

BUOD NG EIS PARA SA PUBLIKO

ES 1.0 Fact Sheet ng Proyekto

Table ES-1. Project Fact Sheet

Pangalan ng Proyekto	CONSOLIDATION OF PROPOSED INCREASE IN CLINKER, CEMENT AND QUARRY PRODUCTION AND PIER FACILITIES		
Lokasyon ng Proyekto	Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan, Iligan City, Province of Lanao del Norte		
Klasipikasyon ng Proyekto base sa EMB Memorandum Circular 2014-005	Cement Plant with Quarrying		
Existing ECCs	<ol style="list-style-type: none"> ECC No. 0803-009-2231 for the Consolidation of Quarry Projects, issued by DENR EMB Central Office on May 26, 2010 ECC No. 0505-004-105 for the Cement Manufacturing and Quarry Expansion Project, issued by DENR EMB Central Office on July 25, 2006 ECC No. 10(35) 02 08-26 3037-50200 for Pier & Loading Facilities, issued by DENR EMB Region 10 on August 26, 2002 ECC No. 9611-03-302 for the Limestone Extraction project (formerly owned by MCCI), issued by DENR EMB Region XII on Nov 7, 1996 		
Lawak ng Proyekto	ECC	KASALUKUYANG PRODUCTION RATE	PLANONG BAGONG PRODUCTION RATE
	Cement Milling Produksion		
	ECC 1	2.0 MMTPY	4.30 MMTPY
	Clinker Produksion		
	ECC 2	0.61 MMTPY	3.70 MMTPY(dagdag)
	Quarry Produksiyon		
	ECC 1	Limestone: 810,000 MTPY Shale: 255,000 MTPY	Limestone: 5.91 MMTPY
	ECC 2	Limestone: 810,000 MTPY Shale:: 250,000 MTPY	Shale and other Siliceous Materials: 2.29 MMTPY
	ECC 4	Limestone: 100,000 MTPY	
	Buod ng mga Pangunahing Bahagi	Component	Kasalukuyan
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	parehas
2 units Rotary Dryer		100 TPH each	parehas
4 Units Raw Material Bins		66.2 m3	parehas
1 unit Ball Mill		140 TPH	parehas
2 Units Raw Mill Silo		2,200 MT each	parehas
1 unit Kiln Surge Bin	72.8 MT	parehas	
1 unit Kiln with Preheater Cyclones	1,800 TPD/ 610 MTPY	parehas	

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

	1 unit Gas Conditioning Tower	8 nozzles; 3,700 m3/min	PAREHAS
	1 unit Cooler	1,600 TPD	
	1 unit Coal Vertical Roller Mill	15 TPH	
	1 unit Finish Mill 1	80 TPH	
	1 unit Fly-ash feeding System	20 TPH	
	3 units Cement Silos	4,000 MT each	
	1 unit Finish Mill 2 with Pre-grinder	2.0- MMTPY	
	2 units Flyash Silo	1,600T each	
	1 unit Pre-grinder cement Silo	Internal Cap: 4,000 MT	
		External Cap: 7,000 MT	
	1 unit Bulk Truck Cement Loading	250 TPH	
	1 unit RCMI Material Storage	40,000 MT	
	1 unit Cement Silo with Bulk loading Facility	12,000 MT	
	4 units Cement Silo	1,500 MT	
	1 unit Packhouse 1/5 Rotopacker	12 spouts (3,600 BPH)	
	1 unit Cement Tonner Bag Loading	20 TPH	
	1 unit Packhouse 2 Rotopacker	10 spouts (2,400 BPH)	
	1 unit Packhouse 2 Haver & Boeker Bagging Facility	600 TPD	
	1 unit Packhouse 3 Rotopacker	6 spouts	
	1 unit Packhouse 4 Rotopacker	8 spouts (1,920 BPH)	
	1 unit Generator Set	250 KW (315 KVA)	
Dust Collector System- Existing			PAREHAS
	2 units Bag filter: dust collector Rotary Drum Dryer	135,000 m ³ /hr	
	1 unit bag filter: Rotary Drum Dryer Auxiliary	8,232 m ³ /hr	
	1 unit bag filter : Rotary Dryer Bucket Elevator, Belt Conveyors, Material Storage	8,700 m ³ /hr	
	1 unit bag filter: Raw Mill Weigh feeder	11,300 m ³ /hr	
	2 units Multicyclones: Raw Mill Separators	42,000 m ³ /hr	
	1 unit bag filter: Raw Mill Silo	6,630 m ³ /hr	
	1 unit bag filter: Raw Mix Silo	7,200 m ³ /hr	
	1 unit Electorstatic Precipitator: Rotary Kiln	2,436 Am ³ /min	
	1 unit Electorstatic Precipitator : Cooler	4,433 m ³ /min as per PTO	
	1 unit bag filter: Cooler discharge	5,700 m ³ /hr	
	1 unit bag filter: Coal Mill	41,340 m ³ /hr	
	1 unit bag filter: Coal Mill Fine Coal Silo	5,100 m ³ /hr	

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

	1 unit bag filter: Finish Mill 1 weigh feeder:	10,140 m ³ /hr	
	1 unit bag filter: Finish Mill 1 Mill	100,800 m ³ /hr	
	5 units bag filter: Packhouse 1 Rotopacker	1 Unit 19,500 m ³ /h	
		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	
	2 units Mill bag filter – FM2	84,000 m ³ /hr	
	1 unit bag filter: weigh feeder – FM2	12,600 m ³ /hr	
	1 unit bag filter: rotopacker #3 – Packhouse 2	24,000 m ³ /hr	
	1 unit bag filter: HBBF- Packhouse 2	16,980 m ³ /hr	
	1 unit bag filter: Cement Silo – Packhouse 2	8,700 m ³ /hr	
	1 unit main bag filter: Roller Press	6,000 m ³ /min	
	2 units bag filter: fresh feed transport system	200 m ³ /min	
		116.7 m ³ /min	
	3 units auxiliary bag filter: Roller Press	416.7 m ³ /min	
		333.3 m ³ /min	
		50 m ³ /min	
	3 units bag filter: cement transport system	95.8 m ³ /min	
	3 units bag filter: roller press feeding system	200 m ³ /min	
		83.3 m ³ /min	
		100 m ³ /min	
	2 units bag filter: Cement Silo - Top	66.7 m ³ /min	
	1 unit bag filter: External Silo	27.5 m ³ /min	
	1 unit bag filter: Internal Silo	73.3 m ³ /min	
	1 unit bag filter: Bulk Truck Cement Loading	25 m ³ /min	
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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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 m ³ /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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

	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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

		· Nursery	· Nursery
		· Access Roads	· Access Roads (Daang kalye)
		· 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	
Kabuuang Halaga ng Proyekto	Pier		
		1 unit Pier and 2 units Wharf/Beach Pad Facilities	1 unit Pier and 2 units Wharf/Beach Pad Facilities
Construction Period	Php 18 Billion		
Construction Period	By July 2021 (estimate)		
Tagapagtaguyod	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		
EIA Preparer / Consultant	Tel : Tel 02 885 4599		
	TECHNOTRIX INTEGRATED SERVICES, INC.		
	Unit 12106 12 th Floor The trade and Financial Tower 32 nd Street cor 7 th 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		
	<u>Contact Person:</u>		
Edgardo G. Alabastro, Ph.D.			

Base sa ipinakitang table sa itaas na mga ibat-ibang klase ng Air Pollution Control Devices o APCDs, pwedeng akalain na mayrong potential na mag emit ng mga ligaw na alikabok na itinuturing na TSP, o PM10 kapag ang APCD ay hindi maayos na mapangalagaan Ito ay isinaalang alang sa paggawa ng Air Dispersion Modeling na may ibat-ibang klase ng mga APCDs at mga senaryo ng hindi macontrol na APCDs. Makikita ito sa pahina 12 ng ADM Report. **Annex 2.3-1.**

Bukod dito, ang pangangalaga ng buong Dust Collection System ay oobserbahan; na makikita sa **Annex 2.3-5: Dust Collection System Maintenance Program.**

ES 1.1 Maikling Buod ng Proyekto

And Republic Cement Mindanao, Inc. (RCMI) at Republic Cement Iligan, Inc. (RCII) ay dating magkahiwalay na kumpanya na may sarili sariling pacilidad sa processing at quarry operations. Ang dalawang kumpanya na ito ay nag merged sa iisang entity na ang RCMI ay siyang naiwang kompanya. Makikita sa **Annex ES-2** ang aprobal na merger ng Securities and Exchange Commission (SEC) at ang kaukulang sulat sa MGB para ma Register ang Merger at maitala sa records ng MGB.

Ang laki ng proyekto at mga pangunahing bahagi nito ay makikita sa **Table ES-1** pati na rin ang mga ibang aspeto ng proyekto at operations na magkasama na sa ilalim ng RCMI.

Bukod dito, ang mga kasalukuyang ECCs ng RCMI at MCCI (ECC numbers 1 to 4 in **Table ES-1**) ay magkakasama na dito sa aplikasyon na ito na nasa ilalim na ng RCMI. Ang magkahiwalay na EPRMPs at Additional Information (AIs) ng RCII at RCMI ay pinagsama na sa pangalan ng RCMI. At karagdagan pa, ang bagong MPSA No. 105-98-XII for a 26.7867 hectares limestone quarry ay naka paloob na sa kabuuan ng proyekto.

Para sa Kastibayan sa pagaari sa lugar ng proyekto o tinatawag na Proof of Authority over the Site, makikita ito sa **Annexes ES-3 to ES-6** ang MPSAs; **Annexes ES-7** para sa Land Titles (TCTs) ng kinalalaagyan ng planta.; **Annexes ES-9 to ES-12** para sa mga kopya ng 4 ECCs. **Annex ES-8** para sa sulat sa MGB noong Aug. 6, 2018 tungkol sa: Non-Applicability of DMPF as Quarrying Operations na nagsimula bago sa pagkakamit ng MPSA.

Para sa EPRMP ng pinagsamang kumpanya, and pangangailangan base sa technical scoping na dating magkahiwalay para sa RCII at RCMI na halos parehas naman ito ang mga ginamit na basehan para sa binagong EPRMP. Ang Public Participation Activities sa ilalim ng DAO 2017-15 na dating magkahiwalay para sa RCII at RCMI ay pinagsama na dito sa EPRMP.

ES 2.0 EIA Process Documentation (Dokumentation para sa proseso ng EIS)

Ang nilalaman ng ulat ng EIS na ito ay inestablished noong ginanap ang Technical Scoping noong 02 April 2019 (See **Annex ES-2**). Sa panuntunan ng EMB/DENR sa ilalim ng Revised Manual for Coverage Screening and Standardized Requirements ng Philippine EIS System o PEISS, ang nauugmang dokumentasyon pareha sa proyekto ay ang tinatawag na Environmental Performance Report and Management Plan (EPRMP).

ES 2.1 EIA Team (Mga myembro ng EIS)

Ang komposisyon ng EIA Team na may pagsunod sa EMB MC 2011-005 ay ipinakita sa **Table ES-2**. Ang mga Experto ng RCMI ay nakibahagi din at nakalista dito.

Table ES-2. Team of EIA Preparers

Team Member	Module o bahagi ng karanasan	EMB Registry No.	Kompanya
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 Assisted by Engr. Emitterio Hernandez (Resource Person)	Oceanography	-	TISC Consultant

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Team Member	Module o bahagi ng karanasan	EMB Registry No.	Kompanya
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 Iskedyul ng Aktibidad para sa EIA

Ang pinag aralang lugar ay tumingin sa paglalagyan ng proyekto at kung saan may epekto ito at kasama din ang Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan sa Siyudad ng Iligan, Lalawigan ng Lanao del Norte.

Ang iskedyul ng pagaawral ay nagbase sa simula ng tinatawag na Environmental Protection at Enhancement Plan o EPEP and Final Mine Rehabilitation and Decommissioning Plan o FMRDP nuong 2018. Ang orihinal na EIS para sa planta ng semento at sa quarry project ay nagging basehan ng mga mahahalgang informasyon dahil ang orihinal na EIS is halos parehas sa pinalaking proyekto and parehas sila ng lugar na paglalagyan.

Ang mga sumusunod ay ang mga aktibidad na isinasagawa para sa pag-aaral na ito. Ang mga susunod pang mga aktibidad ay magbabase sa Review Committee Meetings.

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 .

Ang mga sumusunod na aktibidades ay itinakda ng Revised Procedural Manual at susunod pang isagawa base sa kompletong EPRMP na pag aaralan ng EIAMD/Review Committee.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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 (Metodolohiya sa EIA)

Ang metodolohiya sa EIS ay binase sa EPRMP screening form na nagresulta sa technical scoping. Ang EPRMP screening form ay pinirmahan ng mga Environmental Impact Assessment Review Committee (EIARC), ng Project Proponent at EIA Consultant kung saan nakasaad ang kailangan lalamanin ng EPRMP report. Ang pirmadong EPRMP Screening Form ay makikita sa **Annex ES-1**.

Ang primary at secondary data ay ginamit sa pagsusuri ng epekto ng proyekto. Ang pangunahing datos ay nakuha sa investigation ng lugar ng proyekto at sa field sampling / surveys. Ang Self-Monitoring Reports (SMRs), Compliance Monitoring Report (CMRs), Compliance Monitoring Validation Reports (CMVRs), SDMP Reports, at lahat ng iba pang reportorial requirements na isinumbmit sa DENR ay mga pangunahing data. Ang mga pangalawang datos ay nakuha sa ibat ibang sources, tulad ng CLUP, pablisadyong government (MGB, PAGASA, PHIVOLCS) reports and mapa. Ang mga kaugnaya ant dating pagaaral at surveys sa orihinal na EIS Report ay ginamit din kung naaakda.

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.
AIR		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Module / Section	Baseline	Methodology
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 Pampublikong Pakikilahok

Information, Education and Communication (IEC) Activity

Ang IEC activity ay isinagawa kasama ang mga concerned stakeholders noong 11 Enero 2019 sa RCMI Guesthouse Brgy. Kiwalan, Iligan City, Lanao del Norte, na dinaluhan ng dalawampung apat (24) na stakeholders. Ang mga imbitado sa nasabing mga IEC activity ay Opisyal ng LGU, Mga Opisina ng Gobyerno, Mga Organisasyon ng Non-Pamahalaan (NGO) / Organisasyon ng Mga Tao (PO), Apektadong Barangays at iba pa. Makikita sa **Table ES-5** ang mga pangunahing isyu na naitala sa panahon ng IEC at FGD na isinasagawa. Makikita naman sa **Annex ES-14.1** and dokumentasyon ng isinagawang IEC.

Pansinin na ang mga issues na binanggit at mga kaukulang sagot ng project proponent ay nakaugnay din sa dating RCII and RCMI dahil sa ang IEC and Public Scoping ay ginanap bago sa pagsasanib ng dalawang kompanya.

Table ES-5. Information, Education and Communication (IEC) : Inpormasyon, Edukasyon at Komunikasyon) ; 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.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
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. 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. Suggestion to include Brgy. Acmac in host barangays.	They were pre-existing, hence, allowed. Anyways, they are outside the mining operations of RCII. 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. 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. 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.	This applies to workers of RCII and its contractors as well. Noted.
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.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
<p>Ms. Rosemarie Macarandan Principal, Kiwalan National High School</p>	<p>Concern for students of Kiwalan National High School which is located near the project area. What are the benefits or privileges for them?</p>	<p>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.</p>
	<p>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.</p>	<p>Noted. We can discuss that during our meeting for this year's SDMP.</p>
<p>Ms. Eleonor V. Cañonero City Health Officer of Iligan</p>	<p>Are there studies regarding the complaints of affected communities with regards to the operation of the plant? Were they affected?</p>	<p>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).</p>
	<p>The SDMP's allocation for health is small. Isn't there significant effects of the operation on health?</p>	<p>Conducted Social Impact Assessment (SIA) in 2018, wherein recommendations were given to improve dust emission levels, which was implemented.</p> <p>In the processing of the ECC amendment, the proponent's performance in the past shall be evaluated.</p>
<p>Engineer Jeffrey Department of Health, R10</p>	<p>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.</p>	<p>Noted.</p> <p>Programs such as Zero Waste Management, toilets, water system, and others that affect health are included.</p>
	<p>Include health impact assessment in the study so it will be used as baseline for future complaints. Also include mitigating measures.</p> <p>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.</p>	<p>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.</p> <p>Number 1 focus at the plant is Health, Safety and Environment.</p>
<p>Kristina Zapanta Nurse from Department of Health, R10</p>	<p>Is there health impact assessment for the workers? For the additional workers during the expansion, will they also be included?</p> <p>On IEC, is health impacts included? How often is IEC done and who is the target audience?</p>	
<p>Representative from City Environmental Management Office</p>	<p>Size of expansion of quarry sites and plant?</p>	<p>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.</p>
	<p>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?</p>	<p>Number 1 focus at the plant is Health, Safety and Environment.</p>

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
	What is the impact to employment, how many can work? Will Iligan residents be able to work here? Air pollution effects.	Local employment - around 500 workers needed in the construction. Locals are prioritized. 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 electrostatic precipitator 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

Panunang survey ng mga sosyodidad sa komunidad malapit sa lugar ng proyekto

Ang mga resulta ng mga paunang survey na sumasakop sa komunidad na malapit sa lokasyon ng proyekto ay inilahad sa **Annex ES-14.3**. Ang mga nasabing mga survey ay isinagawa bilang bahagi ng Information, Education and Communication (IEC).

Ang Paunang Perception Survey ay isinagawa noong Enero 12-14, 2019 na may kabuuan na 177 na mga sumagot o respondents upang mapag alaman ang socio-cultural economic situyasyon ng

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

komunidad na maaapektuhan ng binabalak na proyektong expansion lalo na ang (5) limang barangays sa lungsod ng Iligan, at barangays: Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan.

Sa mga nakikitang benepisyo and mga pangunahing sagot at tungkol sa pangkabuhayan o livelihood at oportunidad sa Negosyo pagaayos ng mga kalsada at iba pang inprastruktura, karagdagan buwis at serbisyo publiko ng goyerno. Sa kabilang dako ang nakikitang negatibong efekto ay ang trapiko at polusyon ng tubig.

ENHANCED PERCEPTION SURVEY : Mas malaganap na survey sa pananaw ng tao

Sa karagdagan at mas malawak na survey ng mga kabahayan na ginawa matapos ang IEC na kinabibilangan ng 510 na sumagot sa Kiwalan, Dalipuga, Acmac, Bonbonon at Bunawan barangays sa lungsod ng Iligan ang mga sinalaysay ng mga tinanong ay:

Sa nakitang maganda at negatibong epekto and pangunahing sagot ay tungkol sa trabaho, pangkabuhayan, buwis, pag aayos ng kalsada mas magandang serbisyo publiko at pagpapauland ng mga barangay at siyudad. Sa kabilang dako ang sinalaysay na negatibo ay may kinalaman sa kalusugan, trapiko and polusyon sa tubig at hangin.

Public Scoping

Ang Public Scoping ay isinagawa noong 20 Pebrero 2019 sa Barangay Kiwalan Gymnasium, Barangay Kiwalan, Iligan City, Lanao del Norte na dinaluhan ng 258 apektadong mamamayan. Ang mga imbitado sa nasabing mga IEC activity ay Opisyal ng LGU, Mga Opisina ng Gobyerno, Mga Organisasyon ng Non-Pamahalaan (NGO) / Organisasyon ng Mga Tao (PO), Apektadong Barangays at iba pa. Ang listahan ng participants noong Pubic Scoping ay makikita sa **Annex ES-14.2**.

Buod ng mga Isyu at Mga Alalahanin na Itinaas sa panahon ng Pampublikong Aktibidad

Ang pakay ng natapos na Public Scoping at mga susunod pang pagpapahayag sa publiko ay para tiyakin na ang EIS Report ay tutugon sa lahat ng agamgam ng mga tao at publiko. Makikita sa **Table ES-8** ang mga isyung naitala noong Public Scoping.

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). <i>Note : This concern is related to land, air, water and People Environmental Resources</i>
WATER		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	Proponent's Response
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, & Committee on Health (all 3 had same issue raised)	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. 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. <i>Note: This is safety issue affecting "People"</i>

ES 3.0 Buod ng EIA

ES 3.1 Summary of alternatives considered in terms of siting technology selection/operation processes and design (Mga alternatibong kinonsidera sa pagpili ng lugar ng proyekto, teknoliya, operasyon at desino)

Sa pagpili ng lugar para sa proyekto walang ibang makahulugang alternatibo bukod sa kinaroroonan ng planta at ng quarry,

- Ang teknolohiya, proseso at desenyong ay parehas sa kasalukuyan at ang proyekto ay pagpapalaki lamang ng kapasidad.
- Ang quarrying ay yong tinatawag na "open pit method" na parehas sa kasalukuyan.

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

Buod ng karakterisasyon ng baseline kaugnay ng monitoring ng impaks and perormans ng proyekto.

Table ES-7 makikita and condition ng environment sa bawat sector nito na gamit ang monitoring at kinukumpara sa dating kalagayan ng environment.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Ang kasalukuyan kondisyon ay iniuugnay sa mga SMRs, CMRs, CMVRs at SDMP reports.

Makikita na ang dating ECCs ay sakop ang marami pang ECCs at amendments nito bago ilagay ang kasalukuyan pagaaral.

Ang mga dating ECCs ay: (Makikita sa **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**.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Table ES-7. Summary of Key Baseline Characterization *Buod ng Mahahalagan karakterizasyon ng environment*

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 silt/soil recovered from the ponds. Engineering and mitigation measures in place.
Soil Quality / Fertility		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	CURRENT	
<p>2002 soil tests in 4 stations: (Table 2.1-8)</p> <p>pH: 7.8 to 8.1 OM: 3.89 to 7.12% P: 9 to 18 ppm K: 0.27 to 0.89 mol.</p> <p>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.</p>	<p>2020 soil tests results for 10 stations: (Table 2.1-10)</p> <p>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</p> <p>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</p>	<p>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.</p> <p>Metallics not a concern because results show these as within the Dutch Intervention Values (DIVs)</p>
Flora (vegetation removal and loss of habitat)		
<p>Quarries pre-existing, disturbed area in 2004 approximately 61 hectares (no vegetation)</p>	<p>Active/disturbed area is 76.438 hectares for both quarries; approx 15.5 hectares cleared during the period.</p> <p>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)</p> <p>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)</p> <p>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</p> <p>NGP (outside project site) : 272 trees inside 100 hectares Mangrove: >200,000 propagules</p>	<p>For every 1 cut tree, 50 seedlings are planted for replacement. RCMI has expanded its reforestation efforts through NGP. EPEP/FMRDP in place.</p>
Fauna		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	CURRENT	
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)		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	CURRENT	
<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p>	<p>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.</p>
Water Quality (Freshwater)		
<p>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.</p> <p>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.</p>	<p>2018 to 2020 tests - the trend of the water quality reveals that:</p> <ul style="list-style-type: none"> - 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. <p>Episodes of peaks in BOD5 observed. Attributable to human activities e.g. use of toilets, baths and for food preparation.</p>	<p>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.</p>
Marine Ecology		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	CURRENT	
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: SO ₂ - 4.8 ug/Ncm; NO ₂ - 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, NO _x and Sox. PM ₁₀ results for 2020 monitoring indicate compliance with standards and are shown in Table 2.3-9 Source Emissions Quality for PM, Sox, NO _x 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 CO ₂ 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 CO ₂ 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		
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		

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Conditions/Impact		CONCLUSIONS/REMARKS
PREVIOUS	CURRENT	
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 *Maiksing buod ng mahahalagang impact at mga maiiwang epekto matapos ipatupad ang mga mitigasyon*

Base sa Procedural Manual 2003-30, ang "Residual Impacts / Effects" ay ang maaaring matirang epekto matapos ipatupad and mga hakbangin para maiwasan ang mga ito. Makikita ito sa **Table ES-8** kung saan mababasa din ang mga aktibidades na angkop sa iba't ibang sector ng kalikasan halimbawa, hangin, dagat o ilog, at iba pa.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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	<ul style="list-style-type: none"> - Re-vegetation and enhancement of buffer zone. - Construction/installation of culverts at selected portions of the mine access for ground vertebrate to migrate and cross through. - 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.	<ul style="list-style-type: none"> - 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 runoff water and sediments to siltation ponds/traps	No residual effects Compliance to MGB No further activities after site decommissioning/rehabilitation.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Soil/Land Contamination Due to Improper Waste and/or Garbage Disposal.	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 effects Dust pollutants are controlled and if dispersed (minimally) will not stay in environment.
	Possible increase of noise level (Nuisance)	<ul style="list-style-type: none"> - 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
Delivery/ Transport of construction materials	Potential damage to Barangay Roads/Right-of-Way Issues	<ul style="list-style-type: none"> - 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.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Traffic Congestion	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.	<ul style="list-style-type: none"> - 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
	Increase in indirect revenues	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
Republic Cement Mindanao Inc. (RCMI)
Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Physical injuries arising from accidents such as: - Being hit by falling weak structures - Being overrun by heavy equipment	<ul style="list-style-type: none"> - 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 ay kasama ng tuntunin sa OSH..		No residual effects
OPERATIONS PHASE (Existing and Proposed)				
QUARRIES				
Quarry Operations	Change in geology / Depletion of Ore	<ul style="list-style-type: none"> - 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/depletion of ore is permanent - No replacement.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Change in topography/landform	<ul style="list-style-type: none"> - 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). <p>The progressive nature of quarrying, which is inherent with the project, provides the major mitigation measures. Progressive rehabilitation and enhancement work such as:</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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.	<ul style="list-style-type: none"> - 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 m³. - 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 	<p>100% compliance to RA 9275 (DAO 2016-08)</p> <p>100% conveyance of runoff water to settling ponds</p> <p>100% stabilized slopes and erosion control</p>	Lesser potential for erosion and siltation.
	Potential impact to Air Quality due to dust and noise emission	<p>EXISTING</p> <ul style="list-style-type: none"> - Proper maintenance of the quarry equipment are imposed to reduce dust and noise. - Watering of unpaved roads done twice a day <p>Karagdagan</p>	100% compliance to RA 8749 and noise standards	No residual effects

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
		<ul style="list-style-type: none"> - Ang mga hakbang sa labas ng pasilidad lalo na sa quarry ay kasama ang pagdidilig ng tubig sa mg maalikabok na lansangan at pagtatanim ng mga halamanan o punong kahoy para mahaglangan ang mga alikabok. - Ang iba pa ay tulad na tinaguriang “cleaner production measures” tulad ng paglalagay ng meteorology station para malaman kung saang direksyon papunta ang hangin at maiwasan ang paglaganap ng alikabok <p>Ang tinaguriang Alternative fuel and raw materials (AFR’s) au gagamitin din kung ito ay angkop.</p>		
	Disruption of groundwater / aquifer	<ul style="list-style-type: none"> - 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	<p>- Positive impact, thus, no mitigation</p> <p>Existing manpower: RCMI: 164 for both the plant and the quarries. Quarrying - Delta Earthmovers – 68 Other Contractors: 745</p> <p>Proposed expansion: Construction phase for additional plant facilities: 1,000 RCMI: 184 (additional 20) Quarrying - Delta Earthmovers – 68 (same) Other Contractors: 745 (same)</p>	-	Positive residual effects Enhanced socio economic benefits

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	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
	Soil/Land Contamination due to improper disposal of earth/land spoils.	<ul style="list-style-type: none"> - 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	<p>Only areas that are identified to be quarried are to be cleared.</p> <ul style="list-style-type: none"> - 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. <p>Existing Active Disturbed Areas: 76.438 ha Additional Areas to be Cleared: 81.432 Total Area: 157.87 ha</p> <p>Topsoil to be backfilled is 0.5 meters thick X 1,313,837.27 m² = 656,919 m³ <i>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.</i></p>	100% compliance to mining plan	Improvement of soil (topsoil)

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	<p>Major disturbance of the mini forest cover with impacts on the terrestrial ecology - Loss of flora and fauna</p>	<ul style="list-style-type: none"> - 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 <p>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.</p> <p>In the case of coconuts, cutting permit shall be secured from PCA.</p> <p>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</p>	<p>100% rehabilitation/ re-vegetation of disturbed areas 100% observance of biodiversity monitoring and study</p> <p>100% Compliance to R.A. # 9147 and other related laws/policies on wildlife conservation</p>	<p>Enhanced floral community due to reforestation. Enhanced habitat for faunal species.</p>

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
		<p>be incorporated in the formulation of the EMP and EMOp. This can be done or implemented under Annual Environmental Protection and Enhancement Program (AEPEP)</p> <p>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.</p> <p><i>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 sited as an E-NIPAS area.</i></p>		
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..	<ul style="list-style-type: none"> - 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.	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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).	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential impact to Air Quality due to dust and noise emission	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Soil/Land Contamination due to improper disposal of solid wastes generated by mining workers	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 <p>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)</p>	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)	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential impact to Air Quality due to Source Stack Emissions (Particulates)	<ul style="list-style-type: none"> - 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. <p>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).</p>	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	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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	<ul style="list-style-type: none"> - 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/m². 	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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.
	Siltation of water bodies	<ul style="list-style-type: none"> - 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.

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Potential contamination of soil and nearby water bodies due to oil spill from vessels and mobile equipment	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

Activity	Impact	Mitigating Measure	Efficiency of Measures	Residual Effect
	Competition in the use of resources, principally on water availability	<ul style="list-style-type: none"> - 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. <p>FOR EXISTING SET-UP, the water requirements for the project is 703.3 m3/day.</p> <p>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.</p> <p>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.</p>	100% compliance to RA 9275	No residual effects
Delivery of Raw Materials	Possible traffic congestion	<p>Deemed not significant, no major truck movements in public roads. Nevertheless, measures are:</p> <ul style="list-style-type: none"> - Limit in the use of certain roads specifically for the project. - Programmed dispatch of vehicles. 	100% Compliance to traffic rules & standards	No residual effects

**Consolidation of Proposed Increase in Clinker, Cement and Quarry Production and Pier Facilities
 Republic Cement Mindanao Inc. (RCMI)
 Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan Iligan City, Province of Lanao del Norte**

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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.	<ul style="list-style-type: none"> - 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. Mga panganib at alanganing bagay base sa mga resulta ng pag-aaral at ang kahulugan nito sa desisyon tungkol sa proyekto.

Base sa diskusyon ng Environmental Risk Assessment (ERA) **Section 4**, walang nakikitang mga panganib na hindi kayang tugunan halimba sa pamamagitan ng engineering at disenyo.

Kung mga panganib na ito ay kaugnay ng climate change.

- **Strong Typhoons Malalakas ng Bagyo**
Ito ay pangsumandali lamang at hindi magiging dahilan na hindi ituloy ang proyekto. Mayroon namang magagawa sa panahong ganito na binigay ng Disaster Risk and Management Council
- **Storm Surges and Sea Level Rises Daluyong at pagtaas ng lebel ng dagat**
Ang daluyong ay naranasan sa Iligan Bay nuong Bagyong Sendong pero ang mga naapektohang lugar ay malayo sa lugar ng proyekto.

Hindi nakikitang magkaron ng malaganap na Sea Level Rise na makakaapekto sa desisyon tungkol sa pagpapatupad ng proyekto.

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

Kalagayan ng tinatawag na EMF at EGF sa pagpapatulad ng expansion ng proyekto.

Kalagayan: Ito ay parehas ng sa kasalukuyan na batay parehas sa DAO 2017-15 “Guidelines on Public Participation under the Philippine Environmental Impact Statement (EIS) System”.

Subalit magkaron ng panibagong MOA sa MMT, CLRF and EGF batay sa panibagong proyekto.