EXECUTIVE SUMMARY

ES 1.0 Project Fact Sheet

Table ES-1. Project Fact Sheet

Name of Project	**CONSOLIDATION OF PROPOSED INCREASE IN CLINKER, CEMENT AND QUARRY PRODUCTION AND PIER FACILITIES**		
Project Location	Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan, Iligan City, Province of Lanao del Norte		
Project Category & Type (based on Annex A of MC 2014- 005 Guidelines)	Cement Plant with Quarrying		
Existing ECCs	1. ECC No. 0803-009-2231 for the Consolidation of Quarry Projects, issued by DENR EMB Central Office on May 26, 2010 2. ECC No. 0505-004-105 for the Cement Manufacturing and Quarry Expansion Project, issued by DENR EMB Central Office on July 25, 2006 3. ECC No. 10(35) 02 08-26 3037-50200 for Pier & Loading Facilities, issued by DENR EMB Region 10 on August 26, 2002 4. ECC No. 9611-03-302 for the Limestone Extraction project (formerly owned by MCCI), issued by DENR EMB Region XII on Nov 7, 1996		
Project Size	**ECC**	**EXISTING PRODUCTION RATE**	**PROPOSED PRODUCTION RATE**
	Cement Milling Production		
	ECC 1	2.0 MMTPY	4.30 MMTPY
	Clinker Production		
	ECC 2	0.61 MMTPY	3.70 MMTPY (increase)
	Quarry Production		
	ECC 1	Limestone: 810,000 MTPY Shale: 255,000 MTPY	Limestone: 5.91 MMTPY Shale and other Siliceous Materials: 2.29 MMTPY
	ECC 2	Limestone: 810,000 MTPY Shale:: 250,000 MTPY	
	ECC 4	Limestone: 100,000 MTPY	
Summary of Major Components	**Component**	**Existing**	**Proposed**
	Quarry		
	Limestone Quarrying	1.72 MMTPY	5.91 MMTPY
	Shale and other siliceous materials	0.505 MMTPY	2.29 MMTPY
	Cement Plant		
	1 unit Primary Crusher and 1 unit Secondary Crusher	300 TPH	same
	2 units Rotary Dryer	100 TPH each	same
	4 Units Raw Material Bins	66.2 m3	same
	1 unit Ball Mill	140 TPH	same
	2 Units Raw Mill Silo	2,200 MT each	same
	1 unit Kiln Surge Bin	72.8 MT	same

	1 unit Kiln with Preheater Cyclones	1,800 TPD/ 610 MTPY	same
	1 unit Gas Conditioning Tower	8 nozzles; 3,700 m3/min	same
	1 unit Cooler	1,600 TPD	same
	1 unit Coal Vertical Roller Mill	15 TPH	same
	1 unit Finish Mill 1	80 TPH	same
	1 unit Fly-ash feeding System	20 TPH	same
	3 units Cement Silos	4,000 MT each	same
	1 unit Finish Mill 2 with Pre-grinder	2.0- MMTPY	same
	2 units Flyash Silo	1,600T each	same
	1 unit Pre-grinder cement Silo	Internal Cap: 4,000 MT External Cap: 7,000 MT	same
	1 unit Bulk Truck Cement Loading	250 TPH	same
	1 unit RCMI Material Storage	40,000 MT	same
	1 unit Cement Silo with Bulk loading Facility	12,000 MT	same
	4 units Cement Silo	1,500 MT	same
	1 unit Packhouse 1/5 Rotopacker	12 spouts (3,600 BPH)	same
	1 unit Cement Tonner Bag Loading	20 TPH	same
	1 unit Packhouse 2 Rotopacker	10 spouts (2,400 BPH)	same
	1 unit Packhouse 2 Haver & Boeker Bagging Facility	600 TPD	same
	1 unit Packhouse 3 Rotopacker	6 spouts	same
	1 unit Packhouse 4 Rotopacker	8 spouts (1,920 BPH)	same
	1 unit Generator Set	250 KW (315 KVA)	same
	Dust Collector System- Existing		
	2 units Bag filter: dust collector Rotary Drum Dryer	135,000 m^3/hr	same
	1 unit bag filter: Rotary Drum Dryer Auxiliary	8,232 m^3/hr	same
	1 unit bag filter : Rotary Dryer Bucket Elevator, Belt Conveyors, Material Storage	8,700 m^3/hr	same
	1 unit bag filter: Raw Mill Weigh feeder	11,300 m^3/hr	Same
	2 units Multicyclones: Raw Mill Separators	42,000 m^3/hr	same
	1 unit bag filter: Raw Mill Silo	6,630 m^3/hr	same
	1 unit bag filter: Raw Mix Silo	7,200 m^3/hr	same
	1 unit Electorstatic Precipitator: Rotary Kiln	2,436 Am^3/min	same
	1 unit Electorstatic Precipitator : Cooler	4,433 $m^3$3/min as per PTO	same
	1 unit bag filter: Cooler discharge	5,700 m^3/hr	same
	1 unit bag filter: Coal Mill	41,340 m^3/hr	same

	1 unit bag filter: Coal Mill Fine Coal Silo	5,100 m^3/hr	same
	1 unit bag filter: Finish Mill 1 weigh feeder:	10,140 m^3/hr	same
	1 unit bag filter: Finish Mill 1 Mill	100,800 m^3/hr	same
	5 units bag filter: Packhouse 1 Rotopacker	1 Unit 19,500 m^3/h	same
		1 Unit 24,840 m^3/hr	
		1 unit 13,800 m^3/hr	
		2 unit 11,400 m^3/hr	
	2 units bag filter: Packhouse 1 Cement Silo	16,210 m^3/hr	same
	2 units Mill bag filter – FM2	84,000 m^3/hr	same
	1 unit bag filter: weigh feeder – FM2	12,600 m^3/hr	same
	1 unit bag filter: rotopacker #3 – Packhouse 2	24,000 m^3/hr	same
	1 unit bag filter: HBBF- Packhouse 2	16,980 m^3/hr	same
	1 unit bag filter: Cement Silo – Packhouse 2	8,700 m^3/hr	same
	1 unit main bag filter: Roller Press	6,000 m^3/min	same
	2 units bag filter: fresh feed transport system	200 m^3/min200	same
		116.7 m^3/min	
	3 units auxiliary bag filter: Roller Press	416.7 m^3/min	same
		333.3 m^3/min	
		50 m^3/min	
	3 units bag filter: cement transport system	95.8 m^3/min	same
	3 units bag filter: roller press feeding system	200 m^3/min	same
		83.3 m^3/min	
		100 m^3/min	
	2 units bag filter: Cement Silo - Top	66.7 m^3/min	same
	1 unit bag filter: External Silo	27.5 m^3/min	same
	1 unit bag filter: Internal Silo	73.3 m^3/min	same
	1 unit bag filter: Bulk Truck Cement Loading	25 m^3/min	same
	Cement Plant – Proposed Expansion		
	1 unit Primary Crusher	-	1,400 TPH
	1 unit Limestone Stacker/Reclaimer	-	Stacker: 1,000 TPH ; Reclaimer: 500 TPH
	1 unit Shale Stacker/Reclaimer	-	Stacker: 1,000 TPH ; Reclaimer: 500 TPH
	1 unit Coal Stacker/Reclaimer	-	Stacker: 300 TPH ; Reclaimer: 150 TPH

	1 unit Vertical Roller Mill	-	510 TPH
	1 unit Blending Silo	-	15,000 MT
	1 unit Coal Mill	-	53 TPH
	1 unit Rotary Kiln with two (2) Streams Preheater	-	6,500 TPD
	1 unit Baghouse	-	300,000 m^3/hr
	1 unit Clinker Cooler	-	6,500 TPD
	1 unit Electrostatic Precipitator	-	300,000 m3/hr
	1 unit Clinker Silo	-	54,000 MT
	1 unit Finish Mill 3 with Pre-grinder	-	2.3 MMTPY
	Finish Mill 3 Coveyor equipment (several, assorted)	-	200-300 TPH
	Finish Mill 3 Material bins and feeders (several, assorted)	-	
	1 unit Roller Press	-	3,200 kW
	1 unit High efficiency separator with cyclones	-	2,100 kW
	1 Hot Gas Generator	-	11.1 Mkcal/hr
	Fly Ash Silo	-	750 MT
	Belt Conveyors	-	200 to 230 TPH
	Dust Collector System – Proposed Project		
	1 unit - 111 Bag filter	-	8,700 m^3/hr
	1 unit – 131 Bag filter 1	-	7,200 m^3/hr
	1 unit – 131 Bag filter 2	-	7,200 m^3/hr
	1 unit – 212 Bag filter	-	7,000 m^3/hr
	1 unit – 141 Bag filter	-	6,200 m^3/hr
	1 unit – 213 Bag filter 1	-	6,800 m^3/hr
	1 unit – 213 Bag filter 2	-	7,000 m^3/hr
	1 unit – 213 Bag filter 3	-	7,050 m^3/hr
	1 unit – 213 Bag filter 4	-	7,100 m^3/hr
	1 unit – 213 Bag filter 5	-	6,200 m^3/hr
	1 unit – 311 Bag filter 1	-	6,800 m^3/hr
	1 unit – 311 Bag filter 2	-	7,200 m^3/hr
	1 unit – 311 Bag filter 3	-	5,400 m^3/hr
	1 unit – 311 Bag filter 4	-	5,600 m^3/hr
	1 unit – 311 Bag filter 5	-	5,200 m^3/hr
	1 unit – 321 Bag filter 1	-	6,800 m^3/hr
	1 unit – 321 Bag filter 2	-	6,200 m^3/hr
	1 unit – 331 Baghouse Kiln	-	300,000 m^3/hr
	1 unit – 331 Bag filter	-	5,200 m^3/hr
	1 unit – 341 Bag filter	-	5,400 m^3/hr
	1 unit – 351 Bag filter	-	6,200 m^3/hr

	1 unit – 241 Bag filter 1	-	5,800 m^3/hr
	1 unit – 241 Bag filter 2	-	6,200 m^3/hr
	1 unit – 242 Bag filter 1	-	6,600 m^3/hr
	1 unit – 242 Bag filter 2	-	5,400 m^3/hr
	1 unit – 461 Baghouse Coal Plant	-	42,500 m^3/hr
	1 unit – 421 Bag filter	-	8,700 m^3/hr
	1 unit – 441 Electrostatic Precipitator Cooler	-	300,000 m^3/hr
	1 unit – 471 Bag filter 1	-	5,800 m^3/hr
	1 unit – 471 Bag filter 2	-	5,200 m^3/hr
	1 unit – 481 Bag filter 1	-	5,200 m^3/hr
	1 unit – 481 Bag filter 2	-	5,200 m^3/hr
	1 unit – 491 Bag filter 1	-	5,200 m^3/hr
	1 unit – 491 Bag filter 2	-	5,200 m^3/hr
	1 unit – 491 Bag filter 3	-	5,200 m^3/hr
	1 unit – 491 Bag filter 4	-	5,200 m^3/hr
	1 unit BF1 Bag filter	-	6,700 m^3/hr
	1 unit BF2 Bag filter	-	6,700 m^3/hr
	1 unit BF3 Bag filter	-	12,500 m^3/hr
	1 unit BF4 Bag filter	-	7,750 m^3/hr
	1 unit BF1 Bag filter	-	7,750 m^3/hr
	1 unit BF1 Bag filter	-	12,000 m^3/hr
	1 unit BF2 Bag filter	-	12,500 m^3/hr
	1 unit BF3 Bag filter	-	11,000 m^3/hr
	1 unit BF4 Bag filter	-	9,000 m^3/hr
	1 unit BF5 Bag filter	-	6,000 m^3/hr
	1 unit BF6 Bag filter	-	13,500 m^3/hr
	1 unit BF7 Bag filter	-	3,500 m^3/hr
	1 unit BF1 Bag filter –Roller Press	-	30,000 m^3/hr
	1 unit BF2 Bag filter	-	2,100 m^3/hr
	1 unit BF1 Bag filter - Separator	-	195,000 m^3/hr
	1 unit BF2 Bag filter	-	3,000 m^3/hr
	1 unit CN1-4 Bag filter - Cyclones	-	3,200 mm
	1 unit BF1 Bag filter	-	52,000 m^3/hr
	1 unit BF2 Bag filter	-	3,000 m^3/hr
	1 unit BF3 Bag filter	-	5,000 m^3/hr
	1 unit BF1 Bag filter	-	12,000 m^3/hr
	1 unit BF2 Bag filter	-	7,500 m^3/hr
	1 unit BF3 Bag filter	-	7,500 m^3/hr
	1 unit BF3 Bag filter	-	6,500 m^3/hr
	1 unit BF4 Bag filter	-	5,000 m^3/hr

	Support Facilities	· 1 Mine Waste Dumpsite · 1 Plant Waste Dumpsite	· 1 Mine Waste Dumpsite · 1 Plant Waste Dumpsite
		· 9 Settling Ponds	· 10 Settling Ponds
		· 2 Quarry Stockyards	· 2 Quarry Stockyards
		· Coal Stockyard	· Coal Stockyard
		· Nursery	· Nursery
		· Access Roads	· Access Roads
		· Guest house/Staff house	· Guest house/Staff house
		· Magazine Area	· Magazine Area
		· Medical Clinic	· Medical Clinic
		· Administration Building & Offices	· Administration Building & Offices
		· Machine Shop	· Machine Shop
		· Warehouses	· Warehouses
		· Canteen	· Canteen
		· Motorpool	· Motorpool
		· Water Treatment Facility	· Water Treatment Facility
		–	· Waste heat recovery system
		· Co-processing and TSD Facility	· Co-processing and TSD Facility
		· 13 MW Power Plant facility	· 13 MW Power Plant facility
	Pier		
		1 unit Pier and 2 units Wharf/Beach Pad Facilities	1 unit Pier and 2 units Wharf/Beach Pad Facilities
Project Cost	Php 18 Billion		
Construction Period	By July 2021 (estimate)		
Proponent Name	**Republic Cement Mindanao, Inc. (RCMI)**		
	Contact Person:		
	Darwin S. Magpily – Vice President for Operations and Plant Manager		
	Brgys. Kiwalan and Dalipuga, Iligan City, Province of Lanao Del Norte		
	Tel : Tel 02 885 4599		
EIA Preparer / Consultant	**TECHNOTRIX INTEGRATED SERVICES, INC.**		
	Unit 12106 12th Floor The trade and Financial Tower 32nd Street cor 7th Ave Bonifacio Global City		
	Barangay Fort Bonifacio Taguig City 2634		
	Telephone No.: (632) 7373 1456		
	Cellular No.: 0917.8255203		
	E-mail address: Technotrix,tisc#gmail.com		
	Contact Person:		
	Edgardo G. Alabastro, Ph.D.		

Based on the above table indicating the various APCDs, it may be construed that there could be great potential to emit significant fugitive dusts (TSP, PM10) once APCD Is not properly maintained. This is

duly recognized in the Air Dispersion Modeling, which includes the various APCDs and the scenarios of uncontrolled cases of the APCDs. Page 12 of the ADM Report, **Annex 2.3-1**.

Moreover, maintenance plans of the entire Dust Collection Systems are to be observed; these are provided in **Annex 2.3-5**: Dust Collection System Maintenance Program.

ES 1.1 Project Description Summary

Republic Cement Mindanao Inc. (RCMI) and Republic Cement Iligan, Inc. (RCII) were previously separate companies, each with its own process facilities and quarry operations. The two (2) companies have now merged into a single entity with RCMI being the surviving company. **Annex ES-2** shows the approval of this merger by the Securities and Exchange Commission (SEC) and corresponding Letter-request to MGB-10 to Register the Merger and Reflect Changes to MGB Records.

The project size and components reflected in **Table ES-1** as well as the other aspects of the project and operations are therefore consolidated under the Proponent RCMI.

Moreover, the existing ECCs of RCMI and MCCI (ECC numbers 1 to 4 in **Table ES-1**) are also merged into this new ECC application under RCMI. The separate EPRMPs and Additional Information (AIs) for RCII and RCMI are consolidated into one and under the name of RCMI. Also, the new MPSA No. 105-98-XII for a 26.7867 hectares limestone quarry is integrated into the total project.

For the Proof of Authority over the Site, please refer to **Annexes ES-3 to ES-6** regarding the MPSAs; **Annexes ES-7** for the Land Titles (TCTs) of the plant site; and **Annexes ES-9 to ES-12** for the copies of the 4 ECCs. **Annex ES-8** is a Letter to MGB-10 dated Aug 6, 2018 re: Non-Applicability of DMPF as Quarrying Operations started prior to the grant of MPSA.

For the EPRMP of the merged companies, the technical scoping requirements which were previously determined separately for RCII and RCMI and which are essentially the same, are used as the guidelines for this revised EPRMP. The Public Participation Activities under DAO 2017-15 previously undertaken separately for RCII and RCMI are now integrated in this EPRMP.

ES 2.0 EIA Process Documentation

The content of the EIS report was established during the conduct of Technical Scoping on 02 April 2019 (See **Annex ES-2)**. As prescribed by the EMB/DENR under the Revised Manual for Coverage Screening and Standardized Requirements under the PEISS, the appropriate type of documentation for this project is the Environmental Performance Report and Management Plan (EPRMP).

ES 2.1 EIA Team

The composition of the EIA Team with compliance with EMB MC 2011-005 is shown in **Table ES-2**. Resource Persons/Expert Companies were also engaged and are also listed hereunder.

Table ES-2. Team of EIA Preparers

Team Member	Module	EMB Registry No.	Company
Edgardo G. Alabastro, Ph.D.*	Team Leader; Air & Water	IPCO-257	Technotrix Integrated Services, Corp (TISC).
Hazel A. Victoriano	Overall Project Coordinator	Application with EMB filed	TISC
Dr. Felixberto Roquia	Sociology Module	IPCO-028	Private Practitioner
Benjamin Francisco	Marine and Fresh Water Ecology (Team Leader)	PCO-038	TISC Consultant
Virgilio Pantaleon	Coral Reef, Seagrass	-	TISC Consultant
Engr. Emerson Darroles	Oceanography	-	TISC Consultant

Team Member	Module	EMB Registry No.	Company
Assisted by Engr. Emiterio Hernandez (Resource Person)			
Jose Rene Villegas	Marine Team	-	TISC Consultant
Ernie Fontamillas	Marine Team	-	TISC Consultant
Michael Francisco	Fisheries	IPCO-040	TISC Consultant
Nazario Sabello	Air Quality & Air Dispersion Modelling	-	TISC Consultant
Jean Ravelo	Geology	-	TISC Consultant
Lawrence S Mojica	Technical Assistant	-	TISC Consultant
Angelie Faye Nicolas *	Technical Assistant	IPCO-259	TISC Consultant
Warren Conde	Field Survey	-	TISC Consultant
Others			
Engr. Jake Digol	Mining Engineer		RMCI Resource
Benjamin Cuevas, Forester	Forester		RMCI Resource

ES 2.2 EIA Study Schedule & Area

The study area is focused on the project site on the impact areas and on Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan in the City of Iligan, Province of Lanao del Norte.

The EIA study schedule is reckoned from the start of the EPEP and FMRDP in 2018. The EIS for the original cement manufacturing and quarry project was referred to and used as relevant information as the original EIS is similar with the expansion project and both being essentially in the same sites.

The following are the activities that were conducted for this study. Continuing activities will be based on the results of the evaluation of the EPRMP submissions by the EIA Review Committee.

Table ES-3. EIA Study Schedule

ACTIVITY	DATE	AREAS COVERED
Bathymetric Survey	Started Dec 2017	Proposed project site and immediate vicinities
Marine Study	February 2018	Proposed Project site and immediate vicinities
Secondary Data Researches	January 2019	Iligan City
Air Dispersion Modelling	September 2020	Proposed project site and immediate vicinities
siliceous materials Quarrying (DMPF)	AEPEP Feb 2019	Siliceous materials MPSA Area
SMRs and CMRs for baseline inputs	Continuing	Air Water and as required by MMT
SOCIAL PREPARATION UNDERTAKEN		
Initial Perception Survey	12-14 January 2019	Barangays Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan
Information, Education and Communication (IEC)	11 January 2019	
Public Scoping	20 February 2019	Provided in **Annex ES-14** Public Participation Activities
Technical Scoping	02 April 2019	All Modules Per RPM Technical Scoping Checklist provided in **Annex ES-1.**

The following activities prescribed in the Revised Procedural Manual will still be undertaken to complete the EPRMP through official receipt thereof by the EIAMD/Review Committee.

1. Review by EIARC
2. Public Hearing
3. Revision of EPRMP Report
4. Decision on ECC Issuance Incorporating therein conditions to the ECC.

ES 2.3 EIA Methodologies

The EIS Methodology is adopted in the EPRMP screening form resulting from the technical scoping. The EPRMP screening form is the signed Formal Checklist with the EMB and the Environmental Impact Assessment Review Committee (EIARC) Members, the Proponent and EIA Consultant indicating therein the requirements and the content of the EPRMP report. The signed EPRMP Screening Form is shown in **Annex ES-1.**

Primary and secondary data were utilized for the assessment of the project impacts. Primary data were obtained from onsite investigation and field sampling/ surveys. The Self-Monitoring Reports (SMRs), Compliance Monitoring Report (CMRs), Compliance Monitoring Validation Reports (CMVRs), SDMP Reports, and all various other reportorial requirements submitted to DENR, are also key primary data. Secondary data were acquired from various sources, e.g. the CLUP, published government (MGB, PAGASA, PHIVOLCS) reports and maps. Relevant and previously conducted surveys included in the original EIS Report were also used as applicable.

Table ES-4. EIA Methodologies

Module / Section	Baseline	Methodology
LAND		
Land Use Classification	**Secondary data**: Iligan City Comprehensive Land Use Plan (CLUP).	Assessment of compatibility of the proposed expansion project in the land use classification
Geology	**Secondary data**: Geologic, seismic, liquefaction, slope hazard maps and evaluation based on government data. **Primary data:** Various internal geology reports	Identification and assessment of project impact in terms of the changed in topography including existing hazard as maybe aggravated
Pedology	**Primary Data:** SMRs, CMRs, CMVRs	Describe the physical properties and erodibility potential of the soil, ongoing erosion processes and assess the erosional impacts of the project.
Terrestrial Ecology	Biodiversity Study of RC Group	Standard Methodology
WATER		
Hydrology / Hydrogeology	**Secondary data:** Existing drainage system. Historical flooding occurrences	Identification and assessment of project impact on the change in drainage morphology, local drainage and resulting effects of flooding
Marine Water Quality	**Primary data:** Standard Methods for Water Quality Sampling and Monitoring. **Water Body Classification:** DENR Class SC SMRs, CMRs, CMVRs	Assessment of impacts on siltation of surface and coastal marine waters DAO 2016-08
Oceanography	**Primary data:** Bathymetric Survey	Bathymetric by sounding technique **Numerical Modeling:** No aspects of project that would change bay bathymetry.
Marine	Abundance / density / distribution of ecologically and economically important species, mangroves, benthism planktons, coral reefs, algae, seaweeds, sea grasses Presence of pollution indicators	Transect, manta tow and spot dives surveys, marine resource characterization (e.g. city/municipal and commercial fisheries data), Key informant interview.

Module / Section	Baseline	Methodology
AIR		
Ambient Air Quality	**Primary data:** Ambient air quality sampling and testing. SMRs, CMRs, CMVRs **DENR Classification Ambient Air and Noise Classification**	**Methodology:** Standard Methods for Ambient Air Quality Sampling and Monitoring
Ambient Noise Quality	**Primary data:** Ambient noise quality sampling and testing.	Noise Meter
Contribution in terms of GHG	Data in Greenhouse Gases	Monitor/tracking using Cement Sustainability Initiatives (CSI) format
PEOPLE		
Demographic Profile / Baseline	**Primary data**: Conduct of Public Perception Survey, IEC, various stakeholder engagements conducted in the past **Secondary data:** Comprehensive Land Use Plan of Iligan City	
ERA		
Physical and Natural Environment	Annex 2_7.e of the Revised Procedural Manual	

ES 2.4 Public Participation Activities

Information, Education and Communication (IEC) Activity

IEC activity was conducted with the concerned stakeholders on 11 January 2019 at the RCMI Guesthouse Brgy. Kiwalan, Iligan City, Lanao del Norte, attended by twenty four (24) stakeholders. Among these were LGU Officials, Government Offices, Non-Government Organizations (NGO) / People's Organization (PO), Private Offices and Impact Barangays. Provided below in **Table ES-5** are the top key issues raised during the IEC and FGD conducted. **Annex ES-14.1** for the documentation of the conducted IEC.

Note that the issues raised and the proponent's responses contain references to both the former RCII and RCMI because the IEC and Public Scoping were conducted prior to the merger of the 2 companies.

Table ES-5. Information, Education and Communication (IEC); 11 January 2019

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
Ms. Grace Catubig Chairwoman of Barangay Kiwalan	Increase in production will also mean increase in quarrying, especially limestone and shale area, and hence, more blasting. RCII knows what they are doing and has adequate mitigating measures. We hope this is included in the study so we won't be affected like what happened in Naga, Cebu.	We assure you that we are doing our best efforts. MGB 10 has just conducted a geohazard assessment, wherein both RCII and RCMI passed all criteria.
		Moreover, we are also continually improving our safety protocols even if we have passed all criteria. Our blasting is monitored by MGB, they have a representative each time we do blasting.
	The SDMP budget on health is sizeable. We attend to the health needs of our residents thru the help of RCII.	Noted.
Resident from Impact Barangay	Will vibrations produced by blasting create cracks in the land and affect groundwater? We are planning to rehabilitate our water source in Brgy. Kiwalan but the blasting might affect it.	Increase in operation does not necessarily mean increase in blasting. Requirements for raw materials will increase but blasting will be the same, i.e., controlled methodology. The vibration will be maintained within the MGB allowable levels at all times.

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
		With regards to groundwater, a hydrogeologic study is currently being undertaken, precisely to determine potential impacts in volume, quality, etc.
Mr. Solon Adamat Representative of Atty Grace Pabelic, Regional Director of National Commission on Indigenous Peoples (NCIP)	Include in the study the presence of IPs in Brgy. Kiwalan and the rest of neighboring barangays. ECC review and approval is from DENR only, NCIP also has EO/AO No. 3 which is the issuance of Certificate of Non-Overlap.	DENR has the mandate to review and decide on ECC applications, but in the process, there is consultation with various government agencies, NGOs, organizations, and the public. The Certificate of Non-Overlap is also being applied for.
Female Officer from Purok 8, Brgy. Kiwalan	Our home is near the quarry, which shakes during blasting	We shall validate your concern. There is vibration, but all are within the allowable limits and will not endanger the neighborhood. We have complete records of the vibrometer readings. Also, these are done within allowable distance.
Norma R. Galorio Iligan City Planning Officer	Are these residential areas inside the mining zone, if so, that should be disallowed to locate there in observance of the City Ordinance. If pre-existing, no further improvements are allowed.	They were pre-existing, hence, allowed. Anyways, they are outside the mining operations of RCII.
	Suggestion to include Brgy. Acmac in host barangays.	The operation is within Brgys. Kiwalan and Dalipuga only but the proponent's MPSAs cover Acmac, Bonbonon, and Bunawan. Hence, they are all included as beneficiaries.
Resident from Impact Barangay	Traffic congestion at the entrance gate due to delivery trucks.	This shall be included in the study.
Ms. Juvilyn Claveria Barangay Captain of Brgy. Acmac	According to the law, increase in production also means increase in SDMP budget. Republic Act 8190 provides for localization of employment.	This applies to workers of RCII and its contractors as well.
	SDMP has made us productive and self-reliant. The Company follows according to the law, and they attend to every concern. We can approach Mr. Piloton 24/7.	Noted.
	With regards to the 5 Pillars of SDMP, it is the stakeholders who should speak out regarding their priorities. We have bigger budget for health because we asked for it during the planning.	
Atty. Cenas Head, City Environmental Management Office	Increase of workers during construction phase will result to corresponding increase in waste generation.	Yes, the Contractor will be hiring construction workers. Most of them will likely be locals, nevertheless, they will generate wastes. We shall include that in the study.
Ms. Rosemarie Macarandan Principal, Kiwalan National High School	Concern for students of Kiwalan National High School which is located near the project area. What are the benefits or privileges for them?	The scholarship program from elementary to high school in the past was cut off as recommended by MGB itself, and the Brgy. Captain knows about this. It is because DepEd's schools are free. Nevertheless, the budget for this is continuing. We just have to consult with the stakeholders as to what program should we replace it with.

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
	Republic Cement has been very supportive to Kiwalan. We won at the regional level as a National High School because there were many projects implemented with the help of Republic. For clarification, it's only the tuition that is free, DepEd still charges miscellaneous fees.	Noted. We can discuss that during our meeting for this year's SDMP.
Ms. Eleonor V. Cañonero City Health Officer of Iligan	Are there studies regarding the complaints of affected communities with regards to the operation of the plant? Were they affected?	There were complaints received in the past, including an NOV. All these are attended to and acted upon by the Company and the Multipartite Monitoring Team (MMT).
	The SDMP's allocation for health is small. Isn't there significant effects of the operation on health?	Conducted Social Impact Assessment (SIA) in 2018, wherein recommendations were given to improve dust emission levels, which was implemented. In the processing of the ECC amendment, the proponent's performance in the past shall be evaluated.
Engineer Jeffrey Department of Health, R10	Include health preventive measures in the SDMP, such as regular check-ups; sanitary water systems; etc. Also include as mitigating measures in the EIA report. To the barangays, hope you include health preventive measures in the SDMP.	Noted. Programs such as Zero Waste Management, toilets, water system, and others that affect health are included.
	Include health impact assessment in the study so it will be used as baseline for future complaints. Also include mitigating measures. Propose to have free medical check-ups for the residents, because the operation may be environmentally acceptable but still it will have chronic health effects.	Health is included in the SDMP, also there's integrated Health and Safety Program. Maybe another SIA will be conducted in near future for purposes of improving the programs. Number 1 focus at the plant is Health, Safety and Environment.
Kristina Zapanta Nurse from Department of Health, R10	Is there health impact assessment for the workers? For the additional workers during the expansion, will they also be included? On IEC, is health impacts included? How often is IEC done and who is the target audience?	
Representative from City Environmental Management Office	Size of expansion of quarry sites and plant?	Area size will not increase, rather it is the rate of quarrying that will expand. The plant expansion will all be inside the existing plant compound - no additional areas.
	What are the impacts to our fields especially for the farmers? Based on plans, will the affected areas be deforested? What are the mitigating plans?	Number 1 focus at the plant is Health, Safety and Environment.
	What is the impact to employment, how many can work? Will Iligan residents be able to work here?	Local employment - around 500 workers needed in the construction. Locals are prioritized.
	Air pollution effects.	Air pollution control devices will be expanded according to the increase in production. A study will be conducted for such. We have proof that we have greatly improved in this aspect. We are now using eloectrostatic precipitator

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
		in contrast to conventional method in the past. This EP is ran by electricity. For the expansion, bag house will be used, to avoid effects of power interruptions.
	Cement from other countries are much cheaper and are being imported. What is its effect to Republic?	People should not be supporting this move because it can affect local production, which gives employment opportunities to the people.
Mr. Ednilo Macatol Fisherfolk	Wastes, both solid and liquid are generated, and these go to the creeks and the sea. What are the mitigating measures? These wastes cause our lands to dry up, thus destroying our livelihood. If these happens, where can people run to because they need to find other jobs?	The cement production process is a closed loop in terms of water circulation. It is a dry process, water is not needed. Water is used for domestic purposes only. In the quarry, water runoff during rains are controlled thru drainage system and siltation ponds. Released water into the creeks do not contain silt. Regarding livelihood, we have SDMP livelihood projects. We also have CSR, which is not governed by any law - it is Company prerogative so thru this we can assist people.
	Dust emitted by trucks in the delivery of coal, gypsum and silica. What happens if the frequency increases?	This will be part of the study.
Resident from Impact Barangay	Is the bag house related to Power Source, because they also mentioned that they are using EP?	Power Source is a different entity, and RCMI is a client. We do not know.
Ms. Dapog	Can the Plant help the residents that will be affected in case they get sick?	There is the SDMP. With increase in production rates, there will be corresponding increase in SDMP budget. Host communities can benefit from it, including health programs - depending on the agreement among stakeholders.
Ms. Kim Miranda Representative Sarip Clan	What exactly are done with regards to health for those inside the plant since pollution will surely affect them? Request for medical mission.	Still thru SDMP, which is implemented through the Barangay LGU. It is not towards specific persons but thru associations, but there are many projects, like medical missions.

Note: Complete Visayan version is included in **Annex ES-14.1**.

INITIAL SOCIAL SURVEYS WITH THE COMMUNITIES NEAR THE PROJECT SITE

The results of the initial surveys covering the communities near the project site are presented in **Annex ES-14.3**. The said surveys were conducted as part of the Information, Education and Communication (IEC).

The Preliminary Perception Survey was conducted last January 12-14 2019 with a total of 177 respondents, to assess the socio-cultural economic situation of the communities that are to be affected by the proposed expansion project, particularly the 5 barangays in the City of Iligan, namely: Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan.

For the perceived benefits, top answers are on livelihood and business opportunities, improvement of roads and other infrastructure, additional tax and good service of the government. On the other hand, perceived adverse impacts are traffic and water pollution.

ENHANCED PERCEPTION SURVEY

Further and enhanced household perception surveys were made after the IEC activities with a total of 510 respondents from Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan barangays in the City of Iligan.

For perceived beneficial and adverse impacts, top answers are on employment and livelihood, additional tax, road construction, good service of the government and development of the barangay and the city. On the other hand, perceived adverse impacts are health concerns, traffic and water and air pollution.

Public Scoping

The Public Scoping's conducted on 20 February 2019 at Barangay Kiwalan Gymnasium, Barangay Kiwalan, Iligan City, Lanao del Norte participated by two hundred fifty eight (258) stakeholders. Among those invited were LGU Officials, Government Offices, Non-Government Organizations (NGO) / People's Organization (PO), and others. The Summary of Participants during the Public Scoping is provided in **Annex ES-14.2**.

Summary of Issues and Concerns Raised during Public Scoping Activity

The objective of the conducted Public Scoping Activity and other continuing IEC to be conducted is to ensure that the Environmental Impact Assessment (EIA) will address the relevant issues and concerns of the stakeholders and that it will be consistent with the Philippine Environmental Impact Statement System (PEISS). Issues and Concerns raised during the Public Scoping Activity is provided in **Table ES-6** below.

Table ES-6. Summary of Major Issues and Concerns Raised During Public Scoping

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
LAND		
City Engineering Office – Iligan	Land area to be covered by quarrying will expand	Same land area as in existing MPSA, no expansion in terms of land area
Brgy Captain Omar Cader - Bonbonon	Will Datu Sarep's property be affected by the expansion? If so, when and where?	Not affected; area of activities will be within the same area as in existing. (Existing activities and operations have not affected Datu's property)
	Will the expansion have effect on air quality and land? What are the preventive measures?	These will be part of the study. (Section 2.3 Air in the EPRMP)
Representative from DEP ED Region 10	Is there Land Title for plant site.	Yes, plant site land is titled.
DEP ED Region 10	Hazardous wastes. What hazardous wastes will be involved or generated?	This will be part of the study. (Section 4 ERA of the EPRMP will discuss this matter). *Note : This concern is related to land, air, water and People Environmental Resources*
WATER		
Committee on Health	Sea Water quality degradation	This will be included in the EPRMP Module on "Water". (Degradation will be evaluated based on historical trends and records of the SMRs)
AIR		
Representative from DEP ED Region 10, Purok President, &	Noise pollution, dust (sometimes), and sometimes children get sick	These will be part of the study. (Section 2.3 "Air" of the EPRMP will make assessment on air quality degradation; will undertake an Air Dispersion Modelling study.

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
Committee on Health (all 3 had same issue raised)		The Environmentally Sensitive Receptors (ESRs) e.g. the households, communities and social centers are distant from the source of air and noise pollution.
Committee on Health	Sea Water quality degradation.	This will be part of the EPRMP. Historical records and trends, if available, will give indications of potential sea water quality degradation
PEOPLE		
Committee on Health	Will the expansion be beneficial to the barangays and the people?	Yes. There will be increase in SDMP budget for the host barangays and more people will be hired.
Representative from DEP ED Region 10	Specific area of expansion. Will it affect any school?	Expansion will be within existing Plant only. No schools will be affected.
Committee on Health	Are the 5 pillars of SDMP focused only on a specific barangay or for all barangays?	Procedurally SDMP is only for the host barangays. For others, Republic Cement Group also has programs under its Corporate Social Responsibility. (CSR)
Purok 8 President Dhito Macatol	Would increase in clinker production mean increase in importation of clinker, which would then cause more cargo ships to come that may pose safety issues?	The reason we intend to increase clinker production is to lower, if not totally eliminate, clinker importation. *Note: This is safety issue affecting "People"*

ES 3.0 EIA Summary

ES 3.1 Summary of alternatives considered in terms of siting technology selection/operation processes and design

In terms of siting options there are no feasible alternative except the existing sites of the plant facilities and the quarry.

- Technology and processes/design are the same as existent because of the expansion nature of the project.

- The quarrying is to be undertaken by open pit method similar to existing practice.

ES 3.2 Summary of baseline characterization (in relation to the results of the regular monitoring of projects impacts and environmental performance)

Table ES-7 below indicates the current environmental condition (per environmental sector) on the area using the results of the impact environmental monitoring in comparison with the previous condition (during EIA for the application of existing ECCs).

The current conditions in comparison with that for the expansion project are reckoned from impacts. The environmental monitoring results are based from the existing SMRs, CMRs, CMVRs and SDMP reports.

Note that the previous ECCs comprise of miscellaneous ECCs and amendments and therefore the EIA process started as early as 2004, and thus, using these as references for comparison are not readily undertaken. Instead "current" is referred to the existing operations of the RCMI and RCII before and after the merger. The existing ECCs are (Please see **Annexes ES-9-12**):

1. ECC No. 0803-009-2231 for the Consolidation of Quarry Projects, issued by DENR EMB Central Office on May 26, 2010

2. ECC No. 0505-004-105 for the Cement Manufacturing and Quarry Expansion Project, issued by DENR EMB Central Office on July 25, 2006
3. ECC No. 10(35) 02 08-26 3037-50200 for Pier & Loading Facilities, issued by DENR EMB Region 10 on August 26, 2002
4. ECC No. 9611-03-302 for the Limestone Extraction project (formerly owned by MCCI) issued by DENR EMB Region XII on November 07, 1996
5. The RCMI MPSA 104 renewal is shown in **Annex ES-3**.

Table ES-7. Summary of Key Baseline Characterization

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
LAND		
Geology and Mineral Resources		
Depletion of ore - Quarrying started way back in the early 1960's. - No available data on volume extracted	Depletion of ore Rate: 1.72 MMTPY limestone and 0.51 MMTPY shale Volume Extracted (2007-2020): 2,374,990 MT shale and 8,784,236 MT limestone	Changes that occurred are in compliance with the Approved Development and Utilization Plans submitted every 3 years
Topography		
Plant was existing, located in flat, developed area. Terrain in the quarries have been altered wherein a series of benches exist as well as haul roads , siltation ponds, stockpiles and waste dump existed. Active/Disturbed areas was approximately: 61 ha	Plant in the same area. The active areas worked on since 2006 where generally on the areas that were already mined (open). The ensuing changes were the lowering and lengthening of the benches. Active/Disturbed areas: 76.438 ha Limestone: 59.75 ha Shale: 16.688 ha	Pre-existing areas with mining footprints as of 2004 is more or less the same as RCMI's existing quarry areas (See **Fig 2.1-8**). Changes is more on addition of benches and lowering of elevation. Additional areas disturbed is about 15.5 ha Changes that occurred are in compliance with the Approved Mine Plans submitted every 3 years
Inducement of Geological Hazards		
No landslides, subsidence, liquefaction, mudflow, and flood affected the area	No landslides, subsidence, liquefaction, mudflow, and flood affected the area	No change.
Soil Erosion / Loss of Topsoil and Overburden		
The existing disturbed areas of approximately 61 hectares were already devoid of topsoil and overburden. Eroded silt/soil captured through drainage system and settling ponds. Siltation in the shale area is more significant than in the limestone area wherein soil is nil to non-existent. No exceedance in terms of TSS.	Approximately 15.5 hectares additional areas were disturbed, topsoil and overburden removed are stored in Waste Dumpsite for future use in rehabilitation. Eroded silt/soil captured through drainage system and settling ponds. From 2nd semester of 218 to 3rd quarter of 2020, a total volume of 11,165 m3 of silt were collected from RCMI's settling ponds. This equates to about 5,100 m3 per year. Siltation in the shale area is more significant than in the limestone area wherein soil is nil to non-existent. No exceedance in TSS.	Soil erosion arrested through the drainage system and settling ponds and recovered through desilting, and then stored in the mine waste dump for future use. Average of 5,100 m3 per year of slt/soil recovered from the ponds. Engineering and mitigation measures in place.

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
Soil Quality / Fertility		
2002 soil tests in 4 stations: (**Table 2.1-8**) pH: 7.8 to 8.1 OM: 3.89 to 7.12% P: 9 to 18 ppm K: 0.27 to 0.89 mol. The high exchangeable P and K and high N percent in Champaca 2 and ICC 12 indicates high fertility in these areas as likewise indicated by the luscious growth of agricultural crops. Note that these sampling stations are in the parcels outside the active quarry areas.	2020 soil tests results for 10 stations: (**Table 2.1-10**) pH: 7.14 to 8.83 OM: 0.077 to 0.994 % N: 0.014 to 0.123 % P: <2 to 337 mg/kg K: 107 to 1,672 mg/kg Metals As and Cd: below detection limit; Pb: 4.8 to 8.2 mg/kg; Hg: < 0.002 to 0.012; B: 0.24 to 1.5; Mn: 100 to 442 mg/kg; Fe: 0.269 to 6.16 mg/kg; Cu: 2.9 to 89.4 mg/kg; Zn: 4.3 to 66.9 mg/kg; Ni: 4.1 to 68.7 mg/kg; Co: < 0.8 to 8.1 mg/kg	Soil quality not adversely changed. Relevant for the rehabilitation program which as mentioned in the as proposed FMRDP, is for a combination of residential, industrial and agro-forestry. Metallics not a concern because results show these as within the Dutch Intervention Values (DIVs)
Flora (vegetation removal and loss of habitat)		
Quarries pre-existing, disturbed area in 2004 approximately 61 hectares (no vegetation)	Active/disturbed area is 76.438 hectares for both quarries; approx 15.5 hectares cleared during the period. **CUT TREES AS OF 2020** (within MPSA 031-95-XII only) Shale quarry lot 3551: Total land area = 2.03 hectares Planted Trees =117 (Already cut) -- Replacement =5,850 seedlings (1:50) Native trees = 130 (waiting for FMB approval) Shale quarry lot 3597: Total land area = 0.987 hectares Planted Trees =152 (Already cut) -- Replacement =7,600 seedlings (1:50) Native trees = 105 (waiting for FMB approval) No declared mined-out area yet, hence, RCMI plants in the buffer zones and in idle benches as temporary vegetation. Total area reforested: 23.77 Total planted trees: 12,530	For every 1 cut tree, 50 seedlings are planted for replacement. RCMI has expanded its reforestation efforts through NGP. EPEP/FMRDP in place.

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
	NGP (outside project site) : 272 trees inside 100 hectares Mangrove: >200,000 propagules	
Fauna		
Quarries pre-existing, disturbed area in 2004 approximately 61 hectares (no vegetation, fauna insignificant within the disturbed areas)	No recorded evidences significant disturbances	The reforestation and the NGP will provide suitable habitats for faunal species.
WATER		
Groundwater / Water Resources		
The Company owns 6 deep wells in Brgy. Kiwalan but utilizes only 2 deep wells (RCDW8 AND RCDW10). Water extraction: July 2001 - 574.64 m3/day. No disruption of aquifers by avoiding the penetration of aquifers below the limestone deposits. Quarrying is conducted above the natural springs w/ buffer of at least 50m. Moreover, there is absolutely no blasting done in areas near caves, one of which contain aquifer (Cave No. 9 a.k.a. Matu-ug Cave) that is being tapped by the City Water District.	RCMI extracts water from 2 company deep wells (RCDW8 AND RCDW10) with rated discharge of 385 gpm or 87.6 m3/hr. Water requirement: 703.3 m3/day No disruption of aquifers by avoiding the penetration of aquifers below the limestone deposits. Quarrying is conducted above the natural springs w/ buffer of at least 50m. Moreover, there is absolutely no blasting done in areas near caves, one of which contain aquifer (Cave No. 9 a.k.a. Matu-ug Cave) that is being tapped by the City Water District.	No change in extraction rates - within the limits set in the Conditional Water Permits issued by NWRB. For proposed expansion, no additional deep wells are envisioned..
Groundwater Quality		
In the 2002 sampling of reservoirs/wells (**Table 2.2-3**) it was found that there is an exceedance in the calcium content and total hardness level in all 5 stations (except for the hardness at well in Brgy. Kiwalan, outside the project site). This explains the viscous sensation obtained from using water for washing in the RCMI premises. The RCMI well yielded higher coliform exceedance probably due to more users flocking the reservoir- evidently unfit for potable consumption. For the well located outside the project premises, the calcium and bacteriological content are above the permissible levels, thus, non-potable.	No groundwater quality monitoring for the past years. 2019 test results show that (**Table 2.2-4**) Cr 6, NH3, Phosphates, Nitrate, As, Cd, Hg and Pb contents of Water Softener Well, DW # 9, and Panaghoyan Spring are well within the DENR standards for Class A.	No competition in water use with communities. Strict compliances will be observed with the NWRB Permit. Standard water treatment methods available if underground water would be used for domestic purposes.
Water Quality of Iligan Bay (Marine Water)		

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
2001 sampling results: All physical parameters were within acceptable limits. While there is no standard for TDS, the increasing levels as one goes farther into the sea is perceived very high based on conventional standard set at 1,500 mg/L. Turbidity is minimal (<1 NTU) as well as TSS (1 to 4 mg/L) indicating very low to nil siltation in the area. Oil and grease are maintained way below the limits. Acidity is within acceptable range. There is abundant supply of oxygen (6-7 mg/L). Further observation revealed the presence of abundant fish and other marine organisms within 300m distance from the jetty. Exceedances were present in heavy metals such as lead (0.455 mg/L) and cadmium (0.033 mg/L) and were observed at fixed rates. The exceedances could be the result of the regular hauling/transporting of cement and other industrial products surrounding the coasts. The fixed levels indicate contamination diffusion over some parts of the bay.	Based on monitoring results from 1 sampling station located 100m from the jetty, it can be said that there is general compliance with the DENR standards and hence, no significant effect of the project to the marine water quality in the RCMI vicinity. Minor exceedance is observed for the temperature (32), which exceeded the DENR higher limit three times and once for the O & G limit (3.8 mg/L). This may be attributed to oil spills from sea crafts and not from the project. See graphical representation.	Generally, the water quality of Iligan Bay is expected to be preserved. Observed isolated cases of degradation e.g. O & G could be attributed from spills or leaks from sea crafts.
Water Quality (Freshwater)		
2001 water sample from the nearest section of Tag-ibo Ck (300m outside the project area and does not receive direct effluents from project) shows fairly high oxygen levels and permissible rates for physico-chemical parameters. The high levels of oxygen and low BOD rates are characteristic of an estuarine inhabited by various aquatic species. The high coliform content, however, is attributed to the bacteriological quality of runoff from the uplands where more domestic activities are undertaken. Results of drain canals sampling in 2001 show that the quality of effluents produced from both production and domestic activities are within the permissible limits, except for BOD5 in the effluents from production.	2018 to 2020 tests - the trend of the water quality reveals that: - There is general compliance with the stream quality standards - There are isolated episodes of peaks for (a) TSS displayed a short-term episode but the sources are not established (b) pH values are observed to be well within standard and relatively consistent (c) Oil and Grease -could be attributed from oil spills from sea crafts and not from the project. Episodes of peaks in BOD5 observed. Attributable to human activities e.g. use of toilets, baths and for food preparation.	Based on the test results, there is no significant effect of the project to the surface water quality in terms of metallic substances in the area near the RCMI plant.

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
Marine Ecology		
Monitoring & assessments prior to projects implementation not reliable	Based on recent marine ecology surveys (Sec 2.2.5) no evidences of dense populations of corals and other marine species. Only few coral colonies along a silted column of water behind the RCMI pier complex.	No degradation of marine species envisaged in the absence of stressors from project to these. Bay oceanography not altered.
Freshwater Ecology		
Not germane to the project. Nearest creek is 300m outside of project side and does not receive effluents from the project. Nearest river is 2.25 km to the south.		
AIR		
Air Quality (& Noise)		
Reckoned from the old EIS/EPRMP for which data are more than five (5) years old and therefore considered obsolete: Air quality is fairly good as shown by the low concentration levels of the pollutants: SO2 - 4.8 ug/Ncm; NO2 - 12.56 g/Ncm; and TSP - 135 g/Ncm. Likewise, the noise levels in the project site and vicinity are below the DENR limits. There is 1 exceedance in TSP (351.3 g/Ncm) for the station in front of Iligan City East High School. This may be due to dusts getting airborne as students played around very close to the sampler and the passage of numerous vehicles.	Ambient Air Quality General compliances with NAAQGV of the Phil Clean Air as shown in Table 2.3-7 for regulated pollutants: TSP, NOx and Sox. PM10 results for 2020 monitoring indicate compliance with standards and are shown in Table 2.3-9 Source Emissions Quality for PM, Sox, NOx and CO in compliance with Section 19 of the Philippine Clean Air Act.	No degradation of ambient air quality foreseen as further verified by the results of the Air Dispersion Modelling. Permits to Operate (PTOs) are required for the APCDs thus assuring compliances with air quality parameters.
GHG Emissions		
Reckoned from global inventory GHG emissions are deemed not significant because of the country's reported inventory. Inventory takes into account not only CO2 but also LUCF and LULUCF	Reckoned from global inventory GHG emissions are deemed not significant because of the country's reported inventory. Inventory takes into account not only CO2 but also LUCF and LULUCF	Notwithstanding the considered insignificant contribution of the project to global inventory, RCMI is nevertheless undertaking Carbon Sink and NGP which are GHG friendly.
PEOPLE: Annual SDMP Accomplishment Reports are submitted regularly, these SDMPs are formulated in consultation with the stakeholders; IECs are done regularly		
Land Ownership and Right-of-way		

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	**CURRENT**	
Plant is within the Company property, quarries are within the MPSAs and (surface) land ownership of active/disturbed areas are held by the Company as well.	Plant is within the Company property, quarries are within the MPSAs and (surface) land ownership of active/disturbed areas are held by the Company as well.	No change, no conflicts
Employment and Livelihood Opportunities		
Pre project information show 211 RCMI workers consists of 163 Production workers, 13 Managerial, and 35 Admin/clerical workers. Quarry contractors are outsourced. Local residents are given priority in employment while local suppliers/providers are likewise given preference for contract jobs/services, if available.	The existing manpower for operations of RCMI totals to 166 for both the plant and the quarries while it's quarrying Contractor (Delta Earthmovers) maintains 68 personnel, and other service Contractors have 745 workers. During the operations phase of the proposed expansion, the number of workers shall increase to 184 for RCMI while workers for Delta and other service contractors shall remain the same .	RCMI has continuously provided permanent as well as contractual job opportunities to the residents of its host communities. In addition, contracted services and suppliers are given to local businessmen.
In-migration		
No informal settlers. Average rate of population increase in Kiwalan from 2000 to 2010 is -0.04 (decrease) and for Dalipuga is 3.98, and therefore, while that of the City is 1.32.	No informal settlers. Average rate of population increase in Kiwalan from 2010 to 2015 is 5.07 and for Dalipuga is 1.68, and therefore, while that of the City is 1.23.	Deemed as insignificant consideration for the expansion project.
Services and Resource Competition		
Water supply from own deep wells and from local concessionaires. Power from NPC. Communication from private providers. No competition	Water supply from own deep wells and from local concessionaires. Power from NPC. Communication from private providers. No competition	Same
Public Health and Safety		
No accidents nor sickness attributed (complained) to RCMI operations	No accidents nor sickness attributed (complained) to RCMI operations	Continuous vigilant observance of health and safety protocol and of the DOLE regulations on these.
Traffic Congestion		
No significant traffic congestion. Vehicles are mostly the delivery trucks for raw materials that are outsourced. Majority of the raw materials are delivered by sea.	No significant traffic congestion. Vehicles are mostly the delivery trucks for raw materials that are outsourced. Majority of the raw materials are delivered by sea.	Same

ES 3.3. Concise integrated summary of the main impacts and residual effects after applying mitigation

(based on the results of the long term monitoring and compared with the previous baseline including assessment of the effectivity of the measures and the proposed changes to consider the expansion), status of EMF and EGF implementation (including the proposed changes to include the expansion)

By way of clarification, based on Revised Procedural Manual 2003-30, Residual Impacts / Effects are the remaining impacts after implementation of preventive and mitigating measures. The summary of the main impacts and residual effects after applying mitigation is shown below, **Table ES-8.** This table indicates the activity to a certain environmental sector (e.g. potential impact on air quality, potential impact on freshwater ecology, etc.

Table ES-8. Summary of the Main Impacts and Residual Effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
PRE-CONSTRUCTION PHASE (for proposed expansion): No perceived impacts. The pre-construction phase in the EPRMP reports covers activities like planning, engineering design, and procurement of equipment.				
Construction Phase (PROPOSED PROJECT ONLY) for the installation of new structures and equipment inside the Plant				
Site Clearing, Removal of vegetative cover, Excavation	Potential disturbance of the floral and faunal species.	Construction will all be within the Cement Plant Complex where there are no forests nor wildlife and no trees to be cut as the facility is already existing. The existing plant is already cleared of vegetation except for the landscaping. No faunal species are present. Avoid landscaped areas as much as possible. In case there are few trees to be affected, secure tree cutting permit and compliance on the replacement of removed vegetation (1:50)	100% replacement of removed vegetation with same species however earth balling is the first option.	No adverse residual effects; positive effects are from the greening/landscaping program.
	Loss of vegetation, Movement and/or loss of wildlife species aggravated by the loss of habitat and food for survival	- Re-vegetation and enhancement of buffer zone. - For the Cement Plant Complex, there are no trees to be cut as the facility is already existing. Moreover, the proposed expansion or construction of additional plant facilities is to be done within the existing plant, which is already cleared of vegetation except for the landscaping. No faunal species are present.	100% implementation of control management.	No adverse residual effects; positive effects are from the greening/landscaping program.
	Potential impact to Iligan Bay due to soil erosion, siltation, and flow of storm water runoff.	- Maintain appropriate setback distances from Iligan Bay for all construction activities that might increase storm water runoff or cause erosion or sedimentation. - Appropriate dumping of soil wastes located into the Mine Waste Dumpsite for temporary storage equipped with siltation ponds. This soil will be used again during road paving and compaction in the future especially at quarry area. - If possible, avoid working outdoors during wet and rainy conditions. - Provision of adequate drainage system to accommodate peak runoff that could contaminate the nearby water bodies and degrade the area. - Install temporary drainage ditches and sediment traps/pond around the construction area to pump out runoff caused by heavy rainfall.	100% conveyance of run-off water and sediments to siltation ponds/traps	No residual effectsCompliance to MGBNo further activities after site decommissioning/rehabilitation.

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Soil/Land Contamination Due to Improper Waste and/or Garbage Disposal.	- Provide area to stockpile construction wastes before hauling. - Provide proper solid waste disposal. - Implement waste segregation. - Practice good housekeeping.	100% compliance to RA 9003	No residual effects; The wastes will not remain at impact areas and will be properly disposed of by 3rd parties.
Use of heavy vehicles and construction equipment / Use of heavy equipment to transport materials	Potential contamination of soil and nearby water bodies due to accidental spills or releases of fuel or lubricating oils	- The same measures cited above (in the case of soil management) for the management of oils/leaks will be implemented. - Daily monitoring of hydraulic system including the hose which is the main source of any vehicular leaks. - Use dipping pan in case a leak is observed. Equipment with leaks are not authorized to resume unless resolved.	100% no soil contamination related to fuel/oil spills or accidental spills	No residual effects Compliance with MGB No further impacts after cessation of involved activities or operations
	Potential Impacts to Air Quality due to dust emissions	- Covering haulage trucks to control dust emissions before traveling on public roads.- Spray water at least twice a day on unpaved access roads, haulage roads, stockpiles and dust generating areas. - Enforce speed limits (20km/h) to reduce airborne fugitive dust from the vehicular traffic. - Revegetate disturbed areas after disturbance and implement maintenance to ensure growth.	100% compliance to RA 8749	No residual effectsDust pollutants are controlled and if dispersed (minimally) will not stay in environment.
	Possible increase of noise level (Nuisance)	- Provide silencers and mufflers to minimize noise. - Construction activities should be done only during daytime. - Proper maintenance of the equipment and vehicles.	100% compliance to Noise Standards	No residual effects Noise generation does not linger after stoppage of involved activity

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
Delivery/ Transport of construction materials	Potential damage to Barangay Roads/Right-of-Way Issues	- Rehabilitation of roads that will be damaged will be integral to the responsibilities of the Proponent as well as its Contractor/s. - Right-of-way issues, if any, will have to be resolved first by the Proponent. - Absolutely no activity in any area of conflict unless issue is resolved. - Construction raw materials and additional equipment shall be delivered by suppliers to the plant site through the National Highway, which is a public road, and by sea through RCMI's own port. Hence, no significant RROW issues are foreseen. - Access roads were constructed by RCMI for use of residents living near the plant and/or quarries.	100% compliance to Road Right-of-Way issues	Positive residual effects of road maintenance and rehabilitation.
	Traffic Congestion	- Limit in the use of certain roads specifically for the project. - Programmed dispatch of construction vehicles.	100% compliance to Traffic Laws & Traffic Management	No residual effects
Equipment refueling, maintenance or operation	Potential contamination of soil and nearby water bodies due to accidental spills or releases of fuel or lubricating oils	- Proper maintenance and regular inspection of vehicles and construction equipment. - Designation of a motorpool wherein refueling and maintenance works will be done and in which area sump pits for oil leaks will be provided. - Facilities for recovery of leaks and storage in drums will be provided. - Collection of used oils in containers for disposal by third party (minimum 6 months and maximum of 1 year) - Proper training of vehicle operators especially on spill prevention and containment.	100% compliance to RA 6969	No residual effects. Accidental oil spills will be immediately cleaned up and properly disposed of by 3rd party TSD facility
Movement of Workers	Potential increase on BOD loading and coliform level of nearby water body (Iligan Bay) due to generation of wastes by workers.	- Provide temporary facilities ("portalets") for workers. - Strictly impose on the contractors and its workers to observe proper waste disposal and proper sanitation. - Sanitation including the sludge collection of the portalets will be weekly or twice a week (depend on the actual usage/volume of sludge). 3rd party sludge transporter should be registered/authorized by DOH and EMB. - Conduct Quarterly Effluent Monitoring	100% compliance to RA 9275 (DAO 2016-08) and the Sanitation Code	No residual effects No further impacts after cessation of involved activities.
	In-migration because of increased business and livelihood opportunities	Prioritizing the hiring of construction workers to local residents and those in the impact areas of the project.	100% compliance to Labor Code of the Philippines including OSH Standards	No adverse residual effects Business, livelihood and business opportunities positive impacts

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Increase in indirect revenues	- Local qualified contractors will be given priority. - Positive impact.		Improved government services
	Competition in the use of resources, principally water availability.	No competition of water resource during this phase as the water requirements for construction is minimal and can be sourced from RCMI's existing deepwell. The domestic water as well as drinking water supply for the workers shall be sourced from the local concessionaire.		No residual effects
	Physical injuries arising from accidents such as: - Being hit by falling weak structures - Being overrun by heavy equipment	- Daily toolbox meeting should be strictly imposed. - Workers must be compelled to wear at all times during working hours (usually 8hours) the Provided Personal Protective Equipment (PPE). - The construction company shall have a Safety Engineer to oversee health hazards over the personnel all throughout the construction phase. - First aid kit shall be made available at all times at the project site. - Observance of safety practices and training of construction workers. - Established Emergency Preparedness and Response Program including regular emergency drills. - Good housekeeping practices.	100% compliance to Occupational Safety and Health Standards	No residual effects
	Occurrence of sickness & diseases in workers and community.	There are no specific elements of the project during the construction phase that may cause sicknesses and diseases that can spread to the communities. Post-ECQ Health and Safety Guidelines to be included in the OSH protocols.		No residual effects
OPERATIONS PHASE (Existing and Proposed)				
QUARRIES				
Quarry Operations	Change in geology / Depletion of Ore	- Comply with development plan - Progressive rehabilitation and re-vegetation of mined out quarries and planting in idle lots - Utilize the recovered topsoil that was stored in waste dump for future rehabilitation and re-vegetation.	100% compliance to RA 7942 “Philippine Mining Act of 1995”	Extraction/depleton of ore is permanent - No replacement.

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Change in topography/ landform	- The area will be re-contoured and stabilized during rehabilitation. - Proper benching and installation of bench drainage to prevent soil erosion. - Installation of coconet and planting of creeping vines to improve the slope stability. - Avoidance of very steep slopes whenever necessary and practical. - Compliance to the Final Mine Rehabilitation and Decommissioning Plan (FMRDP). The progressive nature of quarrying, which is inherent with the project, provides the major mitigation measures. Progressive rehabilitation and enhancement work such as:· • Providing for green areas, tree planting, • Installation of drainage and sewerage system and other activities should be expected to leverage to a certain degree the adverse effects.	100% compliance to mining plan 100% compliance to FMRDP	Change is permanent but to be left in stable conditions as a result of the mitigating measures.
	Potential Rockslides/ Landslides / Mass Movement	- Maintaining slope stability by proper engineering measures. - Reduction of cut slopes by terracing - Prevention of increase in internal water pressure by vegetation cover - - Adequate drainage control	100% stabilized slopes and efficiency of erosion control	Improved measures against potential landslides
	Potential inducement of flooding	- Installation and proper maintenance of drainage system. - Water and silt in settling ponds monitored. Silt content should not exceed 50% of its capacity. - Desilting is done regularly, and more frequent or as needed during rainy season.	100% conveyance of runoff water to settling ponds and 100% no overflowing of ponds.	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential impact to water quality of nearby creeks and Iligan Bay due to erosion, siltation, and flow of storm water runoff.	- Unnecessary removal of overburden and vegetative cover is avoided. - As much as possible, all major clearing and stripping of the overburden shall start at the dry season - The stripped topsoil are being handled properly - Waste materials coming from the overburden were not dumped on natural drainage ways. Established dumpsite in strategic locations are far from the drainage ways. - Provision of adequate drainage system to accommodate peak runoff that could contaminate the nearby water bodies and degrade the area. - Drainage system around bare areas are designed to direct runoff water to settling ponds and capture the sediments. There are 9 ponds in the quarries, each w/ capacity of 2,000 m^3. - 1 settling pond to be added in the limestone area for the proposed increase in production rate. - Regular de-silting of the sedimentation ponds are employed quarterly but more frequently or as needed during rainy season. This is done when silt level reaches 50% of pond capacity. Freeboard marker installed. - Erosion control measures such as slope stabilization. - Proper benching and installation of bench drainage to prevent soil erosion. - Installation of coconet and planting of creeping vines to improve the slope stability. - Avoidance of very steep slopes whenever necessary and practical. - Maintain appropriate setback distances from water bodies for all quarrying activities that might increase storm water runoff or cause erosion or sedimentation. - Quarterly Monitoring of Effluent	100% compliance to RA 9275 (DAO 2016-08) 100% conveyance of runoff water to settling ponds 100% stabilized slopes and erosion control	Lesser potential for erosion and siltation.
	Potential impact to Air Quality due to dust and noise emission	**EXISTING** - Proper maintenance of the quarry equipment are imposed to reduce dust and noise. - Watering of unpaved roads done twice a day **ADDITIONAL**	100% compliance to RA 8749 and noise standards	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
		- Control measures outside the facility especially the quarry area is recommended such as periodic watering of roads, minimizing generation and resuspension of dust particles. Area source dust abatement such as water sprinkling and planting vegetations as green buffer zone in the cement manufacturing operation is also recommended to control dust resuspension.		
	Disruption of groundwater / aquifer	- Based on geo-hydrological study, clastics and limestone can be quarried provided that a minimum of 10m of cover on top of the aquifer is maintained to serve as protection. - Deep-ripping of compacted soil surfaces. - Avoiding the penetration of aquifers below the limestone deposits. Quarrying conducted above the natural springs w/ buffer of at least 50m. The final pit bottom will be at +60 masl for limestone and at +30 masl for shale, which are both above the level of known aquifers/springs. - Controlled blasting employed all the time - Conducted geo-resistivity study	Zero disruption of groundwater	No residual effects
	Increase in manpower/ employment opportunities and increase in average income	- Positive impact, thus, no mitigation **Existing manpower:** RCMI: 166 for both the plant and the quarries. Quarrying - Delta Earthmovers – 68 Other Contractors: 745 **Proposed expansion:** Construction phase for additional plant facilities: 1,000 RCMI: 184 (additional 18) Quarrying - Delta Earthmovers – 68 (same) Other Contractors: 745 (same)	-	Positive residual effects Enhanced socio economic benefits
	Increase in the income of the national as well as local government units	Positive impact, thus, no mitigation	-	Positive residual effects Enhanced socio economic benefits

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Soil/Land Contamination due to improper disposal of earth/land spoils.	- Provide temporary stockpile for overburden and store it at designated mine waste dumpsite equipped with siltation ponds. - Proper maintenance of the mine waste dumpsite in terms of slope stability, sufficient drainage, temporary vegetative cover, etc. - The stored mine wastes shall be used as backfill materials during the rehabilitation of mined-out areas and other earthworks such as in road maintenance, berms, etc. - Practice good housekeeping.	100% compliance to RA 7942	No residual effects. Mine wastes are to be re-used in the rehabilitation, eventually.
Use of heavy vehicles and mining equipment in quarrying/ hauling	Potential oil leaks/spills, which may impact on the quality of the nearby water bodies	The same measures cited above (in the case of soil management) for the management of oils/leaks will be implemented.	100% Compliance to RA 6969	No residual effects
Land Clearing	Removal of the overburden, loss of topsoil	Only areas that are identified to be quarried are to be cleared. - Comply with development plan - Progressive rehabilitation and re-vegetation of mined out quarries and planting in idle lots - Utilize the recovered topsoil that was stored in waste dump for future rehabilitation and re-vegetation. - Topsoil will be replaced during progressive rehabilitation. Existing Active Disturbed Areas: 76.438 ha Additional Areas to be Cleared: 81.432 Total Area: 157.87 ha Topsoil to be backfilled is 0.5 meters thick X 1,313,837.27 m^2 = 656,919 m^3 *Note: For the area to be backfilled using topsoil, the total area is only 131.3837 hectares since we only considered to backfill the benches (bench widths) and we excluded other areas for backfilling such as slopes and drainage canals per bench.*	100% compliance to mining plan	Improvement of soil (topsoil)

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Major disturbance of the mini forest cover with impacts on the terrestrial ecology - Loss of flora and fauna	- Avoidance of tree cutting or disturbance to the extent possible especially when endangered species may be affected. - Progressive rehabilitation, re-vegetation, and enhancement of mined-out quarries, idle lots, and buffer zone. - Vegetation loss will be replaced in the progressive rehabilitation program at 1:50 cut and plant ratio. - Additional Area to be Cleared for Expansion Project = 81.432 ha; - Additional trees to be cut = 8,150 to 12, 215 (100-150 trees/hectare cleared) - Expanded National Greening Program, Mangrove Rehabilitation Project and Mine Forest Program in the quarries, plant, as well as areas outside the project site. - Utilize the recovered topsoil that was stored in waste dump for future rehabilitation and re-vegetation. - As an example, overburden that was stripped from shale quarry at AQL 41(5) was delivered directly to the southern portion to be used for re-soiling at elevation 40msl. Similar procedure to be practiced prospectively. - Establishment/maintenance of at least one plant nursery. - Consultant forester will be hired when the rehabilitation starts - Construction/installation of culverts at selected portions of the mine access for ground vertebrate to migrate and cross through. - Conduct annual biodiversity monitoring/assessment Prior to land clearing operations within the mine expansion area, the proponent will conduct tree inventory following FMB Technical Bulletin and in coordination with DENR-CENRO, which will be the basis for application of Special Tree Cutting and/ or Earthballing Permit. Once the STCP is issued by the DENR, the Proponent shall abide by all the conditionalities as set forth in said STCP, particularly the tree replacement following the guidelines under DENR Memo Order No. 2012-02 dated November 05, 2012 in order to replace standing trees affected by the clearing operations. In the case of coconuts, cutting permit shall be secured from PCA.	100% rehabilitation/ re-vegetation of disturbed areas100% observance of biodiversity monitoring and study 100% Compliance to R.A. # 9147 and other related laws/policies on wildlife conservation	Enhanced floral community due to reforestation.Enhanced habitat for faunal species.

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
		The Proponent will include discussions on wildlife conservation in compliance to RA 9147 and its IRR based on the results of Terrestrial Ecology assessment and shall be incorporated in the formulation of the EMP and EMoP. This can be done or implemented under Annual Environmental Protection and Enhancement Program (AEPEP) Results of the biodiversity assessment conducted by IIT will be incorporated in the discussions on biodiversity parameters during project operation vs. baseline data as contained in the EIS. *Note: TB 2016-04 of 02 December 2016 is duly noted. This refers to the conduct of Protected Area Suitability Assessment (PASA), and therefore apparently not relevant to the Project since it is not cited as an E-NIPAS area.*		
BLASTING	Possible damage to caves no. 5 and 9 (Matu-ug Cave) and disruption of the groundwater resource contained in No. 9, which is tapped by the City's water district..	- Caves No. 5 and No. 9 are located in other parcels of MPSA-104, which are outside of the quarry areas. - Absolutely no blasting near caves - Blasting done in 80% of limestone, and none in shale quarrying	100% compliance to RA 7942	No residual effects
	Physical injuries or damage to property due to fly rocks.	- All residents are periodically informed of blasting schedule. Notices sent to the barangay, PNP & MGB 3 days before blasting. Siren provided at the quarry and nearby residential areas. - Blasting is concentrated to hard limestone deposits only and is limited to day time.	100% compliance to RA 7942	No residual effects
	Ground vibration	- Controlled blasting method employed. - Blasting pattern planned beforehand and ground vibration is measured, recorded and reported to MGB	100% compliance to RA 7942	No residual effects
	Disruption quantity and quality of aquifers (esp. shallow water wells).	- Controlled blasting is adopted - Blasting pattern planned beforehand and ground vibration is measured, recorded and reported to MGB	100% compliance to RA 7942	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential impact to Air Quality due to dust and noise emission	- Controlled blasting is adopted - Blasting pattern planned beforehand and ground vibration is measured, recorded and reported to MGB	100% compliance to RA 8749 and noise standards	No residual effects
	Risk of contamination of soil and water from hazardous wastes	- Plant implemented strictly on hazardous waste management program. - Administer proper storage and handling of hazardous wastes. The plant has a Hazardous Waste facility where hazardous waste are temporary stored and managed. - Secondary containment was constructed to prohibit oil/chemical spill, which may lead water/soil/and groundwater contamination - Properly categorize wastes for disposal and further treatment - Allocate staging area to accommodate waste treaters and disposal contractors - Ensure that personnel and equipment needed for oil spill response are always ready.	100% Compliance to RA 6969	No residual effects. Hazardous wastes will ultimately be disposed by TSD providers and will not remain at the impact areas.
STOCKPILING	Potential Erosion and Siltation	- Properly stockpile and dispose the materials generated from the quarry, silt from settling ponds, and other wastes in permanent, stabilized areas away from any water body and drainage systems maintained in safe and non-polluting conditions. - All topsoil are properly stockpiled upslope and away from other spoils materials. - Strictly effect stabilization and erosion control of the affected side slopes of the roads and nearby gullies and creeks within the project site, as well as the siltation ponds. - All stockpiled soils and spoils were stabilized with temporary vegetation i.e., grasses or plants with good root systems. - Installed sediment traps and drainage ways.	100% conveyance of run-off water to settling ponds 100% stabilized slopes and efficiency of erosion control	No residual effects
	Contamination of groundwater due to leaching of stockpile	- Ensure no contamination of groundwater by thorough soil compaction not allowing coal to enter the groundwater instead will be driven to the stockpile siltation ponds. - During rainy season, open coal stockpile should be covered by tarpaulin but not during dry season as it will cause smoldering. - The floor of stockyard is designed as to have curbing along the periphery. This shall prevent the runoff from heaped materials directly running over soil surface. - Conduct annual groundwater sampling/ monitoring	100% compliance to DAO 2016-08	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
HAULING (Including use of heavy vehicles and mining equipment)	Potential impact to Air Quality due to dust and noise emission	- Conducted at least twice (2) a day water spraying along access roads, haul roads, and stockpiles especially during dry season. - Imposed speed limit to 20 kph to minimize airborne dust and ground vibration especially passing thru barangay proper. - Installation of mufflers and other noise suppressor to all vehicle and heavy equipment. - Imposed restriction of hours of activities especially from Site 2. - Regular maintenance of vehicle and heavy equipment as per PMS checklist - Regulated the use of road passing barangay proper- Covering of dump truck using tarpaulin to control dust emissions. - Load limit capacity are strictly implemented and required for hauling contractor. - Regular removal of spillages on haul roads. - Revegetate disturbed areas as soon as possible.	100% compliance to RA 8749 and noise standards	No residual effects. Dust and noise pollutants do not stay in air environment
	Contamination of Iligan bay from fugitive dust during transfer of raw materials	- Same measures as above. - Provide and maintain sufficient drainage along roads and around stockpiles.	100% Compliance to RA 6969	No residual effects. Dust do not stay long in air environment
	Increase in noise level	- Mining activities will be done essentially during daytime only - Provide silencers and mufflers to minimize noise - Proper maintenance of the equipment and vehicles - Planting trees that could serve as sound buffers. - Establishment of 20-meter buffer zone of different species combination of plants including shrubs, small and medium-sized trees.	100% compliance to Noise Standards	No residual effects. Noise does not linger
Movement of Workers	Impact to water quality of nearby water body (Iligan Bay) in terms of increase in BOD loading and coliform level due to wastewater/sewage generation by workers.	- Provide temporary facilities (“portalets”) for workers. - Strictly impose on the contractors and its workers to observe proper waste disposal and proper sanitation. - Sanitation including the sludge collection of the portalets will be weekly or twice a week (depend on the actual usage/volume of sludge). 3rd party sludge transporter should be registered/authorized by DOH and EMB. - Conduct Quarterly Effluent Monitoring	100% compliance to RA 9275 (DAO 2016-08)	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Soil/Land Contamination due to improper disposal of solid wastes generated by mining workers	- Implement waste segregation. - Provide proper solid waste disposal system. - Practice good housekeeping.	100% compliance to RA 9003	No residual effects
CEMENT PLANT				
CEMENT PLANT OPERATIONS (Crushing, Burning, Clinkering, Finish Milling, Packing)	Potential impact to Air Quality due to dust and noise emission	- Conducted daily water spraying and road sweeping on unpaved and cemented roads at Packhouse area.- Installation of exhaust mufflers on vehicles. - Dust collection equipment (rotary drum dryer, bag filter, electrostatic precipitator, etc) installed in all parts of the Cement Plant, Finish Mill and Packhouse) - Landscaping around the buildings/plant to act as dust and noise buffer. - Incorporating noise criteria in the specifications and selection of equipment - Use of effective noise attenuating materials for the plant structure and walling - Planting of the appropriate vegetation as buffer **FOR THE PROPOSED EXPANSION**, a whole new array of dust collecting equipment shall be added to the existing Air Pollution Control Facilities and Devices (See Tables ES-1 and 1-7)	100% compliance to RA 8749 and noise standards	No residual effects. Dust and noise pollutants do not stay in air environment
	Potential impact to Air Quality due to Ambient Emissions (Particulates, NOx, SO2, CO)	- Replacement and maintenance of Air Pollution Control Facility and Devices as per PMS checklist - Conducts tree planting along plant vicinity to provide a buffer zone. This is part of NGP and MFP project implementation and accomplishment. - Conducts at least twice a day water spraying along quarry road especially during dry season to suppress dust emission. - Mechanical road sweeper with vacuum was utilized to clean the material spillages. This is to reduce manual sweeping, which might result to fugitive dust. - Covering of dump truck using tarpaulin to address the material spillage during transport. - Daily checklist for the mobile equipment is employed including the smoke belching monitoring. - Conducts quarterly monitoring of ambient air at the designated sampling areas. - Turned the idle areas into landscape areas to address fugitive dust when windblown.	100% compliance to RA 8749	No residual effectsAir Pollutants dispersed and does not stay in atmosphere

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential impact to Air Quality due to Source Stack Emissions (Particulates)	- Conducted tree planting along plant vicinity to provide a buffer zone. This is part of NGP and MFP project implementation and accomplishment. - Conducted annual stack sampling monitoring for the smoke stack specified at Permit to Operate. - Installed CEMS/COMS at kiln stack and conducted quarterly CGA and annual RATA. - Cement plant shutdown if Electrostatic Precipitator (ESP) fails to work in 20 minutes. **FOR THE PROPOSED EXPANSION**: Replacement/modernization and Maintenance of Air Pollution Control Facilities and Air Pollution Control Devices as per PMS checklist in all areas of the Cement Plant, Finish Mill, Packhouse and other sections of the Plant Complex).	100% compliance to RA 8749	No residual effects. Pollutants dispersed and does not stay in atmosphere
	Potential impact to Air Quality due to GHG Emission	- Monthly and Annual monitoring of GHG specifically CO2 emission using cement sustainability initiative (CSI) standard format. - Initiated NGP and MFP for the CO2 sequestration program. - The plant uses alternative raw material such as fly-ash and other cementitious materials to reduce the clinker consumption and thus reduce the CO2 emission.	100% compliance to RA 8749	No residual effects to the air environment; GHG dispersed and do not stay in air environment GHG destination is the stratosphere
	Air quality pollution from TSP and PM10 from non-regulated sources (vents, silos, finish mills, fugitive sources)	- Proper operation and following the PMS of dust collectors - Regular compacting of unpaved access roads - Utilize the mechanical road sweeper with vacuum - Formulation and implementation of a motor vehicle maintenance program, including emissions testing - Regular checking and following the PMS for conveyor systems and vents	100% compliance to RA 8749	No residual effects Air pollution dispersed
	Potential impact to Air Quality due to Ambient Noise emission	- Conducts quarterly monitoring of noise pollution at designated sampling areas. - Strictly imposed maintenance of major and auxiliary equipment to reduce maintenance related noise pollution. - Conducted tree planting along plant vicinity to provide a buffer zone. This is part of NGP and MFP project implementation and accomplishment. - Installed wall cladding and enclosure of major equipment to contain the noise.	100% compliance to Noise Standards	No residual effects Noise no permanent impacts after noise generator cease to operate

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential contamination of soil and water and creation of foul odor due to solid waste generation	- As an ISO 14000:2015 accredited company, the Plant has rigid solid waste management program. - Trash bins are properly labelled and daily collection was implemented. - Implements on-site waste segregation - The plant has a Material Recovery Facility - Metal scraps and glass/bottles are stored in scrapyard located near the MRF. Periodically sold to scrap buyers. - The scrapyard is located near the MRF and Hazardous Waste Storage - Recyclable bins (Earth Shape) were installed at designated areas. Also donated the Earth Bins to the Barangay, MGB and EMB X. - Daily collection of biodegradable wastes and disposed in compost pits - Residual wastes are disposed daily to Iligan City MRF for a charge of Php 200/m^2.	100% compliance to RA 9003	No residual effects; solid wastes will ultimately be disposed and will not remain at the impact areas.
	Potential contamination of soil and water due to hazardous waste generation	- Strictly implements hazardous waste management program. - Trash bins are properly labelled and weekly collection was implemented. - The plant has Hazardous Waste facility where hazardous waste are temporary stored and managed. - Secondary containment was constructed to prohibit oil/chemical spill which may lead water/soil/and ground water contamination - Co-processing in the Cement Kiln to use acceptable wastes as alternative fuel & raw material. - Generated/disposed quantity for each type of hazardous wastes is monitored, recorded and reported.	100% compliance to RA 6969	No residual effects; hazardous wastes will ultimately be disposed by 3rd Party TSD provider and will not remain at the impact areas
	Pollution of surface water and groundwater	- Quarterly monitoring of static water level of wells. - Conducted quarterly effluent sampling and monitoring. - Installation of oil-water separator in the waterway/canal for the oil & grease. - Constructed mini wastewater treatment for the canteen effluent and fish pond as indicator of good effluent quality.	100% compliance to RA 9275	No residual effects with application of mitigation measures.

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Siltation of water bodies	- Daily sweeping of dust and cement spillages on roads using mechanical road sweeper. - Provided adequate drainage with proper maintenance at Packhouse area & pier facilities. - Avoidance of spillage of materials during loading and unloading to/from barge.	100% compliance to RA 9275 (DAO 2016-08)	No residual effects with strict implementation of mitigating measures which are monitored by the EMB Reg X and the MMT.
	Potential contamination of soil and nearby water bodies due to oil spill from vessels and mobile equipment	- Proper disposal of used oil from vessel and from mobile equipment at Packhouse area. - Installed oil water separator at all canal outfalls from Packhouse and Motorpool of Packhouse Contractor - Nearest water bodies, except Iligan Bay, not in impact areas.	100% compliance to RA 6969	No residual effects; accidental oil spills will not remain at impact areas. Can readily be collected and disposed by TSD providers.
	Potential contamination of nearby water bodies with oil and grease and pollutants from runoff from the cement plant	- Installed oil and water separator at all canal outfalls. - Drainage system is well-maintained and monitored. - Immediate clean-up and remediation in case of accidental spill.	100% compliance to RA 6969 and to RA 9275 (DAO 2016-08)	No residual effects; accidental spills will not remain at the water bodies impact areas.
	Potential contamination of soil and water and foul odor due to Solid Waste Generation	- Strict implementation of solid waste management. - Implements solid waste segregation at Packhouse area & pier facilities.	100% compliance to RA 9275 (DAO 2016-08) and RA 9003	No residual effects; solid wastes will ultimately be disposed and will not remain at the impact areas
	Contribution to climate change from greenhouse gas emission	- Continue current GHG inventory program - Continue the NGP and MFP initiatives	100 % compliance on NGP and MFP	No residual effects
	In-migration	Prioritizing the hiring of workers to local residents and those in the impact areas of the project. Local qualified contractors will be given priority as well.	100% compliance to Labor Code of the Philippines including OSH Standards	Positive residual effects on employment

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Competition in the use of resources, principally on water availability	- Water use competition is not expected to be significant. - Contractors may draw water from the nearby water bodies and store this in water tanks for use during this phase and for domestic purposes. - Water extraction is within the allocation limits set in the Conditional Water Permits issued by NWRB. - Water pipelines were provided with water meter - Domestic water will be supplied from local concessionaires while drinking water will be from purchased bottled water, which is the case for drinking purposes. **FOR EXISTING SET-UP**, the water requirements for the project is 703.3 m3/day. **FOR PROPOSED EXPANSION**: This shall be increased to 3,100 m3/day for the proposed increase in quarry and plant production rates. This is taken from the 2 existing deep wells with rated discharge of 385 gpm or 87.6 m3/hr. No additional deep wells to be constructed. The process and the mining operation are dry in nature. Water requirements are for the plant and the sprinkling of dusty roads and areas.	100% compliance to RA 9275	No residual effects
Delivery of Raw Materials	Possible traffic congestion	Deemed not significant, no major truck movements in public roads. Nevertheless, measures are: - Limit in the use of certain roads specifically for the project. - Programmed dispatch of vehicles.	100% Compliance to traffic rules & standards	No residual effects

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Occupational Safety and Health hazards for workers frequently exposed to process units or facilities of Cement Plant complex	- Provision of proper sanitation and medical facilities to workers - Properly dispose of wastes at allocated disposal sites- Implement safety protocols at all times - Workers compelled to wear at all times during working hours the provided Personal Protective Equipment (PPE). - Observance of safety practices and training of workers. - Annual physical exam conducted for all employees. Results are submitted to DOH as a requirement to issuance of annual Sanitary Permit. - Annual IMS/ISO Surveillance audit is conducted by 3rd Party for ISO 14001:2015 and ISO 9001:2015 certification as well as recertification of OHSAS 18001:2007. - Implements various H&S programs such as: Hearing Conservation, PTB, Hypertension Management, Ergonomics, and Family Planning programs. - Free medical consultation, services, and medical treatment for employees in the clinic which is manned by a full-time nurse and occupational physician. - For hospitalization, RCMI has accredited hospitals in the vicinity of Iligan, Cagayan de Oro and Cebu for the benefit of the employees and their family members.	100% compliance to OSH Standards	No residual effects
	Physical injuries arising from accidents such as being hit by falling weak structures, being overrun by heavy equipment may be considered as attendant to plant works	- The Company Organization includes a Pollution Control Officer/Safety Engineer to oversee health and environmental hazards /concerns. - First aid kit shall be made available at all times at the project site. - Provide preventive measures for potential fire and explosion hazards	100% compliance to OSH Standards	No residual effects
	Potential impact to health of nearby residents/community.	- Conduct of community health services with the host community. - Conduct of community safety trainings on health awareness, emergency preparedness, road safety, and quarry safety. - Provides emergency transport for the community using the Company's ambulance. - Provides medical/financial assistance to host communities.		No residual effects

ES 3.4 Risks and uncertainties relating to the findings and implications for decision making

Based on the discussions of the Environmental Risk Assessment (ERA) **Section 4**, there appears to be no risks that cannot be managed through engineering intervention. However, the risks that provide challenges are those which are climate change related:

- **Strong Typhoons**
  Aberrations/strong typhoons may be experienced as an effect of climate change; however, these do not prevent implementation of the project because of the short term nature of typhoons thus emergency measure, e.g. evacuation of personnel will be developed.

- **Storm Surges and Sea Level Rises**
  Storm surges have been previously experienced in Iligan Bay, e.g., during Typhoon Sendong, but the sites affected were farther out from the pier of the Project. In any event, the risks and uncertainties that may arise therefrom are not deemed vital to decision making with respect to viability of the project.

  Sea Level Rise is not expected to create adverse implications for decision making because at worst case scenario only the pier operations will be affected.

ES 3.5 Status of EMF and EGF implementation (including the proposed changes to include the expansion)

Status: The same existing MMT members will be institutionalized, which anchors on the DAO 2017-15 "Guidelines on Public Participation under the Philippine Environmental Impact Statement (EIS) System".

On the proposed changes, as a matter of general procedure, the MOA for the MMT will be firmed up after securing of the ECC. The CLRF and the EGF for the expansion project will hence be determined.