Santo Domingo, San Juan, and Cabugao in Ilocos Sur. It is bounded by Geographical coordinates of North $17^\circ 40' 00''$ – $17^\circ 50' 00''$ Latitude and East $120^\circ 15' 00''$ – $120^\circ 30' 00''$ Longitude. Likewise, Vigan Quadrangle covers the Municipalities of Magsingal, Santo Domingo, San Ildefonso, San Vicente, Bantay, Santa Catalina, Caoayan, Santa, and the City of Vigan, in Ilocos Sur. This quadrangle is bounded by geographical coordinates of North $17^\circ 30' 00''$ – $17^\circ 40' 00''$ Latitude and East $120^\circ 15' 00''$ – $120^\circ 30' 00''$ Longitude.
On September 19 to October 15, 2018, we conducted geological mapping in the Province of Ilocos Norte covering the areas of Maruyao Quadrangle. Maruyao Quadrangle covers the Municipalities of Carasi, Piddig, Vintar, Solosona, and Nueva Era. It has geographical coordinates of North 18° 10’ 00” – 18° 20’ 00” Latitude and East 120° 45’ 00” – 121° 00’ 00” Longitude.

An outcrop of tilted Laoag Formation exposed along the road of Barangay Baracbac, Sinait, Ilocos Sur. This unit is described as thickly interbedded calcareous sandstone and siltstone striking towards N 37° W direction and gently dipping at an angle of 40° NW.
1. METHODOLOGY

The step by step methods implemented during the conduct of Geologic Quadrangle Mapping.

Recent field verification of Sinait Quadrangle has been confirmed that the (4) lithologic units drawn in the previous (unpublished) map are true and correct. These formational units are namely (from oldest to youngest); Ilocos Peridotite, Laoag Formation, Uplifted Corals and Quaternary Alluvium.

In Solsona Quadrangle, it was noticed that most of the formational units are controlled by episodic diorite intrusions. However, further field verification of the area is highly recommended in order to complete the geologic map of the area. Based on the initial geological field data there are five (5) formational units in Solsona Quadrangle namely (from oldest to youngest);
Ilocos Peridotite, Bajeador Formation, Gabbro Complex, Diorite Complex and Quaternary Alluvium.

On the other hand, field verification of the Cabugao Quadrangle was confirmed that some of the formational units described in the previous (unpublished) geological map are incorrect. Recent geological mapping conducted in this quadrangle confirmed of at least four (4) formational units in the area namely (from oldest to youngest); Pasuquin Limestone, Laoag Formation, Uplifted Corals and Quaternary Alluvium.

Thickly inter-bedded calcareous sandstone and siltstone exposed along the river of Brgy. Repaak, Cabugao, Ilocos Norte.
In contrast, Vigan Quadrangle was confirmed that all the formational units and geological structures drawn in the previous (unpublished) geological map are true and correct. Based on the recent geological field verification, there are five (5) formational units in the area namely (from oldest to youngest); Bojeador Formation, Pasaleng Quartz Diorite, Pasuquin Limestone, Laoag Formation and Quaternary Alluvium.

Meanwhile, based on the initial geological field data gathered in Maruayo Quadrangle there are five (5) formational units were identified in this area namely (from oldest to youngest); Ilocos Peridotite, Bangui Formation, Magabobo Limestone, Cordillera Diorite Complex and Quaternary Alluvium. However, field mapping of the eastern side of the quadrangle and petrographic analysis are highly recommended to properly establish the rock ages of the lithologic sequence in the area and also to complete its geological map.

There are several difficulties may have experienced during the geological assessment. For quadrangle mapping, you may encounter conflicts such as bad weather conditions, poor road networks, varying topography of the mapping area especially those elevated areas, communication during courtesy call when the municipal officers are not around, hiring of laborers which is time consuming, safety in remote areas and health issues when you can only drink water from the river. In fact, these difficulties are the cause of
delay on decision making, strategic plan for field mapping, gathering of field data and field analysis.

14. Mineral Resource Inventory

Mineral Resource Inventory Map of Region I

15. Groundwater Resource Assessment

For the CY 2018, the Mines and Geosciences Bureau Regional Office No. 1 was tasked to conduct Hydrogeological Assessment Survey on the Province of Abra. Under Special Order No. 2018-89, with the subject “AUTHORIZING CERTAIN PERSONNEL OF THE MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. 1 TO CONDUCT HYDROGEOLOGICAL ASSESSMENT SURVEY IN THE PROVINCE OF ABRA, CORDILLERA ADMINISTRATIVE REGION”, the MGB R01 was assigned to assess the 27 municipalities of Abra.
The Hydrogeological Assessment Survey was undertaken to determine the availability and quality of groundwater in the various rock units / geologic formations in the entire country; establish the quality/chemistry of groundwater in groundwater basins; establish the potentials and limitations of available groundwater in the various groundwater basins; and assess groundwater vulnerability of aquifers in the country.

The activities of this assessment include systematic collection of geologic, hydrologic and meteorological information; and field surveys to cover all the municipalities within the province.

Well inventory survey includes measurement of the well depth and static water level. Other vital information gathered were the location of the well and use of the water source. On the other hand, for the spring inventory survey, the location of the spring source, as well as the type of rocks which hosts the spring. Samples were collected from wells and springs. Collected samples were then subjected to the water quality analysis using a Hach meter for the water quality analysis.

Pump well and dug well were measured by using a battery operated water level indicator to measure the well depth and depth to groundwater.
A geophysical survey was also conducted to be able to get a glimpse of the underlying geologic formations on the assessed areas. It provides deduced information on the type of rock based on resistivity values and the potential water-bearing characteristic of these rocks.

A hand held GPS is used to record the geographic location of wells and springs. Chemical analysis using the Hack meter was done to water samples to measure the TDS, conductivity, temperature, and salinity level.

In conducting the assessment, few challenges arose which made accomplishing the targets difficult. Some of the highland municipalities (Tineg and Lacub) have poor and lacking road network systems. Remote barangays inaccessible by the available road networks were reached through walking, that travelling to barangays may take almost a day. The unpredictable weather during the rainy season also made the traverse to the spring sources tough. Security problems were also encountered on some of the highland municipalities which caused delays on the fieldwork. In addition, the water testing kit used during the course of the fieldwork was fragile.
Using the static water level of the wells surveyed, piezometric contour maps (water table contours) were produced. In addition, a hydrogeologic map of the Province of Abra, which shows the hydrogeologic properties of the lithologic formations and their distribution on the study area, was generated. These maps will be incorporated on the final report.

Outcrops of rock formations along and within the vicinity of the springs were observed and studied. Its physical characteristics, particularly its porosity and permeability were observed. Based on the conducted field survey, majority of the springs of the northeastern Abra occurs along weathered and fractured zones of the igneous rocks.

**Miscellaneous Geological Services**

1. **Geological Site Scoping on the proposed Sanitary Landfill Site located at Barangay Tangaoan, Sta. Maria, Ilocos Sur last January 4-6, 2018.**

2. **Geological Site Scoping on the Proposed Sanitary Landfill Site located at Barangay Talogtog, San Juan La Union last January 18-19, 2018.**

4. Hydrogeological and Georesistivity Survey at Sentinella Hill of Bangui, Ilocos Norte as per request of Mayor Flidel Cimatu of Bangui, IN last February 13-16, 2018.


6. Geological assessment and test pit inspection in the proposed sanitary landfill site in the City of San Fernando City, La Union last March 1, 2018.


The assessed expansion site of the Sanitary Landfill of Agoo is located along the northwest of the SLF. As can be seen, leachate and gas pipes are already installed, and dumping of waste materials was already conducted.


Soil Sampling on the proposed site to see if the clay is enough for a liner.


20. Sir Socrates G. Gaerlan, Randie Ceasar Apilado and Lester T. Valdez conducted geological site scoping on the proposed eco-tourism area in Barangay Lucap, Alaminos City, Pangasinan.


24. Sir Socrates Gaerlan conducted geological site scoping on the Earthfill Dam Project of the National Irrigation Authority (NIA) located in Barangay Sulvec, Municipality of Pasuquin, Ilocos Norte.

26. Sir Socrates Gaerlan, Randie Ceasar Apilado conducted geological site scoping in Camantiles Island in Brgy. Pandan, Alaminos City Pangasinan on October 12-14, 2018

27. Sir Lester T. Valdez and Ricky B. Corono conducted geological site scoping for the proposed sanitary landfill located at Umingan, Aguilar and Mangatarem, Pangasinan on October 22-27, 2018.

28. Sir Randie Ceasar Apilado and Louie Francis Oliver conducted an geological assessment in the proposed sanitary landfill in Salcedo, Sinait and Bantay Ilocos Sur on October 22-27, 2018.

29. Sir Randie Ceasar Apilado and Louie Francis Oliver conducted geological site assessment on the proposed Sanitary Landfill in Barangay Sengngat, Municipality of Sudipen La Union.

30. Sir Socrates Gaerlan and Lester Valdez conducted geological site scoping in Sentinella Hill on Nov. 27-29, 2018


33. Sir Yancey Seve Guinto conducted geological site scoping in the operation of cottages along Pila river, Barangay Pacalat, Mangatarem Pangasinan.
I. MGB I unite for National Women’s Month Celebration

WOMEN MAKE CHANGE – In celebration of the National Women’s Month 2018, personnel from the Mines and Geosciences Bureau Regional Office No. 1 actively participated in the walk for gender equality organized by the Region 1 Advocates for Gender Equality (R.A.G.E.) on March 2, 2018 at the Don Mariano Marcos Memorial State University-Mid La Union Campus. The theme, “We make change. Work for Women” highlights the empowerment of women as active contributors to and claimholders of development. This theme is constant from 2017-2022 where it also showcases the pursuit of development anchored in the commitment of “Malasakit at Pagbabago” or true compassion or real change. After the fun walk activity, RAGE-1 President Dr. Cherry May Laroco rendered her message on advocating women empowerment and addressing gender issues and concerns. After which, a fitness session titled Hataw ni Juan at Juana was spearheaded by personnel
from the Ilocos Training and Regional Medical Center (ITRMC) where it was engaged by various offices and agencies who took part in the said event. A talent exhibition of these agencies was also witnessed after. Several more activities are set through the Gender and Equality (GAD) program for this year’s celebration of Women’s Month.

II. DENR-1 showcases women exemplar in natural resources in National Women’s Month

SAN FERNANDO CITY, La Union – As part of the month-long celebration of the National Women’s Month, the Department of Environment and Natural Resources-I, Mines and Geosciences Bureau-I and Environmental Management Bureau-I conducted a forum showcasing women exemplar in the field of natural resources on March 15, 2018 at the DENR-1 Social Hall.
Along with this, a bazar featuring products from different people’s organizations in the region was established in the parking area of the DENR-1 building. This also includes services and products of persons with disabilities (PWDs). The ribbon cutting ceremony was led by ARD Gwendolyn Bambalan, ARD Leduina Co, EMB-1 Regional Director Ma. Victoria Abrera and Director Lourdes Wagan.

After which, the forum followed; GAD champion, ARD Gwendolyn Bambalan rendered the opening remarks to the participants which were composed of DENR, EMB and MGB employees, as well as members of people’s organizations in the four provinces of the Region.

This year’s theme “WE Make Change Work for Women” ensures that men and women will be partners in the pursuit of the country’s economic, social, cultural commitment of Malasakit at Pagbabago or True Compassion and Real Change. Guest speaker Director Wagan shared that women empowerment enables one to confidently engage to various programs and activities which enable everyone to benefit from development and change.

To give a glimpse on the GAD activities and best practices of the People’s Organizations and National Government Agencies (such as DENR-MGB, DENR-EMB, TESDA, DMMMSU and DA) various women leaders presented and discussed. While, a representative from the Department of Science and Technology (DOST) gave the some tips on how to further improve their respected GAD activities in the future.

ARD for Management Services Leduina Co wrapped up the said forum where she thanked the active participation of everyone in one of the event highlights of the celebration of the National Women’s Month. Further, she encouraged everyone to continue supporting Gender and Development activities and programs to increase empowerment both to men and women.
III. TRAINING ON ENHANCED GENDER MAINSTREAMING EVALUATION FRAMEWORK ON APRIL 2-6, 2017 AT THE MICROTEL BY WYNDHAM IN DILIMAN, QUEZON CITY

The Mines and Geosciences Bureau through the GAD Focal Point System (GFPS) conducted the said 5-day training which also included members of the GAD Regional Technical Working Group.

It aimed to increase the knowledge of the participants on the GMEF which is a tool to measure the extent of the gender mainstreaming efforts of organizations, National Government Agencies and Local Government Units. It is also meant to assist the GFPS members in measuring gains and success, as well as pinpoint areas for improvement in the way they mainstream the gender and development in their organization.

Ms. Lorenza A Umali, a GAD Specialist and Lead Facilitator of the said training presented and discussed the historical background of the GMEF as well as the Entry Points on Gender Mainstreaming, Levels of Gender Mainstreaming, GMEF Descriptors per entry point, Accomplishing GMEF questionnaires, Analyzing Results and Means of Verification. In the Enhanced GMEF, new and emerging gender issues, new policy issuances (especially the Magna Carta of Women) are take into account and outdated indicators in the old tool were revised. It has also adopted the scoring system of the Harmonized Gender and Development Guidelines (HGDG) of “No”, “Partly Yes” and “Yes” instead of denoting only the absence or presence of a GAD element.

Participants were grouped into 3 for the hosting of the day to day workshop.

On the next day, Ms. Umali discussed the People Descriptors which was followed by the workshop on the assessment of the said entry point. Participants later presented the outputs on the workshop which were then subjected for critiquing. Participants came up with scores using the new scoring system which takes into consideration the GAD efforts of the organization that are still underway, such as draft policies and plans to establish GAD mechanisms.
On the 3\textsuperscript{rd} and 4\textsuperscript{th} day of the training, workshops on the assessment of Enabling Mechanism entry point, Policy entry point and Programs, Activities and Projects (PAPs) were done. Outputs for the workshops were again presented and critiqued. Scores were then compiled and determined the level of gender mainstreaming per region. These levels include Level 1: Foundation Formation; Level 2: Installation of Strategic Mechanisms; Level 3: GAD Application; Level 4: Commitment Enhancement and Institutionalization; and Level 5: Replication and Innovation. Each workshop determines the level of gender mainstreaming (per entry point) of each regional office.

On the final day of the training, results were consolidated and scores were interpreted. A plenary discussion on the identification of GAD Activities for 2018 onwards based on GMEF Results was also done. Then Ms. Umali presented the synthesis of the training.

MGB GAD Focal Person Ms. Cherry Liz Solijon expressed her gratitude to the participants for actively engaging in the workshops which resulted into an interactive discussion.

Ms. Lorenza A. Umali discussing the enhanced GMEF to participants
IV. MGB 1 personnel undergo Gender Sensitivity Training

In line with the month-long activities of the celebration of the National Women’s Month, the Mines and Geosciences Bureau Region 1 conducted another Gender Sensitivity Training (GST) for more or less 20 personnel last March 27, 2018 at the Oasis Country Resort in San Fernando City, La Union. The said training aimed to mainstream gender concerns to make women’s and men’s concerns as an integral dimension of the design, implementation, monitoring and evaluation of the policies and programs as mandated under Republic Act. No. 9710 or the Magna Carta of Women.

OIC Regional Director Carlos A. Tayag encouraged everyone to participate and engage in the said activity to increase their knowledge in Gender and Development. Also, this was done to open up communication between men and women to bring mutual understanding and respect of each other’s role. It shall also serve as a venue to discuss on the gender issues and have a clear understanding of the problems and issues within the current social and cultural content.

DENR-1 Assistant Regional Director for Technical Services and GAD chairperson Gwendolyn C. Bambalan served as the lead facilitator for the said training. The discussions focused on the in depth definition of sex and
gender, situation of men and women then and now, gender biases, major GAD policies and laws, and Magna Carta of Women.

MGB-1 GAD focal person Haydee Ofiaza expressed her sincere gratitude to the participants and speaker for the training. She mentioned that the training is a big step to the more activities for GAD advocacy.

The training concluded with the awarding of awards to the participants such as the most participative, early bird and leadership award.

V. Gender and Development (GAD) bulletin board maintained at the MGB Conference Hall

The GAD Focal person established and maintained a bulletin board intended for employees featuring Gender related reports and concepts like 2018 Accomplishment report, Gender Stereotypes and birthday celebrants for the month.

Another bulletin board will be established this month to be placed in the DENR lobby intended for clients containing readily available IEC materials.

VI. Participation of women in the Information Education and Communication Campaign

The Geosciences Division of MGB ROI conducted Workshop on Vulnerability and Risk Assessment and Geohazard Mapping at La Union, Pangasinan, Ilocos Norte and Ilocos Sur. The invitation letter to barangays reiterated the participation of at least two (2) women barangay officials to attend the said workshop. Part of the program was discussion of GAD concepts and Violence Against Women and Children (RA 9262). At least 500 IEC materials for GAD were distributed to the participants.
VI. Participation of women in Disaster Risk Reduction Management (DRRM)

On August 23, 2018, Ms. Vilma A. Vecino, Senior Geologist was invited by the Benguet State University (BSU) employees to be a resource speaker in their Gender Sensitivity Training held in The Final Options, San Juan, La Union. She discussed the importance of women participation in DRRM and IEC materials were distributed like flashlights, t-shirts, fans, etc. to active participants.

VII. Participation in 18-day Campaign to End Violence Against Women (VAW)

The Region 1 Advocates for Gender Equality (RAGE-1) hosted different activities to be participated by government agencies in Region 1 in relation to the 18-day Campaign to End Violence Against Women.

A tarpaulin designed by the Philippine Commission on Women (PCW) was displayed in front of MGB RO1 building to signify its participation in the said advocacy.

On November 23, 2018, the two employees joined the Forum on Violence Against Women (VAW) held by the Bangko Sentral ng Pilipinas which was spearheaded by the Ilocos Training and Regional Medical Center (ITRMC) employees.
On December 12, 2018, Ms. Rosabel Gacayan and Ms. Rhodora Ramos joined the Quiz Show while Mr. Christopher John Orteza joined the Poster Making Contest held at the ABC Hall, City Government of San Fernando.

**VIII. Maintenance of Gender-Disaggregated Database of Employees**

MGB ROI designed an Employee Database System made from Microsoft Access. All information regarding an employee can be viewed and generated out of the system including Personal Data Sheet, Appointment and other requirements.
IX. MGB Region 1 conducts Training on Jewelry Making for Pebble Pickers of Luna La Union

SAN JUAN, La Union – In line with the Gender and Development programs and to enhance the role of women in economic empowerment, the Mines and Geosciences Bureau I conducted a training a Training on Jewelry Making on December 15, 2018 at Planet G, San Juan La Union. This activity involved pebble pickers from Luna, La Union.

This is to support local micro entrepreneurs and improve their product design and market strategies. It also highlighted the importance of building capacity of pebble pickers as entrepreneurs, providing assistance to improve their products to target specific market needs and facilitate improvements in competitiveness of their business. Likewise, it intended to promote economic leadership and empowerment so that they may realize the benefits from entrepreneurship.
MGB-1 Regional Director Carlos A. Tayag welcomed the participants and encouraged them to be more proactive in their involvement as such. Further, he stated that the MGB will continue to support and initiate activities for gender and development.
MGB 1 supports programs for the differently abled

SAN FERNANDO CITY, La Union – The Mines and Geosciences Bureau Region Office No. 1 conducted a Learning Event on Basic Sign Language on November 29, 2018. This was also done in observance to the International Day of Disabled Persons on December 3, 2018. This is with regards to delivering basic services to clients, increase knowledge and understand people with disabilities and to improve attitudes towards differently abled clients.

This activity gives the MGB personnel an opportunity to acquire knowledge about the deaf and mute community as part of the society. It was designed to develop a multidisciplinary approach in the areas of language, culture and history.

MGB personnel learned the basics of sign language as well as interacted with deaf and mute students of La Union SPED school.

Meanwhile, in celebration of the 120th Anniversary of the Mines and Geosciences Bureau, MGB Region 1 commemorated the said event at the same event. Regional Director Carlos A. Tayag thanked everyone for their hard work, effort and dedication to the bureau. Along with this, he encouraged everyone to continue to support the plans and programs of a sustainable minerals industry as well as the environment and natural resources that sustains humanity.###