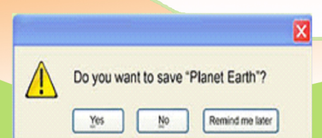


No. (145-A2-3), Thiri Mingalar Street
Ward No. (4), Mayangone Township
Yangon, 11062, Myanmar
Tel: (+95) 019667757, Fax: 01 9667757
Hotline: (+95) 09448001676
Email: info@eguardservices.com
URL: www.eguardservices.com

Initial Environmental Examination Report (IEE) For Construction Of Jetty

eguard

JUNE CEMENT INDUSTRY LTD.

Initial Environmental Examination Report (IEE)
For
Construction Of Jetty

December, 2019

eguard ENVIRONMENTAL SERVICES

INITIAL ENVIRONMENTAL EXAMINATION REPORT

FOR

CONSTRUCTION OF JETTY

Proposed By;

JUNE CEMENT INDUSTRY LTD.

Prepared By;

eguard ENVIRONMENTAL SERVICES

December, 2019

Report Review Form

Report Title: Initial Environmental Examination (IEE) Report **For Construction of Jetty**	
Report Version: 00 Version	
Proponent: **June Cement Industry Limited.** No. 80, Sayar San Street, Bahan Township, Yangon, Myanmar Mobile +95 92005445, +95 19010660	**Prepared By:** **E Guard Environmental Services Co.,Ltd** No. (145-2A-3), Thiri Mingalar Street, Ward No. (4), 8th Mile, Mayangone Township, Yangon 11011, Myanmar. Tel: 01 667953, Fax: 01 6667953, info@eguardservices.com Mobile +959 448001676

Prepared by: U Naing Zaw Win	**Position: Environmental Specialist**
Submitted Date: 12/10/2019	**Signature:**
Checked by: U Aung Myint Myat	**Position: Associate Consultant**
Checked Date: 15/10/2019	**Signature:**
Summary : IEE Report This document presents the initial environmental examination (IEE) report as required for construction of Jetty.	**Approved by:**

Distribution:

- ☐ Internal
- ☑ Public
- ☐ Confidential

Table of Contents

List of Tables

List of Figures

List of Appendix

List of Abbreviations

%	: Percentage
ºC	: Degrees Celsius
µm	: Micro Milligram
µg/m^3	: Micro Gram per Cubic meter
BOD	: Biochemical Oxygen Demand
CO	: Carbon Monoxide
CO_2	: Carbon Dioxide
COD	: Chemical Oxygen Demand
CSR	: Corporate Social Responsibilities
Cu	: Copper
dB (A)	: Decibel unit
ECD	: Environmental Conservation Department
EMP	: Environmental Management Plan
IEE	: Initial Environmental Examination
EIA	: Environmental Impact Assessment
EMOP	: Environmental Monitoring Plan
GRM	: Grievance Redress Mechanism
HSE	: Health, Safety and Environment
kWh	: Kilo Watt Hour
km	: Kilometer
mg/l	: Milligram per Liter
MWh	: Mega Watt per Hour
MIC	: Myanmar Investment Commission
MONREC	: Ministry of Natural Resources and Environmental Conservation
NO_2	: Nitrogen Dioxide
NAAQ	: National Ambient Air Quality Standard
pH	: Pond us Hydrogenium
PM	: Particulate Matter
ppm	: Part Per Million
TSP	: Total Suspended Particulates
WHO	: World Health Organization?
NEQG	: National Environmental Quality (Emission) Guideline.

Disclaimer

This report has been prepared by third party, E Guard Environmental Services Co., Ltd. for June Cement Industry Limited for Jetty construction located at near Kaw Pa Naw, Kyaikmaraw Township, Mon State. The report preparation was done inside the framework of Myanmar EIA Procedure 2015.

The analysis works had been done based on the provided data of the proposed plan of project from (the client) and onsite observation of environmental parameters guide by Myanmar Government Environmental Authority, Environmental Conservation Department, herein after ECD.

The impact assessment and mitigation measure are prepared based on the facts and figures of detail plan/ process of the project obtained from (the client).

Moreover, this report has been prepared in line with the prevailing active Laws, Rules, Procedure, Guidelines, and Standards etc. of Myanmar legal system on (June/ 2019).

The drawings, sketches, maps and other illustrative figures in this report are for the demonstrative/ descriptive purposes only and not to be considered as approved boundary nor accepted territory nor recognized properties extend of any kind.

In case of dual or multiple meanings of the wordings, those wordings should be interpreted as relevant meaning to the concerned areas of discussed in this report.

The individual/ personal, organizational and commercial data and information found in this report are included based on the concerned authority's requirement. The privacy and trade secrets concerned are to be addressed to the concerned authority ECD.

1. Executive Summary

June Cement Industry Limited proposed to conduct the Initial Environmental Examination (IEE) report for proposed jetty construction, at near Kaw Pa Naw Village, Kyaikmaraw Township, Mon State. The investor submitted a project investment proposal on August 19, 2015 to the Myanmar Investment Commission (MIC) and then, for the environmental approval and comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC). As per the comments of ECD, the proposed project needs to summit IEE report. Therefore, June Cement Industry Limited Commissioned E Guard Environmental Services for IEE report study. The specific objectives of this study are;

1) Identify the major impacts that may arise from the activities of the proposed project on natural environment and socio-economic environment of the project area,

2) Describe the mitigation measures to minimize these impacts,

3) Prepare and implement Environmental Management Plan for the project and

4) Make sure that IEE is developed sufficiently and soundly for the proposed project.

5) Implement Corporate Social Responsibility Plan (CSR Plan) which plays an essential part for the improvement of the social welfare of the community as well as the development of the region.

E Guard Environmental Services Co., Ltd., prepared this IEE report in accordance with EIA procedure (2015) and National Environmental Quality (Emissions) Guidelines (2015). This IEE report identifies all possible potential impacts to be caused by the construction, operation and decommissioning for the jetty construction. The proposed project background and scope of the study are described in **Chapter 2.**

The elevation of project area is 8m above the sea level. The construction period will take 3 years. The purpose of construction of jetty on the bank of Attaran River is not only to provide services and facilities for cement plant but also to provide employment opportunities for local residents. There will be three jetties and each jetty will be 100m in length and 7m in width and the distance between each jetty is 200m and the distance between jetties and cement plant is 150 feet. The proposed jetty will be constructed with the elevation of 3m above sea level. Major use of utilities are water, electricity and fuel requirement, human resources, use of vehicles, jetty designs and investment plan are also mentioned in **Chapter 3.**

The proposed project is located near Kaw Pa Naw village, Kyaikmaraw Township, Mawlamyine, Mon State. It is located at Latitude 16°21'22.913"N and Longitude 97°48'03.651"E. The overview map, layout map and IEE study objective and responsibility of IEE expert study steam can be seen in **Chapter 4 and 5.**

The brief summary of relevant national environmental legislations such as Environmental Impact Assessment Procedure (2015) and National Environmental Quality (emission) Guidelines, established by the Ministry of Natural Resources and Environmental Conservation (MONREC) and overview of current local and international environmental and social policies including related international or regional convention for the proposed project were also described in **Chapter 6.**

For environmental baseline data were collected by onsite measurements analysis for air quality and noise level at proposed project site. Surface water was also collected and sent to respective laboratories and then the analyzed lab results can be seen in appendix (7). Moreover, secondary data collection of proposed project site area such as physical/biological environment, and weather data and land use were collected from the township data of Kyaikmaraw Township, Mon State. Environmental quality baseline data collection conducted on 14th to 15th March, 2019 and detail analysis results of air quality, noise level and water quality results are described in **Chapter 7.**

The project activities during the whole project period (construction, operation and decommissioning) could have negative and positive impacts on the existing environment. The following methodology has been applied to assess the environmental impacts of the jetty construction mainly on air, water, land, biodiversity including human beings. The assessment is qualitative and each source of impact has been assessed in the following method.

Assessment	**Scale**				
	1	**2**	**3**	**4**	**5**
Magnitude (M)	Insignificant	Small and have no effect on environment	Moderate and will result in minor changes on environment	High and will result in minor changes on environment	Very High and will result in permanent change on environment
Duration (D)	0-1 year	2-5 year	6-15 year	Life of operation	Post closure
Extent (E)	Limited to the site	Limited to local area	Limited to region	National	International
Probability (P)	Very improbable	Improbable	Probable	Highly probable	Definite

Then, the Significant Point (SP) is calculated by following formula.

Significant Point (SP) = (Magnitude+ Duration+ Extent) * Probability

Impact Significance: Based on calculated significant point, impact significance can be categorized as follows:

Explanation

Significant Point (SP) = (Magnitude+ Duration+ Extent) * Probability

Impact Significance

Significant Point (SP)	Impact Significance
<15	Very Low
15-29	Low
30-44	Moderate
45-59	High
>60	Very High

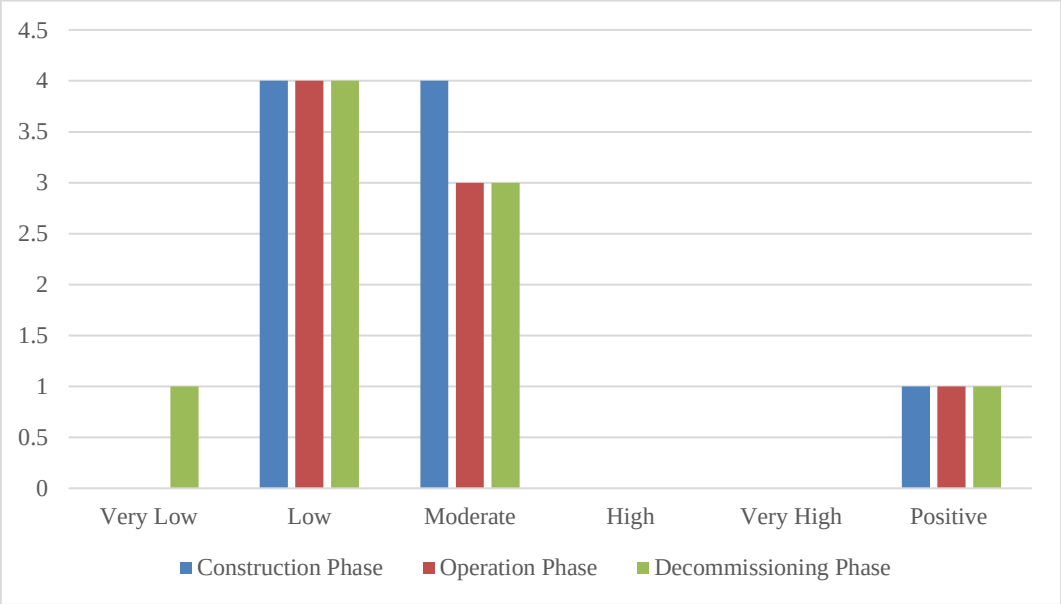


Figure-Summary of Significance of impact

According to the analysis of these results, most of the project activities are low significance and some are moderate and high significance and which need to improve for environmental performance. Social and economic developments are positive impacts of the proposed project. Potential negative and mitigation measures of the proposed project are described in **Chapter 8.**

Public consultation meeting was hold on 15th June, 2019 at Malgaro Village, Kyaikmaraw Township, Mon State. U Tin Oo (Project manager) explained about the proposed project, type of investment and also their future plan. And then, U Tin Aung Moe (Director) also explained about the objective of IEE study, baseline data collection and prediction of environmental impact and effective impact mitigation measure and preparation of EMP plan including with Environmental Monitoring Pan and CSR plan etc. Detail comments, suggestions, questions and answers are described in **Chapter 9.**

The **Environmental Management Plan (EMP)** identifies potential environmental impacts, source of impacts, how to mitigate these impacts and residual impacts after mitigation and responsible persons for all three phases. Due to the activities of the proposed project for all phases, the environmental qualities like air, water, soil and noise, fire hazards, occupational

health and safety, waste disposal can have negative impacts but for the socio-economic, it can be positive impact. And also, the mitigation measures for these negative impacts are fully mentioned in this EMP section. The **Environmental Monitoring Plan (EMOP)** identifies parameters, frequency and responsible party to monitor for air and water quality and noise level for all phases. The cost estimation of EMP plan will be cost about USD 75400. The **Corporate Social Responsibility (CSR) Plan** aims to secure social well-being of the employees and their family members, better community living and transparent and friendly relationship with neighboring communities. The **Grievance Redress Mechanism (GRM)** identifies the steps to solve complaints related with the proposed project. The **Emergency Preparedness and Response Plan** identifies how to overcome emergency cases and effectively. This EMP has, in brief, systematically explored all possible positive and negative environmental impacts of the proposed project and identified mitigation and monitoring measures on negative impacts which can occur in all three phases. The detail information for the plans are described in **Chapter 10.**

In Conclusion, the environmental management practices, procedures and responsibilities are defined here in to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar. All the feed backs, desired and needs of local public recorded in public consultation meetings are well addressed and incorporated in formulation of EMP.

အစီရင်ခံစာအကျဉ်းချုပ်

ဤကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်းအစီရင်ခံစာသည် မွန်ပြည်နယ်၊ ကျိုက်မရောမြို့ နယ်၊ ကော့ပနော ကျေးရွာ အနီးတွင် တည်ဆောက်မည့် အဆိုပြုဆိပ်ခံတံတားအတွက် June ဘိလပ် မြေစက်ရုံ လီမိတက်မှ အဆိုပြုတင်ပြ သော အစီရင်ခံစာဖြစ်ပါသည်။ စီမံကိန်းအဆိုပြုသူသည် ၂၀၁၅ခုနှစ်၊ ဩဂုတ်လ (၁၉) ရက်နေ့တွင် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှု ကော်မရှင် (MIC) သို့ စီမံကိန်းရင်းနှီးမြှုပ်နှံမှု အဆိုပြုလွှာကို လျောက် ထားခဲ့ပါသည်။ ထိုနောက် အဆိုပြုစီမံ ကိန်းဆိုင်ရာ လျောက်လွှာအပေါ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ သဘောထားမှတ်ချက်ရယူရန်အတွက် သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသို့ ဆက်လက်တင်ပြခဲ့ပြီးလမ်းညွှန်ချက် တောင်းခံပါသည်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီဌာန၏ သဘောထားမှတ်ချက်အရ အဆိုပြုစီမံကိန်းသည် ကနဦးပတ်ဝန်း ကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာတင်သွင်းရန် လိုအပ်လာပါသည်။ ထို့ကြောင့် June ဘိလပ်မြေစက်ရုံ လီမိတက်သည် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာ ရေးဆွဲရန် အီးဂတ်ပတ်ဝန်းကျင်ဆိုင်ရာ ကုမ္ပဏီလီမိတက်ကို ငှားရမ်းခဲ့ပါသည်။ ဤလေ့လာဆန်း စစ်ခြင်း၏ အဓိကရည်ရွယ်ချက်များမှာ-

- သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုစီးပွားပတ်ဝန်းကျင်တို့အပေါ် စီမံကိန်းဆောင်ရွက်ချက်များကြောင့် ထိခိုက်မှုများကို လေ့လာရန်။
- ထိခိုက်မှုများကို လျှော့ချနိုင်ရန် လျှော့နည်းစေမည့်နည်းလမ်းများကို ဖော်ပြရန်။
- စီမံကိန်းအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုနှင့်အစီအစဉ်ကို ပြင်ဆင်ရန်နှင့် အကောင်အထည်ဖော်ရန်။
- စီမံကိန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းလုပ်ဆောင်ရာတွင် လုံလောက်မှုရှိစေရန်။
- ဒေသခံများ၏ လူမှုရေးရာသက်သာချောင်ချိမှုများ တိုးတက်ရန်နှင့် ဖွံ့ဖြိုးတိုးတက်မှုများအတွက် မရှိမဖြစ်အရေးပါသော လူမှုစီးပွားတာဝန်ယူမှုအစီအစဉ်အား အကောင်အထည်ဆောင်ရွက်ရန် တို့ဖြစ်ပါသည်။

အီးဂတ်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ကုမ္ပဏီလီမိတက်မှ ဤအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီး ဌာနမှ ထုတ်ပြန်ခဲ့သော ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များနှင့် အညီဆောင်ရွက်ခဲ့ ပါသည်။ ဤအစီရင်ခံစာတွင် ဆိပ်ခံတံတားတည်ဆောက်ရေး ကာလ၊လုပ်ငန်းဆောင်ရွက်လည်ပတ်ခြင်းကာ လနှင့် လုပ်ငန်းဖျက်သိမ်းရေးကာလ တို့တွင် ဖြစ်ပေါ်နိုင်ခြေရှိသော သက်ရောက်နိုင်မှုများအားလုံးကို ဖော်ပြထားပါ သည်။ အဆိုပြုစီမံကိန်း ၏ နောက်ခံ သမိုင်းအကြောင်းအရာနှင့်လေ့လာနည်းနယ်ပယ်တို့ကိုလည်းအခန်း (၂) တွင်ဖော်ပြထားပါသည်။

စီမံကိန်းတည်နေရာသည်ပင်လယ်ရေမျက်နှာပြင်အထက်၈မီတာအထက်တွင်တည်ရှိပြီးလုပ်ငန်းဆောက်လုပ် ရေးကာလမှာ ၃ နှစ်ဖြစ်ပါသည်။ အတွန်ရံမြစ်ကမ်းပါးတွင် ဆိပ်ခံတံတား တည်ဆောက်ခြင်းသည်

ဘိလပ်မြေစက်ရုံအတွက် ဝန်ဆောင်မှုနှင့် အထောက်အကူ ဖြစ်စေရုံသာမက ဒေသခံများအတွက် အလုပ်အကိုင်အခွင့်အလမ်းများကိုလည်း ရရှိစေမည်။ ဘိလပ်မြေစက်ရုံအတွက် ဆိပ်ခံတံတား (၃) ခုထားရှိမည်ဖြစ်ပြီး ဆိပ်ခံတံတားတစ်ခုချင်းစီ၏ အလျားမှာ မီတာ ၁၀၀ နှင့် အနံ ၇ မီတာ ခန့်ထားရှိပြီး ဆိပ်ခံတံတားတစ်ခုနှင့်တစ်ခုချင်းစီ၏ အကွာအဝေးမှာ မီတာ ၂၀၀ နှင့် ဘိလပ်မြေစက်ရုံနှင့် ပေ ၁၅၀ အကွာတွင်တည်ရှိမည်ဖြစ်ပါသည်။ အဆိုပြုဆိပ်ခံတံတားကို ပင်လယ်ရေမျက်နှာပြင်အထက် ၃ မီတာ အထက်တွင်ဆောက်လုပ်မည်ဖြစ်သည်။ ဆိပ်ခံတံတား တည်ဆောက်ရာတွင်အဓိကလိုအပ်သည့် ရင်းနှီးမြှုပ်နှံမှု ပမာဏ၊ ဆိပ်ခံတံတား ဒီဇိုင်း၊ စက်ယန္တရား အသုံးပြုမှု၊ လူအင်အားပမာဏ၊ လျှပ်စစ်နှင့် လောင်စာဆီအသုံးပြုမှု နှင့် ရေလိုအပ်ချက်တို့ကို အခန်း **(၃)** တွင်ဖော်ပြထားပါသည်။

အဆိုပြုစီမံကိန်းသည် မွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနောကျေးရွာအနီး တွင်တည်ရှိပြီး မြောက်လတ်တိတွဒ် ၁၆ ဒီဂရီ ၂၁ မိနစ် ၂၂.၉၁၃ စက္ကန့် နှင့် အရှေ့လောင်ဂျီတွဒ် ၉၇ ဒီဂရီ ၄၈ မိနစ် ၀၃.၆၅၁ စက္ကန့် တွင်တည်ရှိသည်။ စီမံကိန်းဧရိယာကို မြင်နိုင်သော ကောင်းကင်ဓါတ်ပုံ နှင့် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာ လေ့လာဆောင်ရွက်ခြင်း၏ ရည်ရွယ်ချက် နှင့် လေ့လာဆောင်ရွက်သည့် အဖွဲ့အစည်းနှင့် တာဝန်များ၊ လုပ်ငန်းအတွေ့အကြုံတို့ကို အခန်း **(၄)** နှင့် **(၅)** တွင်အသေးစိတ်ဖော်ပြထားပါသည်။

အဆိုပြုစီမံကိန်းနှင့ ်ပတ်သတ်ဆက်စပ်ပြီး လိုက်နာရမည့် ဥပဒေနှင့်နည်းဥပဒေများ၊ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) မှ ထုတ်ပြန်ထားသော ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများ၊ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ၊ စီမံကိန်းနှင့်သက်ဆိုင်သည့် ဒေသတွင်း (သို့) အပြည်ပြည်ဆိုင်ရာ သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုပတ်ဝန်းကျင်ဆိုင်ရာမူဝါဒ၊ ဆက်စပ်နေသော သဘောတူညီချက်များကို အခန်း**(၆)** တွင်အသေးစိတ်ဖော်ပြထားပါသည်။

စီမံကိန်း လုပ်ငန်းဆောင်ရွက်နေစဉ်ကာလအတွင်း စီမံကိန်းနေရာ၏ လက်ရှိသဘာဝပတ်ဝန်းကျင် ဆိုင်ရာ အခြေခံချက်လက်များဖြစ်သည့် ဆူညံမှုတိုင်းတာခြင်း၊ လေထုအရည်အသွေးတိုင်းတာခြင်း တို့ကိုကွင်း ဆင်းတိုင်းတာခဲ့ပါသည်။ မြေပေါ်ရေအရည်အသွေးကိုလည်း နမူနာကောက်ယူပြီး သက်ဆိုင်ရာ ဓာတ်ခွဲခန်းများသို့ ပို့ကာစစ်ဆေးမှုများပြုလုပ် ပြီး ရလဒ်များအား **နောက်ဆက်တွဲ (၇)** တွင် ဖော်ပြထားပါသည်။

ထို့အပြင် အဆိုပြုစီမံကိန်းတည်နေရာနှင့်သက်ဆိုင်သည့်အခြေခံအချက်လက်များဖြစ်သည့် လူမှုစီးပွား အခြေအနေ၊ ရူပဆိုင်ရာအချက်လက်၊ ဇီဝပတ်ဝန်းကျင်ဆိုင်ရာအချက်လက်၊ ရာသီဥတုဆိုင်ရာ သတင်းအ ချက်လက်များ စသည်တို့ကို မွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်မှ ပြဋ္ဌာန်းထားသော မြို့နယ်ဆိုင်ရာ အချက်အလက်များမှ စုဆောင်းထားပါသည်။ ပတ်ဝန်းကျင်အရည်အသွေးဆိုင်ရာ အချက်အလက်များ ကွင်းဆင်းတိုင်းတာမှုများအား ၂၀၁၉ခုနှစ်၊ မတ်လ (၁၄) ရက် နှင့် (၁၅) ရက်နေ့များတွင် လုပ်ဆောင်ခဲ့ပြီး

ရရှိလာသော လေအရည်အသွေး ရလဒ်၊ဆူညံမှု အတိုင်းတာမှု ရလဒ် ၊မြေပေါ်အရည်အသွေး တို့၏ အသေးစိတ်အချက်အလက်များကို အခန်း **(၇)** တွင်ဖော်ပြထားပါသည်။

စီမံကိန်းအကောင်အထည်ဖော်သည့် ကာလများ (တည်ဆောက်ရေးကာလ၊ လုပ်ငန်းများ လည်ပတ်ဆောင်ရွက်သည့်ကာလ နှင့် စီမံကိန်းဖျက်သိမ်းရေးကာလများ) တွင်ဆောင်ရွက်သော လုပ်ငန်းများကြောင့် ပတ်ဝန်းကျင်အပေါ်တွင် ကောင်ကျိုး နှင့်ဆိုးကျိုးများ ဖြစ်ပေါ်စေနိုင်ပါ သည်။ အောက်ဖော်ပြပါ ဆန်းစစ်သည့်နည်းလမ်းတွင် လေ၊ ရေ၊ မြေ၊ လူအပါဝင် ဇီဝမျိုးစုံမျိုးကွဲများ အပေါ်ထိခိုက်မှုများကို လေ့လာခြင်းဖြစ်ပါသည်။စီမံကိန်းလုပ်ဆောင်ရာ လုပ်ငန်းစဉ်အလိုက် ပတ်ဝန်းကျင် အပေါ်သက် ရောက်နိုင်မှုများကို အောက်တွင်ဖော်ပြထားပါသည်။

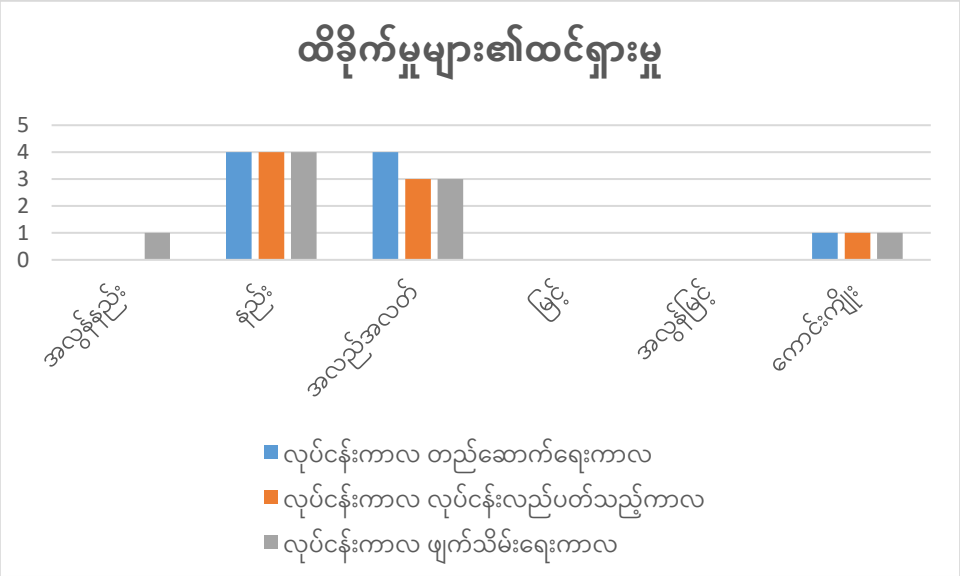
ဆန်းစစ်ခြင်း	**သတ်မှတ်ချက်**				
	၁	၂	၃	၄	၅
ပြင်းအား	မသိသာ	သိသာမှုအနည်းငယ်ရှိပြီး လုပ်ငန်းခွင်တွင် သက်ရောက်မှု မရှိ။	သိသာမှု အလည်အလတ်ရှိပြီးလုပ်ငန်းခွင်တွင် သက်ရောက်မှု အနည်းငယ်ရှိ။	သိသာမှုများပြီး လုပ်ငန်းခွင်တွင် သက်ရောက်မှု ထင်ရှား။	သိသာမှုအလွန်များပြီး လုပ်ငန်းခွင်တွင်ပြောင်းလဲမှုထင်ရှား။
ကြာချိန်	၀-၁ နှစ်	၂-၅ နှစ်	၆-၁၅ နှစ်	လုပ်ငန်းလည်ပတ်ချိန်တစ်လျှောက်။	လုပ်ငန်းဖျက်သိမ်းသည်အထိ။
ပျံ့နှံ့နိုင်မှု	လုပ်ငန်းခွင်အတွင်းသာ	အနီးအနားပတ်ဝန်းကျင် ထိ	ဒေသတွင်း	နိုင်ငံတွင်း	နိုင်ငံတကာထိ
ဖြစ်နိုင်စွမ်း	လုံးဝမဖြစ်နိုင်	မဖြစ်နိုင်	ဖြစ်နိုင်သည်	အလွန်ဖြစ်နိုင်သည်	ဖြစ်နိုင်မှုသေချာသည်။

ထိခိုက်မှုများကို အောက်ဖော်ပြပါ ပုံသေနည်းအတိုင်းတွက်ချက်သည်။

ထင်ရှားမှု= (ပြင်းအား+ ကြာချိန်+ ပျံ့နှံ့နိုင်မှု) * ဖြစ်နိုင်စွမ်း

ထိခိုက်မှုများ၏ ထင်ရှားမှုများကိုအောက်ပါအတိုင်း အပိုင်းငါးပိုင်းခွဲခြားနိုင်သည်။

ထင်ရှားမှု	**ထိခိုက်မှုများ၏ထင်ရှားမှု**
< ၁၅	အလွန်နည်း
၁၅-၂၉	နည်း
၃၀-၄၄	အလယ်အလတ်
၄၅-၅၉	မြင့်
> ၆၀	အလွန်မြင့်



ထိခိုက်နိုင်မှုများကို လေ့လာဆန်းစစ်ချက်အရ စီမံကိန်းဆောင်ရွက်ချက်များမှာ ထိခိုက်နိုင်မှုနည်းပါးပြီး အခြားလုပ်ဆောင်ရွက်ချက်များမှာ ထိခိုက်နိုင်မှု အလယ်အလတ် နှင့် မြင့်မားသည့် အခြေတို့ တွင်တည်ရှိနေပါသည်။ ထိုသက်ရောက်မှုများကို လည်းသင့်တော်သော လျော့ချနိုင်မည့်နည်းလမ်းများ ကိုလည်းထည့်သွင်းဖော်ပြထားပါသည်။ လူမှုစီးပွားဖွင့်ဖြိုးတိုးတက်လာခြင်းသည် စီမံကိန်း၏ ကောင်ကျိုး သက်ရောက်မှုဖြစ်သည်။ အသေးစိတ်ကို အခန်း **(၈)** တွင်ဖော်ပြထားပါသည်။

အများပြည်သူ သဘောထားရယူခြင်းအခမ်းအနားကို ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်နေ့တွင် မယ်ကရိကျေးရွာ၊ ကျိုက်မရောမြို့နယ်၊ မွန်ပြည်နယ် တွင်ကျင်းပပြုလုပ်ခဲ့သည်။ စီမံကိန်း မန်နေဂျာ ဦးတင်ဦးမှ အဆိုပြုစီမံကိန်း၏အကြောင်း၊ ရင်းနှီးမြှုပ်နှံမှုပမာဏ နှင့် ၄င်းတို့၏ အနာဂတ်အစီအစဉ်ကို ရှင်းလင်း တင်ပြခဲ့သည်။ ထို့နောက် အီဂတ်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကုမ္ပဏီလီမိတက်မှ ဒါရိုက်တာ ဦးတင်အောင်မိုးမှ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း၏ ရည်ရွယ်ချက်၊ စီမံကိန်းဆိုင်ရာ အချက်အလက်များ စုဆောင်းပေးခြင်း၊ ပတ်ဝန်းကျင်ဆိုင်ရာထိခိုက်မှုများကို တွက်ချက်ခန့်မှန်းခြင်းနှင့် လျော့ နည်းအောင်ပြု လုပ်ရမည့် နည်းလမ်းများကို အကြံပြုတင်ပြခြင်း၊ လူမှုစီးပွားတာဝန်ယူမှု အစီအစဉ် (CSR)၊ ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်များ ပါဝင်သည့် ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ် (EMP) ပြင်ဆင်ချက်များကို ရှင်းလင်းတင်ပြခဲ့သည်။ အသေးစိတ် အကြံပြုချက်များ၊ အမေး အဖြေများကို အခန်း **(၉)** တွင်ဖော်ပြထားပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်တွင် ဖြစ်ပေါ်နိုင်သည့်ပတ်ဝန်းကျင်ထိခိုက်မှုများ၊ ထိခိုက်မှုအရင်း အမြစ်များ၊ ထိခိုက်မှုများကိုလျော့ချပေးနိုင်မည့် ရှောင်လွှဲရန်နည်းလမ်းများ၊ ကျန်ရှိမည့်ထိခိုက်မှု များနှင့်

ဆောက်လုပ်ရေးကာလ၊ လုပ်ငန်းလည်ပတ်ခြင်းကာလ နှင့် ဖျက်သိမ်းခြင်းကာလ အစီအစဉ်တွင် လေနှင့်ရေ အရည်အသွေး၊ ဆူညံသံပမာဏ၊ မီးဘေးအန္တရာယ်၊ လုပ်ငန်းခွင် ဘေးအန္တရာယ်ကင်းရှင်းရေးအစီအစဉ်၊ စွန့်ပစ်ပစ္စည်းများ စသည်တို့သည် ပတ်ဝန်းကျင်အပေါ်တွင် သက်ရောက်မှုရှိနိုင်ပြီး လူမှုစီးပွား အခြေနေပေါ်တွင် ကောင်းကျိုးဖြစ်စေမည်။ ထိုသက်ရောက်မှု များကို လျော့ချရန်နည်းလမ်းများ ကိုလည်း EMP အပိုင်းတွင် အသေးစိတ်ဖော်ပြထားသည်။ စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်တွင် စီမံကိန်းဆောင်ရွက်နေ စဉ်ကာလအတွင်း လေ၊ရေ အရည်အသွေး နှင့် ဆူညံသံပမာဏ တို့အတွက် စောင့်ကြပ်ကြည့်ရှုရန် တာဝန်ရှိသော ပုဂ္ဂိုလ်များ၊ တိုင်းတာရန်အကြိမ်ရေ တွက်များ စသည်တို့ပါဝင်သည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်ကို အကောင်ထည်ဖော်ဆောင်ရွက်ရန် ခန့်မှန်းကုန်ကျစရိတ်မှာ ဒေါ်လာ ၇၅၄၀၀ ခန့်လျာ ထားပါသည်။ လူမှုစီးပွားတာဝန်ယူမှုအစီအစဉ်တွင် ဝန်ထမ်းများနှင့် မိသားစုများ၏ လူနေမှုဘဝလုံခြုံစေရန်၊ အနီးအနားရှိအဖွဲ့အစည်းများနှင့် ပိုမိုကောင်း မွန်သောနေထိုင်မှုစနစ်နှင့် ပွင့်လင်းရင်းနှီးသောဆက်ဆံမှု ရရှိရန်အတွက်လည်း ရည်ရွယ်ထားပါသည်။ အနီးပတ်ဝန်းကျင်ရှိ ဒေသခံများအတွက် လူမှုစီးပွားဖွံ့ဖြိုးရေး ရန်ပုံငွေကို ပေးဆောင်ရန်လည်း တာဝန်ရှိပါသည်။ မကျေလည်မှုများကို ဖြေရှင်းပေးမည့် အစီအစဉ်တွင် စီမံကိန်းနှင့်ပတ်သက်၍ မကျေ လည်မှုများပေါ်ပေါက်လာပါက ဖြေရှင်းနိုင်မည့် နည်းလမ်းများကို ဖော်ပြထား သည်။ အရေးပေါ်ကိစ္စရပ်များ အတွက်ကာကွယ်မှုနှင့် တုံ့ပြန်မှုအစီအစဉ်တွင် အရေးပေါ်ကိစ္စရပ်များကို ကြိုတင်ကာကွယ်ရန်နှင့် ဖြစ်ပေါ်လာပါက တုံ့ပြန်ရန်နည်းလမ်းများ ပါဝင်သည်။ အချုပ်အားဖြင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်တွင် စီမံကိန်းကြောင့်ဖြစ်ပေါ်လာနိုင်သော ပတ်ဝန်းကျင်အပေါ် ကောင်းကျိုး၊ ဆိုးကျိုးများကို စနစ်တကျလေ့လာ ပြီး ဆိုးကျိုးများကို စောင့်ကြပ်ကြည့်ရှုရန်နှင့် လျော့ချရန်နည်းလမ်းများကို ကာလအားလုံးအတွက် သတ်မှတ်ထားပါသည်။ အသေးစိတ်အစီအစဉ်များကို အခန်း **(၁၀)** တွင်ဖော်ပြ ထားပါသည်။

အကျဉ်းချုပ်အားဖြင့် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံ၏လမ်းညွှန်မူများ၊ ပတ်ဝန်းကျင်ဆိုင်ရာဥပဒေ၊ နည်းဥပဒေစည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသော မူဝါဒလမ်းညွှန်ချက်များအတိုင်း ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမူအလေ့ကျင့်များ၊ လုပ်ငန်းစဉ်များနှင့်လိုက်နာဆောင်ရွက်ကျင့်သုံးရန် တာဝန် များကို ပတ်ဝန်းကျင်စီ မံခန့်ခွဲမှုတွင်ဖော်ပြတင်ပြထားပါသည်။ စီမံကိန်းနှင့်သက်ဆိုင်သူများအား စီမံကိန်းဆိုင်ရာ အကြောင်းရာများ ရှင်းလင်းတင်ပြခြင်း၊အကြံပြုချက်များနှင့်ဆွေးနွေးတင်ပြလာသောသဘောထားအကြံဉာဏ်များကိုရယူပြီးအ ဆိုပါကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာ၏ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီစဉ်တွင်ထည့်သွင်းရေးသားခဲ့ ပါသည်။

2. Introduction

2.1 Background of the study

June Cement Industry Ltd. has submitted a proposal for Greenfield cement plant with a kiln capacity of 5000 t/d with an annual production of approximately 2.1 to 2.3 million tons of Portland cement manufactured by dry processing method in Myanmar, to Myanmar Investment Commission (MIC) in August 2015. In September 2016, Environmental Impact Assessment (EIA) Report for the whole project has been prepared and submitted to Environmental Conservation Department (ECD). ECD gives some comments on EIA report to carry out the separate Initial Environmental Examinations (IEE) for construction of jetty.

This report describes the findings of the Initial Environmental Examination (IEE) for the construction of jetty on the bank of Attaran River by June Cement Industry Limited. The main objective of this report is to identify the major environmental impacts due to implementation of the project along with the effective measures to mitigate the potential adverse impacts. The project is promoted by June Cement Industry Limited. June Cement Industry Limited is a private limited family company and belongs to the June Group of Companies.

According to the Myanmar Environmental Conservation Law, 2012, it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to MONREC. As per the comments of MONREC, the proposed project needs to conduct an IEE to meet the environmental assessment requirements of Myanmar Environmental Conservation Law. Therefore, June Cement Industry Limited Commissioned E Guard Environmental Services for IEE report study. This IEE report identifies all possible potential impacts to be caused by the construction, operation and decommissioning of the jetties. And it also describes mitigation measures which can be used to minimize these impacts and presents an Environmental Management Plan and Environmental Monitoring Plan. Corporate Social Responsibility (CSR) plan can be seen as an essential part for social welfare of the local community in this report.

2.2 Scope of the study

The IEE study firstly establishes baseline environmental setting within 100 meters of the project area including existing conditions of air quality, water quality, noise, weather and local climate, biodiversity, waste, landscape and social assessment. The field studies were carried out by E Guard Environmental Services having experiences in conducting environmental assessments for various types of projects in Myanmar. The E Guard team conducted field survey, assessment activities, and prepared the report. A reconnaissance study was performed on the proposed project site and baseline environmental data were also collected from possible sources using the appropriate measuring devices. Data interpretation and analysis were made based on those collected data for the present and potential future conditions. Suitable measures were proposed for the impacts to be mitigated to reduce to acceptable ones.

3. Description of the Project

3.1 Project site

The proposed project is located near Kaw Pa Naw village, Kyaikmaraw Township, Mawlamyine District, Mon State. It is located at Latitude 16°21'22.913"N and Longitude 97°48'03.651"E. The elevation of project area is 8m above the sea level. Project site is located in the Mon State area, about 40 km South-East from Mawlamyine and 8 km South from Kyeikmaraw. It is always accessible by boat navigating the Ataran River from Kyeikmaraw, and can be accessed by car from Mawlamyine during the dry season. Situated urban and rural minimum distances from the project site are as follows; KawPaNaw village is situated in 3 Km away from north Pyar Taung. It does not have any building (road, railway and electric power cable) around 2.5 Km of permitted area. There is no protected area within 10 Km radius areas from the Plant Site. Industrial polluted area nearby project site; such as cement factories of SCG, Myanma Swanpakar.

3.2 Salient features of the project

Salient features of the proposed project are as follows;

The salient features of the proposed project are mentioned below.

Type of proposed business	- Construction of jetties
Type of investment	- 100 % Local Investment
Type of business organization	- Private Company Limited
Proposed duration of investment	- 30 yrs
Total land area	- 889.96 acre
Land lease year	- 50 years
Construction Period	- 3 yrs
Address of project site	- Pyar Taung, Near Kaw Pa Naw Village, Kyaikmaraw township, Mawlamyine, Mon State
Office address	- No. (80) Sayar San Bahan Township-Yangon-Myanmar PO # 11201 Ph: +95 9200 5445/ + 95 19010660 Fax: + 95 1901 0080
Contact Person	- Dr. Nu Nu Win (Managing Director)
Email address	- gic@myanmar.com.mm
Telephone/Fax	- +95-1-685043, +95-1-685045
H/P	- +95-9-200-5445, +95-9-860-9911

3.3 Investment Plan

The project proponent will make the following investment for the whole process during the construction of cement plant. The project proponent will use about 20% of the investment plan for the construction of jetties. If 20% was not enough, the project proponent will add additional funds.

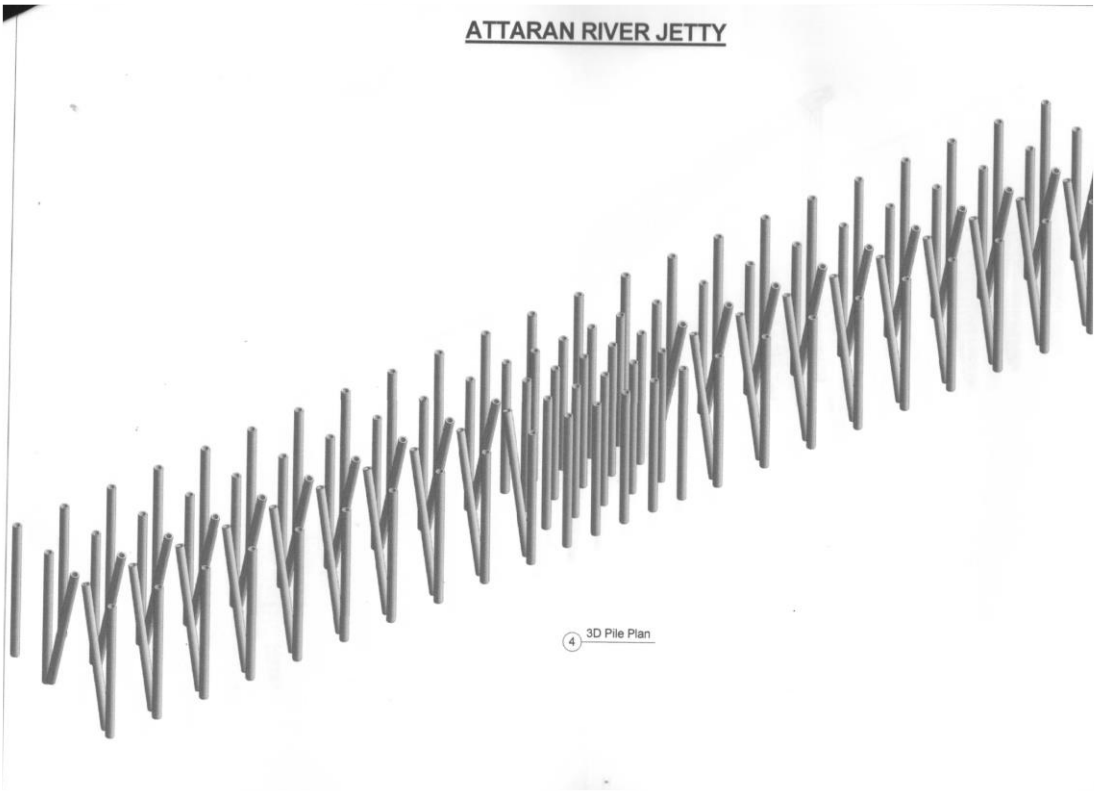
Table 3. 1 Investment plan for June cement Industry Limited

No.	Description	USD	Kyat	Total Equivalent Kyat
1.	Project Development & Pre-Engineering Works	15.00000		15,000.00
2.	Special Foundation (Piling)	10.00000		10,000.00
3.	Civil Work, Steel Structure and Construction Materials	119.99988	7,273.05	127,272.93
4.	Mechanical and Electrical Equipment	138.86663		138,866.63
5.	Power Plant 25MW x 2 sets	60.00000		60,000.00
6.	Mobile equipment, Tools, Barge and Vehicles (Quarry, Plant)	65.79995		65,799.95
7.	Office equipment	0.23500	45.42	280.42
8.	Erection and Installation	17.45000		17,450.00
9.	Contingency	39.00000		39,000.00
10.	Cash	5.00000	1,330.07	6,330.07
TOTAL INVESTMENT		**471.35146**	**8,648.54**	**480,000.00**

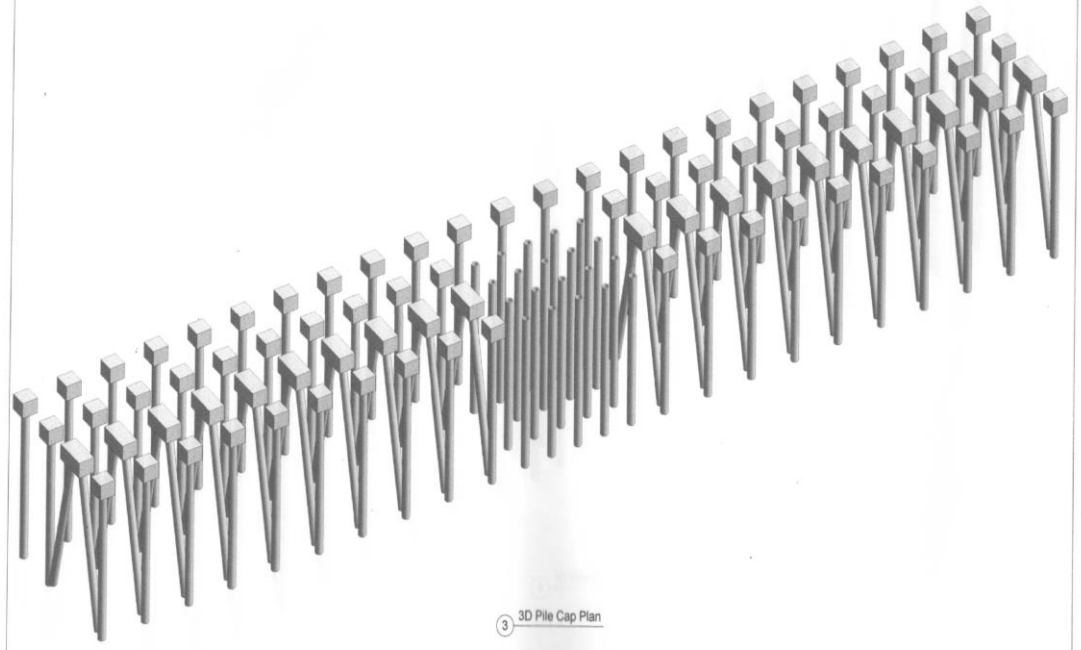
3.4 Installation, Technology and Infrastructures

As the proposed project is to provide services but not production, the working flow of the proponent is simple. The purpose of construction of jetty on the bank of Attaran River is not only to provide services and facilities for cement plant and coal-fired power plant but also to provide employment opportunities for local residents. There will be three jetties and each jetty will be 100m in length and 7m in width and the distance between each jetty is 200m and the distance between jetties and cement plant is 150 feet. The proposed jetty will be constructed with the elevation of 3m above sea level. When flooding occurs, the water level will rise up roundly 8m above the surface of the project site. The construction materials which will be used for construction of the jetty include cement, steel bars and aggregates. The main equipment used for the project include Dozer, Dump Truck, Excavator, Barge and

concrete mixer. There will be no land clearance or removal of any tree involved in the project. Some sort of species such as vetiver grass will be planted on the bank of river in order to conserve bank erosion. So, Environmental impacts for this construction of jetties would be low. The structural diagrams of the jetty are shown in the following figures.

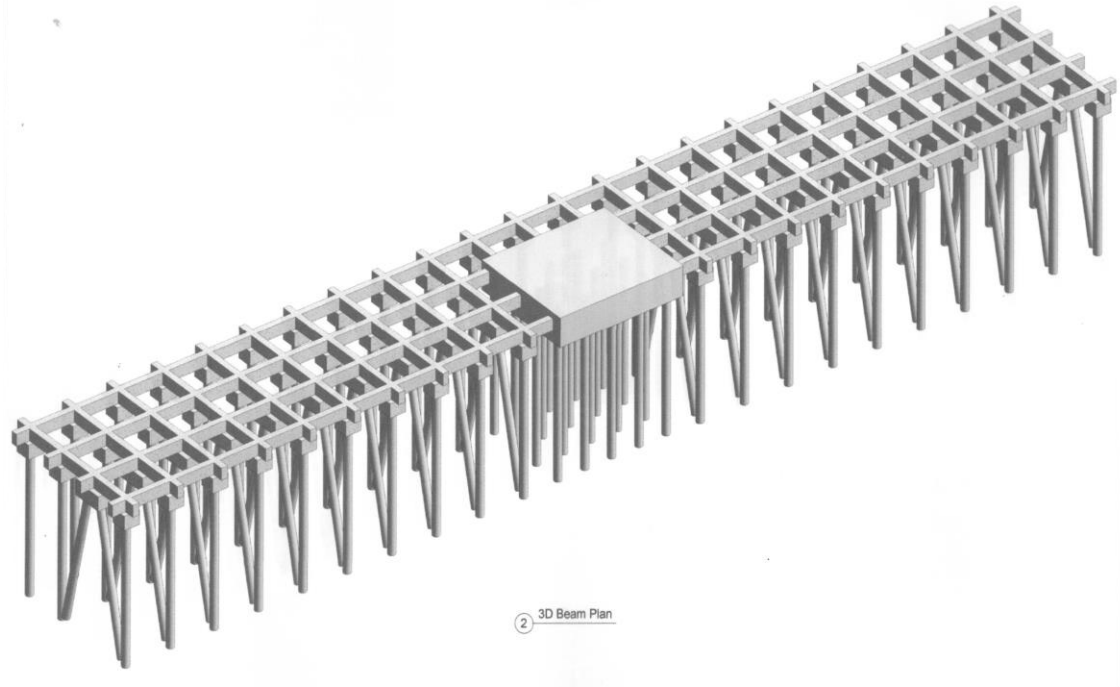


ATTARAN RIVER JETTY



3 3D Pile Cap Plan

ATTARAN RIVER JETTY



2 3D Beam Plan

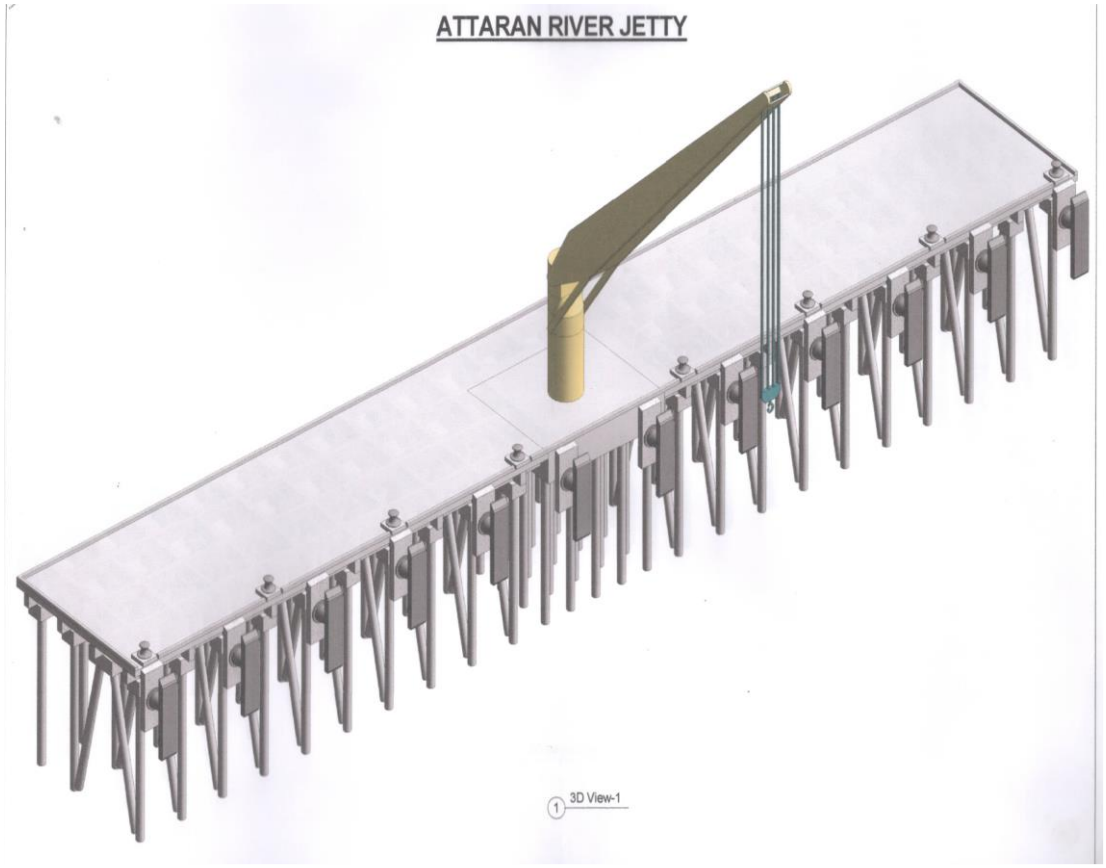


Figure 3. 1 3D Construction designs for jetty

3.5 Use of materials and resources

3.5.1 Water Requirement

The main source of water supply for construction and operation activities of jetty is Ataran River. Tube wells will be dug in the cement plant area, to provide the drinking water. Before digging the tube well, the pumping test will be carried out to estimate hydraulic properties of an aquifer system. As per the pumping test results, tube well will be designed and located for drinking water security of the proposed project. The tube well water will be treated by the water treatment system including sand filter, carbon filter and reverse osmosis (RO) system.

3.5.2 Electricity and Fuel Requirement

The site is in a very remote area and no grid is accessibly for power supply. The June Cement Industry Limited has decided to include an own power production by means of a coal fired Captive Power Plant to fulfil the power requirement of the Cement plant the auxiliary buildings and the camp. The power shall be available in continuous operation 24 h/day and 365 day per year. Standby capacity for shut-down and overhauling of equipment is to be included. A diesel driven generator shall provide the power for the start-up of the power plant and will be supplying power to the emergency power net of the cement plant and the camp. The detailed information of power plant will be described in Environmental Impact Assessment Report of June Cement factory.

3.5.3 Human Resource Requirement

June Cement Industry Ltd. is the owner of the whole cement plant project, including jetty construction. Thus the project owner will manage jetty construction as well as cement plant through the Head Office Management at Corporate Level .June Cement Industry Limited will apply about (700) employees for the operation of cement plant. Among them, the required staffs for the jetty also apply in the following list. The following table shows the list of employees of the proposed cement plant. Working hour is 9:00 AM to 5:00 PM and working days are 6 days per week.

Table 3. 2 List of human resource requirement

No.	Designation	No. of employee
1.	Management	10
2.	Manager and Executive	25
3.	Supervisor and Executive	35
4.	Skilled workers	300
5.	Daily Wages	330
6.	Total	700

3.5.4 Project Alternatives

This section considers the selected alternative to 'no project alternative'. There were no other alternative site locations considered for the project because jetty can be constructed and supported sufficiently for cement production of June Cement Industry Limited, which is located adjacent to the project site.

No Action Alternative

The following positive impacts are anticipated by choosing this alternative:

- There will have no impact (even minimal) from any construction and extraction activities
- No light pollution, emissions, noise and any other (even minimal) impacts on the surrounding environment will be expected so natural resources and biodiversity will be impacted by the activities of the project
- No additional human presence (Staffs) will be expected
- There will be less traffic movement around the project site

In the meantime, the following negative impacts are anticipated:

- Lack of job opportunity
- Traffic load will be raised definitely in surrounding environment due to the raw material transportation activities.

4. Site Layout Map

4.1 Location of Proposed Project

The proposed site is located at near Kaw Pa Naw village, Kyaikmaraw Township, Mawlamyine, Mon State, the Republic of the Union of Myanmar. It is located at Latitude 16°21'22.913"N and Longitude 97°48'03.651"E. The Location of the proposed project area has been shown in figure (4.1) and (4.2).

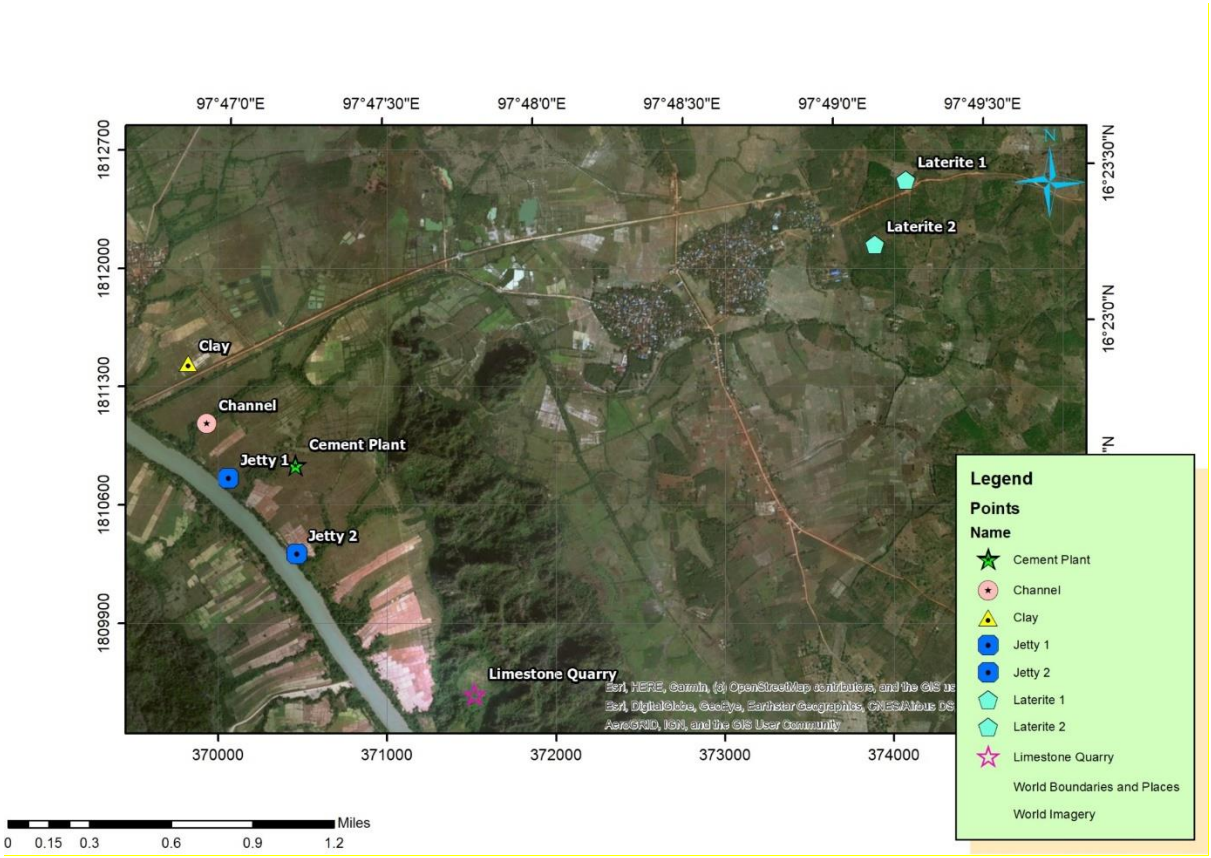


Figure 4. 1 Location Map of Project site

Figure 4. 2 Overview map of project site

5. Identification of IEE Study Team

The Initial Environmental Examination (IEE) with the Environmental Management Plan (EMP) for the proposed project is prepared by E Guard Environmental Services Co., Ltd. The environmental study was carried out by the study team and the following is a summary of team member's responsibilities during the study period.

The specific objectives of the IEE study are as follows:

- To conduct preliminary examination of the environmental consequences of the project
- To describe the existing environmental condition of the proposed project site
- To collect detailed information about used of process, technology, equipment and machinery for proposed project
- To assess the potential environmental impacts of the proposed project
- To develop environmental management plan (EMP) with site specific environmental mitigation measures and monitoring standards guidelines for the proposed project
- To carry our public consultants to address any issues in concern with implementation of this project.

U Tin Aung Moe (Director)

Tin Aung Moe is a Consultant who holds Transitional Consultant Certificate No 0103, described expertise are Facilitation of meeting, Land use, Risk Assessment and Hazard Management, RS and GIS. He is one of the founding members of E Guard. He has been working for Environment Assessment and Environmental technologies development and capacity building for the Developing countries in Asia and Pacific Region. He is responsible for the policy and institutional linkages and harmonization of E Guard.

U Aung Myint Myat (Associate Consultant)

U Aung Myint Myat is an Associate Consultant, who holds Transitional Consultant Certificate No. 0099, described expertise is Forestry. He has Bachelor Degree in Forestry from the University of Forestry and Environmental Science in 2014. He has four years experiences on environmental site surveys and also socio-economic surveys. Another experience is to cooperate with clients, government authorities and local people to conduct stakeholder engagement and public consultation meeting. He also participates in the activities of social survey, biodiversity survey, and reviewing the reports.

U Thaw Tar Htun (Associate Consultant)

U Thaw Tar Htun is an Associate Consultant working on EIA project reporting in E Guard Environmental Services Co., Ltd. since 2018. He received Bachelor of Civil Engineering from Taunggyi Technological University in 2011 and Master of Engineering in (International Graduate Program in Environmental and Water Resources Engineering) from Mahidol University, Thailand in 2016. He had experiences in environmental fields for 4 years including his master degree research, "Mathematical Modelling Wastewater Collection System in Cha-Am Municipality using PCSWMM". His master thesis paper was presented in 3rd International Conference on Civil, Biological and Environmental Engineering

Conference, Phukhet, Bangkok. He had worked as a Sub Assistant Engineer at Engineering Department (Water and Sanitation) at Naypyitaw Development Committee, Naypyitaw, Naypyitaw Union Terrority from August 2012 to October 2017.

Certificate for Transitional Consultant Registration – (Still Processing)

U Naing Zaw Win (Project Associate)

U Naing Zaw Win is a Project Associate, who received his Bachelor Degree in Forestry from the University of Forestry and Environmental Science in 2015. He has more than 2-year experience in communication with clients, regulators such as analytical laboratories. He is also familiar with conducting social survey. His contribution in this report is to prepare Initial Environmental Examination (IEE) report.

Certificate for Transitional Consultant Registration – (Still Processing)

U Zwe Wint Phyoe (Project Assistant)

U Zwe Wint Phyoe is a Project Assistant at E Guard Environmental Services Co., Ltd. He graduated his Bachelor Degree in mining engineering from Yangon Technological University (YTU) at Yangon in 2018 and made a thesis by the name of STUDY ON SURFACE WATER QUALITY IN KYISINTAUNG MINE. He is now contributing in writing of environmental reports, stakeholder engagement and public consultation, data analysis.

U Aung Moe Oo (Project Associate)

U Aung Moe Oo is a Project Associate, who received his Bachelor Degree in Chemical Engineering from Western Yangon Technological University in 2016. He has more than two years of experience in environmental quality analysis. He specializes in Environmental Quality such as air quality, water quality, soil quality, noise level, vibration intensity and more. He is also responsible for data analysis and interpretation of environmental baseline data of this project.

U Wana Zaw (Surveyor)

U Wanna Zaw is a matriculate and he has more than three years of surveyor experience. He specializes in instrumentation and field data collection of environmental condition of the site and measuring of environment baseline data.

The full address of the company conducting is as followed.

No. (145- A2- 3), Thiri Mingalar Street,

Ward No. (4), 8th Mile, Mayangone Township, Yangon 11062, Myanmar.
Tel: 951 9667757

H.P: 959797005167, 95254140577

Skype: eguardenvironmental
Email: ayenyein@eguardservices.com
http://www.eguardservices.com

Email: Web Site: Facebook Page: Twitter

6. Policy, Legal and Institutional Framework

6.1 National Laws and Regulations

Legal framework for National Laws and Regulations concerned with proposed project describes in **Table 6-1**. The stated laws and regulations are Myanmar National Environmental Policy, National Land Use Policy, Environmental Conservation Law, Environmental Conservation Rules, Environmental Impact Assessment Procedures, National Environmental Quality (Emission) Guidelines, Land Acquisition Act**,** Building Regulations**,** Foreign Investment Law**,** Foreign Investment Rules**,** Forest Law**,** Protection of Wildlife and Conservation of Natural Areas Law, Myanmar Fire Brigade Law**,** Labor Organization Law, Prevention of Hazard from Chemical and Related Substances Law, The Export and Import Law, The Social Security Law, Commercial Tax Law, Union Tax Law and Myanmar Investment Law.

We, JUNE Cement Industry Limited had made commitment attached in ***Appendix*** that this report is strongly prepared by following the related existing Laws and Rules including EIA Procedure and mitigation measures already stated in the Initial Environmental Examination (IEE) for the proposed construction of jetty project. Moreover, we also committed to operate by the following the plans and mitigation measures stated in this report.

We, E Guard Environmental Services Co., Ltd. had also made commitment to follow and compliance with the related existing Laws, Environmental Conservation Law, Rules, Environmental Impact Assessment Procedure, National Environmental (Quality) Emission Guidelines, Standards and Mitigation Measures stated in this Initial Environmental Examination (IEE) Report for the proposed veneer-manufacturing project operated by Veneer International Myanmar Co., Ltd.

Table 6. 1 Related Laws, Rules and Regulations

Laws and Regulations	Description
Constitution of the Republic of the Union of Myanmar 2008	
Sec.45	The Union shall protect and conserve natural environment.
Sec.390 (b)	Every citizen has the duty to assist the Union carrying out the environmental conservation
Environmental Conservation Law, 2012	
Objectives: Section 3	(c) to enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations; (d) to reclaim ecosystems as may be possible which are starting to degenerate and disappear; (e) to enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially;
Provisions of Duties and Powers relating to the Environmental Conservation	(a) To specify categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture,

of the Ministry: Section 7	mineral production, sanitation and other activities; (b) To prescribe categories of hazardous substances that may affect significantly at present or in the long run on the environment; (c) To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances; (j) To prescribe the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms; (m) To lay down and carry out a system of EIA and SIA as to whether or not a project or activity to be undertaken by any Government department, organization or person may cause a significant impact on the environment; (o) To manage to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works.
Environmental Quality Standards: Section10	The Ministry may, with the approval of the Union Government and the Committee, stipulate the following environmental quality standards: (a) suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public; (b) water quality standards for coastal and estuarine areas; (c) underground water quality standards; (d) atmospheric quality standards; (e) noise and vibration standards; (f) emissions standards; (g) effluent standards; (h) solid wastes standards; (i) other environmental quality standards stipulated by the Union Government.
Monitoring: Section13	The Ministry shall, under the guidance of the Committee, maintain a comprehensive monitoring system and implement by itself or in co-ordination with relevant Government departments and organizations in the following matters: (a) the use of agro-chemicals which cause to impact on the environment significantly; (b) transport, storage, use, treatment and disposal of pollutants and hazardous substances in industries;

	(c) disposal of wastes which come out from exploration, production and treatment of minerals, industrial mineral raw materials and gems; (d) carrying out waste disposal and sanitation works; (e) carrying out development and constructions; (f) carrying out other necessary matters relating to environmental pollution.
Environmental Conservation Law, 2012: Responsibilities of project proponent/ business owner for reducing environmental impact	
Section 14	A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.
Section 15	The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.
Section 16	A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry: (a) is responsible to carry out by contributing the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste; (b) shall contribute the stipulated users' charge s or management fees for the environmental conservation according to the relevant industrial estate, SEZ and business organization; (c) shall comply with the directives issued for environmental conservation according to the relevant industrial estate, SEZ or business.
Myanmar National Environmental Policy (2019)	
Mission; To achieve a clean environment, with healthy and functioning ecosystems, that ensures inclusive development and wellbeing for all people in Myanmar. **Vision;** To establish national environmental policy principles for guiding environmental protection and sustainable development and for mainstreaming environmental considerations into all policies, laws, regulations, plans, strategies, programs and projects in Myanmar.	
Environmental Conservation Rules, 2014	
Rules 58	The Ministry shall form the EIA Report Review Body with the experts from the relevant Government departments, organizations.

Rules 59	The Ministry may assign duty to the Department to scrutinize the report of EIA prepared and submitted by any organization or person relating to EIA and report through the EIA Report Review Body.
Rules 61	The Ministry may approve and reply on the EIA report o IEE or EMP with the guidance of the Committee.
Environmental Impact Assessment Procedures (2015)	
Screening: Section 23	a) The project proponent shall submit the Project Proposal to the Ministry for Screening. b) The Ministry will send the Project Proposal to the Environmental Conservation Department to determine the need for environmental assessment. c) Following the preliminary Screening and verification that the Project Proposal contains all required documents and related materials, subject to Articles 8, 9, 10, 11, 26 and 27 the Department shall make a determination in accordance with Annex 1 ' Categorization of Economic Activities for Assessment Purposes', taking into account Article 25 and the additional factors listed in Article 28 in order to designate the Project as one of the following, and then submit it to the Ministry: i) An EIA Type Project, or ii) An IEE Type Project, or iii) A Non IEE or EIA Type, and therefore not required to undertake any environmental assessment.
Screening: Section 24	Ministry shall also make a determination whether an EMP shall be required in respect of any Project.
Screening: Section 29	Within fifteen (15) working days of receiving the complete Project Proposal, the Department shall determine the type of environmental assessment (EIA, IEE, or none) which the Project will require, and the Department shall inform the Project Proponent in writing as to such determination in accordance with the Ministry guidance.
Forest Law (2018)	
Purpose: To ensure in carrying out the project with the permission of Ministry of Natural Resources and Environmental Conservation if the project land is forest land or forest covered land. This law focuses as follow; • The project proponent has to obtain the permission of Ministry of Natural Resources and Environmental Conservation before starting the work if the project land is forest land or forest covered under sub- section (a) of section 12	

Protection of biodiversity and Protected area Law (2018)
Purpose: To ensure abiding by the prohibitions and stipulations to protect biodiversity and protected area • The project proponent has to avoid entering the prohibited area located in protected area without permission under sub-section (a) of section35. • The project proponent has to avoid digging on the land or carrying out any activity in protected area under sub-section (c) of section35. • The project proponent has to avoid extracting, collecting or destroying in any manner, any kind of wild or cultivated plant in protected area under sub-section (d) of section35 • . The project proponent has to avoid polluting soil, water and air, damaging a water-course or poisoning water, electrification, using chemical or explosive materials in protected area under sub-section (a) of section39. The project proponent has to avoid possessing or disposing of toxic objectives or mineral wastes in protected area under sub-section (b) of section39.

National Environmental Quality (Emission) Guidelines (2015)	
Objectives	To provide the basis for regulation and control of noise and vibration, air emissions, and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.
Section 13: Implementation Procedures	Air emissions, noise, odor, and liquid/effluent discharges will be sampled and measured at points of compliance as specified in the project EMP and ECC.

Land Acquisition Act, 1894 (The Law does not specifically define legislation for EIAs.)
・Stipulates that the government holds rights to take over land provided that compensation is made to the original land owner. ・States that no private ownership of land is permitted and that all land must be leased from the Union State.

The Land Nationalization Act, 1953
・With some exceptions stipulates that all types of agricultural land are owned by the President. ・Mentions that in case of a breach of the regulations, even the land exempted from government confiscation will be forfeited to the country without compensation. ・States that the President reserves rights to decide the crops to be gown on agricultural lands.

National Land Use Policy (2016)	
Objectives	a) To promote sustainable land use management and protection of cultural heritage areas, environment, and natural resources for the interest of all people in the country; b) To strengthen land tenure security for the livelihood's

	improvement and food security of all people in both urban and rural areas of the country; c) To recognize and protect customary land tenure rights and procedures of the ethnic nationalities; d) To develop transparent, fair, affordable and independent dispute resolution mechanisms in accordance with rule of law; e) To promote people centered development in land resources and accountable land use administration in order to support the equitable economic development of the country; f) To develop a National Land Law in order to implement the above objectives of National Land Use Policy.
Building Regulations, 2014	
The developer should follow the instructions made by concerned departments for the following activities: installation of electrical meters, installation of transformers, emergency exits, to develop systems for disposal of sewage and waste, fire safety system and matters relating to road and bridges.	
Foreign Investment Law, 2012	
Section 8	(a) To support the primary objectives of the national economic development plan, and for businesses that cannot yet be run by the State and citizens or businesses that have insufficient funds and technology. (b) Development of employment activities (l) Protection and conservation of the environment. (q) Appearing the required modern services for the Union and citizens.
Section 9	(b) To carry out a joint venture between a foreigner and a citizen or the relevant Government department and organization.
Section 17	(a) To abide by the existing laws of the Republic of the Union of Myanmar. (b) To carry out the business by forming a company under the existing laws of Myanmar by the investor. (h) To carry out not to cause environmental pollution or damage in accord with existing laws in respect of investment business. (k) To carry out the systematic transfer of high technology relating to the business which are carried out by the investor to the relevant enterprises, departments or organizations in accord with the contract.
Foreign Investment Rules, 2013	
Rule 54	The promoter or investor shall: (a) comply with Environmental Protection Law in dealing with environmental protection matters related to the business; (b) shall carry out socially responsible investment in the interest

	of the Union and its people; (c) shall co-operate with authorities for occasional or mandatory inspection; (d) shall exercise due diligence to be in conformity and harmony with norms and standards prescribed by relevant Union Ministry in conducting construction of factories, workshops, buildings, and other activities; (e) shall enforce Safety and Health
Factories Act, 1951	
Has been enacted for affairs concerning with health, safety, working time of employees.	
Hygiene in Working Environment: Section 3	▪ Mentions responsibilities of employer and manager regarding waste disposal, ventilation, extreme temperature, dust and gas generation, minimum space for each worker, lighting, portable drinking water and toilets for employees.
Safety in Working Environment: Section 4	▪ States responsibilities of employer and manager concerning with machine guarding, personal protective equipment, housekeeping, aisles and exits, chemical storage and fire protection system to avoid accident.
Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)	
The Pyidaungsu Hluttaw hereby enacts this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly.	
The Social Security Law (2012)	
Section 53(a)	The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment;
The Conservation of Water Resources and Rivers Law,2nd October (2006)	
Aims: Section 3	(a) To conserve and protect the water resources and rivers systems for beneficial utilization by the public; (b) to smooth and safety waterways navigation along rivers and creeks; (c) to contribute to the development of State economy through improving water resources and rivers system; (d) to protect environmental impact
Freshwater fisheries Law (1991)	
Purpose: According to the sub-section (e) of section 2 of said law, the freshwater area includes any river, creek, pond and water area so the project will be near by the river or creek which is freshwater area with the safety of freshwater and aquatics.	

This law focuses as follow;

- The project proponent has to avoid any water pollution and disturbing to fish &other aquatic lives in any freshwater such as river, creek under section 40 of said law.

The Minimum Wage Law (2013)

The Duties of the Employer

Sec.12,

The employer:

(a) shall not pay wage to the worker less than the minimum wage stipulated under this Law;
(b) may pay more than the minimum wage stipulated under this Law;
(c) shall not have the right to deduct any other wage except the wage for which it has the right to deduct as stipulated in the notification issued under this Law;
(d) shall pay the minimum wage to the workers working in the commercial, production and service business in cash. Moreover, if the specific benefits, interests or opportunities are to be paid, it may be paid in cash or partly in cash and partly in property, with prevailing regional price, jointly according to the desire of the worker;
(e) in paying minimum wage to the workers working in the agricultural and livestock business, some cash and some property at prevailing regional price may be paid jointly according to local custom or desire of the majority of workers or collective agreement. Such payment shall be for any personal use and benefit of the worker and his family and the value shall also be considerable and fair.

Sec.13, The employer:

(a) shall inform the workers the rates of minimum wage relating to the business among the rates of minimum wage stipulated under this Law and advertise it at the workplace to enable to be seen by the relevant workers;
(b) shall prepare and maintain the lists, schedules, documents and wages of the workers correctly;
(c) shall report the lists, schedules and documents prepared and maintained under subsection to the relevant department in accord with the stipulations;
(d) shall accept the inspection when summoned by the inspection officer. Moreover, he shall produce the said lists and documents upon asking to submit;
(e) shall allow the entry and inspection of the inspection officer to the commercial, production and service businesses, agricultural and livestock breeding workplaces and give necessary assistances;
(f) if the workers cannot work due to sickness, shall give them holiday for medical treatment in accord with the stipulations;
(g) if the funeral matter of the member of the family of worker or his parent occurs, shall give holiday without deducting from the minimum wage, in accord with the stipulations.

Assigning Duty to the Inspection Officer, Inspection and Taking Action

Sec.18,

The inspection officer:

(a) has the right to enter and inspect the relevant commercial, production and service workplaces, agricultural and livestock breeding workplaces and inspect whether or not they comply with and carry out in accord with the rules, notifications, orders, directives and procedures under this Law, whether or not the lists, schedules and documents, wages relating to the workers are prepared correctly, and whether or not such lists, schedules and documents are reported to the Department in accord with the stipulations;
(b) may summon, inspect the relevant persons under the assignment of duty by the Department, asking and copying for the relevant lists, schedules and documents.

(c) if there are outside workers at employer, has the right to inspect information relating to such outside workers, their names and addresses and the right to ask for and copy their lists and documents and lists relating to minimum wage;
(d) in carrying out under sub-section (a), (b) and (c) relating to inspection, if required by the employer to produce the document, shall show the civil service identify card issued by the relevant department;
(e) report to the Department in accord with the stipulations relating to the finding under sub-sections (a), (b) and (c), and documents and papers called for.

In accordance with the described law, sections 12, 13, 18, the employer or proponent has to comprehend the duties for the employees, and assign duties for inspection officer to inspect and take action.

Underground Water Act

The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of Burma. This act prohibits sinking of a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township Officer or sub-divisional officer had power to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land-revenue.

Myanmar Fire Brigade Law (2015)

The Pyidaungsu Hluttaw enacted this law by Law No.11/2015 on the date of 17th March, 2015 with the following objectives:

(a) to take precautionary and preventive measures and loss of state own property, private property, cultural heritage and the live and property of public due to fire and other natural disasters
(b) to organize fire brigade systemically and to train the fire brigade
(c) to prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs
(d) to educate, organize and inside extensively so as to achieve public corporation
(e) to participate if in need for national security, peace for the citizens and law and order

Section-8 Fire Safety Procedures

Rule17	The relevant Government Department or organization shall, for the purpose of precaution and prevention obtain the approval of the Fire force Department before granting permission for the following cases: a. Constructing three-storied and above buildings market and condominium buildings, b. Operating hotel, motel, guest house enterprise c. Constructing factory, workshop, storage facilities and warehouse d. Operating business expose to fire hazard by using in inflammable materials or explosive materials e. Producing and selling fire-extinguishing apparatuses f. Doing transport business, public utility vehicles train,

	airplane, helicopter, vessel, ship, tonkin tug
Rule18	The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans

Natural Disaster Management Law (2013)

Purpose: To implement natural disaster management programs and to coordinate with national and international organizations in carrying out natural disaster management activities; to conserve and restore the environment affected by natural disaster and to provide health, education, social and livelihood programs in order to bring about better living conditions for victims.

- The project proponent has to perform preparatory and preventive measures for natural disaster risks reduction before the natural disaster strikes, under the sub-section (a)(i) of section-13 of said law
- The project proponent has to undertake rehabilitation and reconstruction activities for improving better living standard after the natural disaster strikes and conservation of the environment that has been affected by natural disaster, under the sub-section (a)(iii) of section-13 of said law
- The project proponent has to carry out better improvement on early warning system of natural disaster, under the sub-section (b) of section-14 of said law
- The project proponent has to carry out together with the measures of natural disaster risk reduction in development plans of the State under the sub-section (d) of section-14 of said law
- Whoever if the natural disaster causes or is likely to be caused by any negligent act without examination or by willful action which is known that a disaster is likely to strike, shall be punished with imprisonment for a term not exceeding three years and may also be liable to fine, under section-25 of said law
- Whoever interferes, prevents, prohibits, assaults or coerces the department, organization or person assigned by this law to perform any natural disaster management shall, on conviction, be punished with imprisonment for a term not exceeding two years or with fine or with both, under section-26 of said law
- Whoever violates any prohibition contained in rules, notifications and orders issued under this law shall, on conviction, be punished with imprisonment for a term not exceeding one year or with fine or with both, under section-29 of said law
- Whoever willful failure to comply with any of the directives of the department, organization or person assigned by this law to perform any natural disaster management shall, on conviction, be punished with imprisonment for a term not exceeding one year or with fine or with both, under subsection (a) of section-30 of said law

Prevention of Hazard from Chemical and Related Substances Law (2013)
The Pyidaungsu Hluttaw enacted this law by Law No. 28 of 2013 on the date of 26th August, 2013. This law was enacted with the objectives of: a. To protect from being damaged the natural environment resources and being hazardous any living beings by chemical and related substances; b. To supervise systematically in performing the chemical and related substances business with permission for being safety; c. To perform the system of obtaining information and to perform widely educative and research for using the chemical and related substance systematically; d. To perform the sustainable development for the occupational safety, health and environmental conservation. Regarding the chemical management and storage, currently, regulations governing chemicals management are divided between various Acts, mostly dating from colonial times; hence the legislation is in many respects related to the British framework. The Factory Act and the Public Health Act contain the provisions for chemicals management and storage. Some chemicals are likely to require permits.

The Export and Import Law (2012)	
Objectives	The objectives of this law are as follows: a) To enable to implement the economic principles of the State successfully. b) To enable to lay down the policies relating to export and import that supports the development of the State. c) To cause the policies relating to export and import of the State and activities are to be in conformity with the international trade standards. d) To cause to be streamlined and speedy in carrying out the matters relating to export and import.
Prohibitions: Section 5	No persons shall export or import restricted, prohibited and banned goods.
Prohibitions: Section 6	Without obtaining license, no person shall export or import the specified goods which are to obtain permission.
Prohibitions: Section 5	A person who obtained any license shall not violate the conditions contained in the license.

Public Health Law (1972)
Purpose: to ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. It is concerned with the protection of peoples' health by controlling the quality and cleanliness of food, drugs, environmental sanitation, epidemic diseases and regulation of private clinics. The project owner will cooperate with the authorized person or organization in line with the section 3 and 5 of said law. Section 3: The project owner will abide by any instruction or stipulation for public health.

Section 5: The project owner will accept any inspection, anytime, anywhere if it is needed.
Myanmar Investment Law (2016)
40. Investment includes the followings: (a) Enterprise; (b) moveable property, immovable property and related property rights, cash, pledges, mortgages and liens, machinery, equipment, spare-parts, and related tools; shares, stocks, and debentures of a company; (d) intellectual property rights in accordance with applicable laws, including technical know-how, inventions, industrial designs, and trademarks; (e) claims to money and to any performance under contract having a financial value; (f) rights under contracts, including turnkey, construction, management, production or revenue-sharing contracts; and (g) assignable rights granted by relevant laws or contract including the rights of exploration, prospecting and extraction of natural resources;
41. The following investments shall be stipulated as prohibited investment: (a) business/ investment activities which may bring or cause the hazardous or poisonous wastes into the Union; (b) business/ investment activities which may bring technologies, medicines, flora and fauna and instruments which are still being tested abroad or which have not been obtained approvals for use, planting and cultivation except the investments which made for the purpose of research and development; (c) business/ investment activities which may affect the traditional culture and customs of the racial groups within the Union; (d) business/ investment activities which may affect the public health (e) business/ investment activities which may cause significant damage to the natural environment and ecosystem; and (f) business/ investment activities which manufacture goods or provide services that are prohibited in accordance with applicable laws.
42. The following investment activities shall be stipulated as restricted investment: (a) Investment activities allowed to carry out by Government only; (b) Investment activities restricted to foreign investors; (c) Investment activities allowed only in form of joint venture with a citizen owned entity or a citizen of Myanmar; and (d) Investment activities permitted with the recommendation of the relevant ministries. 50.(b)Foreign investor may lease land or building up to an initial period of 50 years commencing on the date of receipt of the permit or endorsement from the Commission either from the Government or governmental organizations or from private land or Building owners. (c) After the expiry of the term permitted under sub-section (b), a consecutive period of 10 years and a further consecutive period of 10 years extension to the initial period of lease land or building may be obtained with the approval of the Commission. (f) The Commission shall, for the purpose of the development of the entire Union with

the approval of Pyidaungsu Hluttaw submitted through the Government, grant a longer period for the rights to lease land or building and the rights to use land under this Law, to investors who invest in least developed and remote region.

65. The Investor -

(f) shall not make any significant alteration of topography or elevation of the land on which he is entitled to lease or has rights to use, without the approval of the Commission;

(g) shall in relation to the investment business, abide by applicable laws, rules, procedures and best standards practiced internationally so as not to cause damage, pollution, loss to the natural and social environment and not to cause damage to cultural heritage;

(q) The investments which need to obtain prior approval under the environmental conservation law and the procedures, shall take permit or endorsement of Commission before undertaking the assessment. Such Investments which obtained permit or endorsement, shall report environmental and social impact assessment to the Commission along the period in which the activities of the investments.

75. (a) With respect to the income tax exemption, the Commission will issue a notification with the approval of the Union Government to designate as Zone (1), the regions that are least-developed, and as Zone (2), the regions that are moderately developed, and as Zone (3), the regions that are adequately developed, and income tax exemption may be granted to investment businesses in Zone (1) for a period of 7 consecutive years including the year of commencement of the business, investment businesses in Zone (2) for a period of 5 consecutive years including the year of commencement the business, and investment

businesses in Zone (3) for a period of 3 consecutive years including the year of Commencement of the business.

6.2 Authorized Institutions and Recommendations

In the Republic of the Union of Myanmar, the Ministry of Natural Resources and Environmental Conservation (MONREC) was reformed from Ministry of Environmental Conservation and Forestry (MOECAF) in 30 March 2016 in order to undertake both environmental and natural resources conservation and management more effectively. It was intended to be a focal point and coordinating agency for the effective environmental management in Myanmar. Environmental Conservation Department was developed in October 2012, under the MOECAF and it becomes the most responsible department for EIA process in Myanmar. The followings are the comments and recommendation of MOECAF for the proposed project;

a) In order to avoid the impacts on environment, social and health, to present the detailed information of the project and to apply effective operation system with the least adverse impacts, implement all commitments including using 2% of net profit for CSR plan as described in the proposal,

b) To prepare and submit an IEE report so as to encounter no social and environmental impacts and to be the least if there is any impact by this project implementation,

c) To develop an EMP which include production techniques with the least environmental impacts based on the assessment results, implementation program, fund for mitigation measures for environmental impact and implement in accordance with this EMP; and

d) To adopt and implement in compliance with the prescribed environmental conservation law, rules and procedures.

7. Description of the Surrounding Environmental and Social Conditions

7.1 Methodology for Data Collection and Analysis

The following are the methodologies used for the IEE report preparation;

i) On-site Measurements and Analysis – During the preparation phase, baseline parameters such as air quality, soil and water quality of the existing project site are measured and collected on site, while some water and soil samples were collected and tested in respective laboratories, and results are mentioned in this Chapter.

ii) Secondary Data Collection and Analysis – Some data, such as socioeconomic condition, the physical/biological environment and weather data are collected from official township data received from the Township Administrative Office.

Table 7. 1 Equipment used to measure ambient air and noise measurement

Davis Vantage Pro2 Wireless Weather Station Provides detailed current weather conditions and expanded forecasts - all at a glance! The Vantage Pro2 uses a frequency-hopping spread spectrum radio from 902 MHz to 928 MHz to transmit and receive data up to 1,000' (300m) line of sight. In addition, the weather station features a bubble level, improved anemometer base, redesigned wind cups, and factory-calibrated wind direction. The integrated sensor suite combines temperature and humidity sensors, rain collector with an aluminum-plated tipping bucket, and anemometer into one package for easy setup. Measure inside and outside temperature and humidity, heat index, barometric pressure, dew point, rainfall, wind direction and speed, and wind chill.	
Haz-Scanner EPAS PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, CO_2, Temperature, and Relative Humidity	
Digital Sound Level Meter Noise and Vibration	

Aeroqual S 500	

7.2 Physical Environment

7.2.1 Climate and Rainfall

The climate is tropical as it is located in the low latitude zone and near the sea, therefore it experiences the typical wet and dry seasons, and rain is especially heavy in July and August. In 2016, total precipitation days was 115 days with average annual rainfall of 147.22 inches and the minimum temperature of 17°C and the maximum temperature of 37.5°C were recorded in winter and summer respectively. In 2017, total precipitation days was 116 days with average annual rainfall of 144.87 inches and the minimum temperature in winter was 17°C and the maximum temperature in summer was 37.5°C respectively. The project site also has tropical climate and therefore it experiences the typical wet and dry seasons.

Table 7. 2Yearly Rainfall and Temperature of Kyaikmaraw Township

No.	Year	Rainfall		Temperature	
		Running Day	Total Rainfall	Highest °C	Lowest °C
1.	2014	212	126.88	35	18
2.	2015	165	70.75	36	19
3.	2016	162	64.09	36	17
4.	2017	176	937.73	35	19
5.	2018	212	78.144	35	21

Wind Speed and wind direction; The following figure describes the wind speed and wind direction of the proposed project site on, 14 March to 15 March 2019 respectively. According to the data, the wind direction is following the Figure.

Figure 7. 1 Wind Speed and Wind Direction (Blowing From) at Jetty site

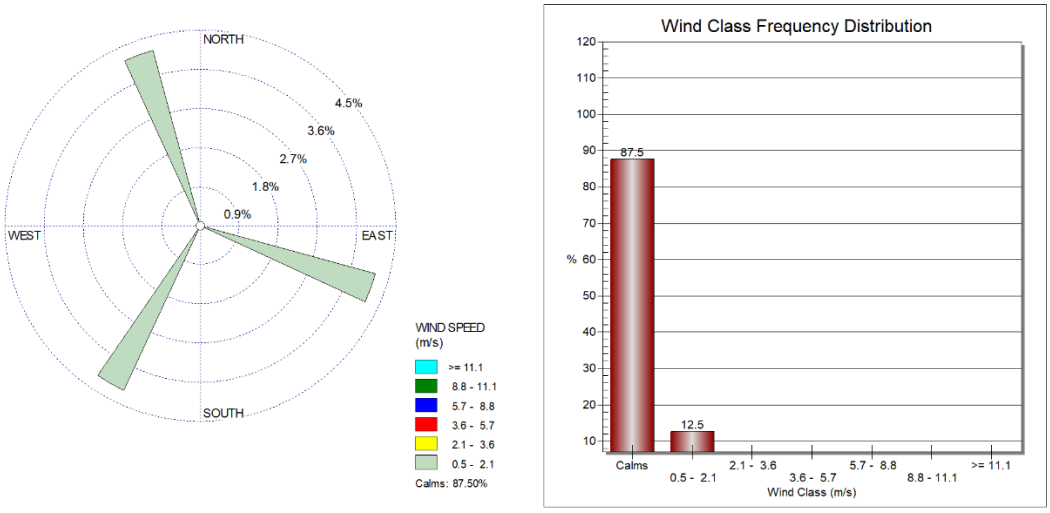


Figure 7. 2 Wind Class Frequency Distribution at Jetty site

7.2.2 Air Quality

There are many things, which are produced by humans and nature, that can pollute air quality. In general, they can be divided into two: Primary pollutants and Secondary pollutants. Primary pollutants are those that are produced directly into the air. The main primary pollutants are particulate matters such as ash and smoke and gases such as SO_2, NO, CO, CO_2 and organic gases. Secondary pollutants are those that are produced from the chemical combination of primary pollutants and the chemicals contained in the normal air. They are NO_2, SO_2 and O_3, etc. To determine the existing baseline ambient air quality status within the project site, 24-hours air pollutants level, which include dust (PM10 and PM 2.5) and gases (CO, CO2, SO2, NO2, O3) were measured at the selected site using the

HAZSCANNER air monitoring station and Volatile Organic Compounds was measured at the selected site using Aeroqual-(Series 500) which provide direct reading with data logging capabilities.

Table 7. 3 Observed Ambient Air Quality Results

Parameters	Observed Value at jetty site	Guidelines Value	Unit	Organization	Averaging Period
CO_2	403.21	5000	ppm	ACGIH	8hrs
CO	0	9	ppm	NAAQS	8hrs
PM_{10}	47.81	50	$\mu g/m^3$	NEQ	24hrs
$PM_{2.5}$	36.34	25	$\mu g/m^3$	NEQ	24hrs
SO_2	2.62	20	$\mu g/m^3$	NEQ	24hrs
NO_2	18.99	200	$\mu g/m^3$	NEQ	1hrs
O_3	22.09	100	$\mu g/m^3$	NEQ	8hrs

NEQ - National Environmental Quality (Emission) Guideline
NAAQS - National Ambient Air Quality Standards NAAQS were developed by the U.S. Environmental Protection Agency (EPA)
ACGIH - The American Council of Governmental Industrial Hygienists recommends Threshold Limit Values (TLV®) as maximum exposures for industrial environments.

As per above tables, it can be seen that $PM_{2.5}$ parameters measured are upper the National Environmental Quality (Emission) Guideline (NEQG) because PM is high at dry season. So, PM is high. CO_2, CO, NO_2, SO_2 and Ozone are within the National Environmental Quality (Emission) Guideline (NEQG).

Figure 7. 3 Air Quality measurement at proposed project site

7.2.3 Emission Sources

Site clearing, overburden removal, mine site preparation, mine production operation and closure may lead to the air quality degradation. Machinery operation and crushing operation are the primary source of air pollutants and is the main factor that may cause impact on the environment and humans. Particulate matters and gases are produced from overburden removal, machinery operation and mine operations. Particulate matters ($PM_{10,}$ $PM_{2.5}$), CO_2, CO, NO_2 and SO_2 are measured at specific time interval for 24 hours by EPAS Haz-Scanner. The measured results are compared with the National Environmental Quality (Emission) Guidelines and ACGIH and NAAQS guidelines.

(a) Particulate Matters ($PM_{10,}$ $PM_{2.5}$)

PM10 is particulate matter 10 micrometers or less in diameter and PM2.5 is particulate matter 2.5 micrometers or less in diameter. PM2.5 is generally described as fine particles. The major components of PM are sulfate, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water. It consists of a complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air. Dust emission such as Particulate Matters PM 10 and PM 2.5 was measured for 24 hours averaged on the 14 and 15 March 2019 to obtain the baseline data during the pre-construction phase of the proposed project. The observed average values for PM 10 and PM 2.5 are 47.81µg/m3and 36.34µg/m3 respectively. When compared with NEQ (emission) guideline, ambient air quality of PM 10 is within the guideline and PM2.5 is exceeding the acceptable limit. Basically, PM concentrations in the air are related to weather conditions such as wind speed and wind directions, humidity, rainfall, temperature and pressure. PM concentrations are usually higher in dry seasons than wet seasons.

Table 7. 4 Air Monitoring Results (Jetty)

Date	Time	CO_2 (ppm)	CO (ppb)	NO_2 (PPb)	PM_{10} µg/m3	$PM_{2.5}$ µg/m3	RH %	SO_2 (PPb)
14.3.2019	16:00-16:59	270.37	0.00	2.00	54.68	40.38	23.53	1.00
14.3.2019	17:00-17:59	172.58	0.00	2.65	53.05	45.80	27.00	1.00
14.3.2019	18:00-18:59	189.90	0.00	2.00	39.40	32.22	25.33	1.00
14.3.2019	19:00-19:59	149.82	0.00	2.00	41.93	31.07	19.17	1.00
14.3.2019	20:00-20:59	116.57	0.00	10.10	43.32	30.52	16.08	1.00
14.3.2019	21:00-21:59	127.03	0.00	2.87	43.12	32.52	14.55	1.00
14.3.2019	22:00-22:59	104.32	0.00	2.00	41.92	34.42	14.02	1.00
14.3.2019	23:00-23:59	83.27	0.00	2.37	55.23	44.35	5.90	1.00
15.3.2019	0:00-0:59	125.85	0.00	2.22	36.22	23.23	14.13	1.00
15.3.2019	1:00-1:59	333.67	0.00	3.05	33.33	17.55	20.73	1.00
15.3.2019	2:00-2:59	505.62	0.00	2.18	33.92	21.20	20.98	1.00
15.3.2019	3:00-3:59	580.07	0.00	3.05	40.70	33.90	23.92	1.00
15.3.2019	4:00-4:59	602.90	0.00	2.00	46.77	38.30	23.90	1.00
15.3.2019	5:00-5:59	623.72	0.00	2.00	62.17	49.50	23.97	1.00

15.3.2019	6:00-6:59	270.52	0.00	2.00	66.78	53.33	14.80	1.00
15.3.2019	7:00-7:59	183.33	0.00	4.13	98.78	46.22	20.35	1.00
15.3.2019	8:00-8:59	130.05	0.00	3.22	47.05	41.17	18.63	1.00
15.3.2019	9:00-9:59	120.08	0.00	3.48	57.27	50.52	15.28	1.00
15.3.2019	10:00-10:59	112.75	0.00	2.00	62.62	55.17	6.05	1.00
15.3.2019	11:00-11:59	161.03	0.00	3.20	44.00	38.22	5.03	1.00
15.3.2019	12:00-12:59	368.47	0.00	3.05	39.50	32.33	15.90	1.00
15.3.2019	13:00-13:59	512.67	0.00	2.27	42.25	35.85	15.10	1.00
15.3.2019	14:00-14:59	694.42	0.00	3.83	30.73	21.50	12.83	1.00
15.3.2019	15:00-15:59	800.45	0.00	3.75	32.60	22.97	18.70	1.00
Average		305.81	0.00	2.98	47.81	36.34	17.33	1.00
1 hour Minimum		83.27	0.00	2.00	30.73	17.55	5.03	1.00
1 hour Maximum		800.45	0.00	10.10	98.78	55.17	27.00	1.00

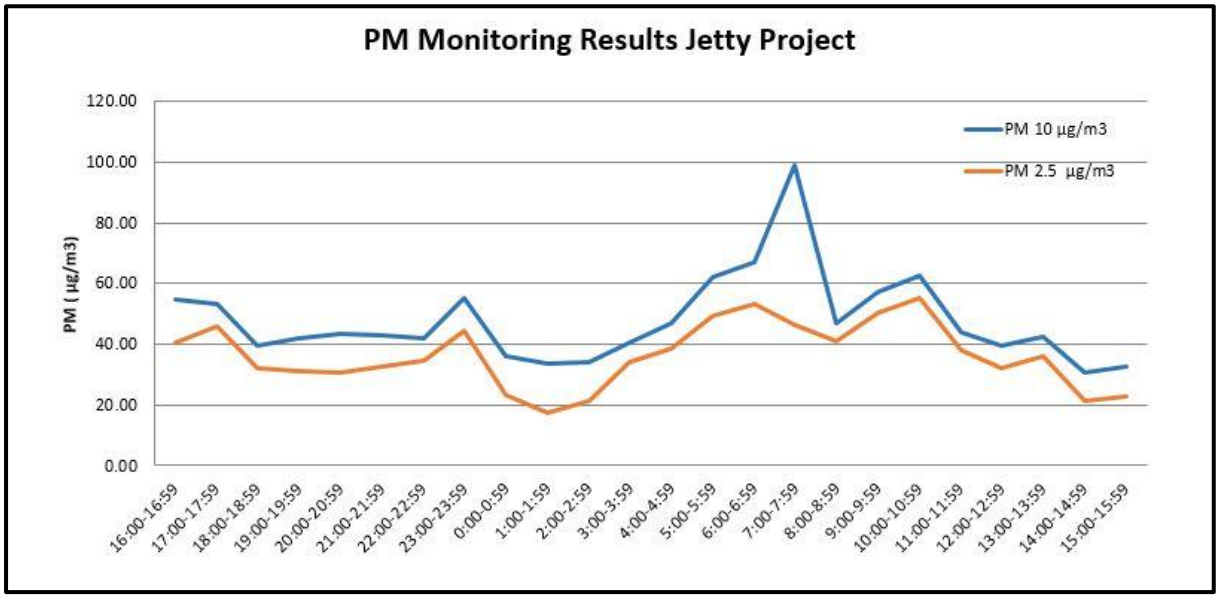


Figure 7. 4 Ambient Particulate Matter Condition

(b) Nitrogen Dioxide (NO_2)

Nitrogen dioxide is one of the main air pollutants and is generally produced from combustion. Machinery operation and generator usually produce the gas. In machinery operation case, although they are the source of air pollution, the produced gas type may differ based on the type of the engines such as diesel engine or petrol engine. Inhalation of nitrogen dioxide may lead to lung diseases.

(c) Sulphur Dioxide (SO_2)

Sulphur dioxide is the most important gas among the air pollutants. It is colorless and has significant odor. Heavy machinery used in operation are the source of Sulphur dioxide. It

may cause eye and throat irritation and respiratory tract problems when inhaled. Continuous amount may lead to lung diseases.

(d) Carbon Dioxide (CO_2)

Carbon dioxide (CO_2) is one of the most plentiful byproducts of combustions and as a result, outside air measurements can be affected by extremely localized sources of combustion such as exhaust fumes or running vehicles. It is dangerous gas and causes damage to the respiratory organs.

(e) Carbon monoxide (CO)

Carbon monoxide is a colorless, odorless, tasteless gas formed primarily by the incomplete combustion of carbonaceous fuels. The major source of carbon monoxide is fuel combustion engine of mobile sources, operation of heavy truck. Miscellaneous combustion sources and industrial processes contribute to a much lesser extent. The significance of carbon monoxide is effect on human and other animal health; plants are relatively insensitive, and other deleterious effects are notable.

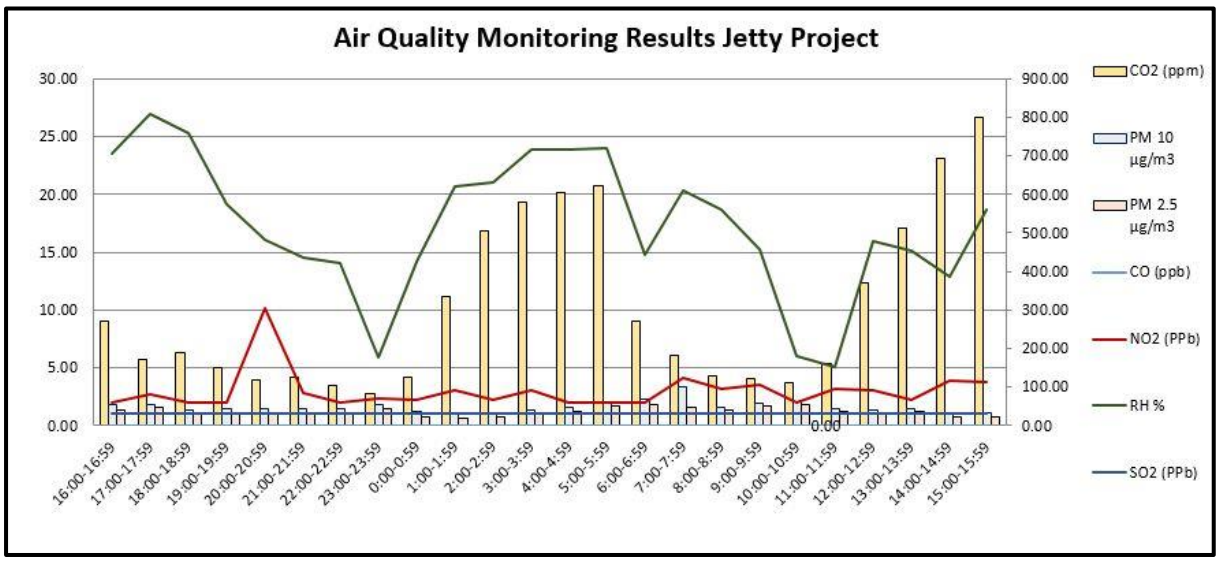


Figure 7. 5 Fluctuation of Air Pollutants during dial cycle (Jetty)

Table 7. 5 Ozone Monitoring Results at Jetty

No.	Date	Time		Observed Values
1	14.3.2019	16:00:00-16:59:00	Average	0.0112
2	14.3.2019	17:00:00-17:79:00	Average	0.0153
3	14.3.2019	18:00:00-18:59:00	Average	0.0112
4	14.3.2019	19:00:00-19:59:00	Average	0.0105
5	14.3.2019	20:00:00-20:59:00	Average	0.0109
6	14.3.2019	21:00:00-21:59:00	Average	0.0066
7	14.3.2019	22:00:00-22:59:00	Average	0.0004
8	14.3.2019	23:00:00-23:59:00	Average	0.0005
9	15.3.2019	00:00:00-00:59:00	Average	0.0006
10	15.3.2019	01:00:00-01:59:00	Average	0.0005

11	15.3.2019	02:00:00-02:59:00	Average	0.0004
12	15.3.2019	03:00:00-03:59:00	Average	0.0004
13	15.3.2019	04:00:00-04:59:00	Average	0.0007
14	15.3.2019	05:00:00-05:59:00	Average	0.0041
15	15.3.2019	06:00:00-06:59:00	Average	0.0017
16	15.3.2019	07:00:00-07:59:00	Average	0.0014
17	15.3.2019	08:00:00-08:59:00	Average	0.0051
18	15.3.2019	9:00:00-9:59:00	Average	0.0068
19	15.3.2019	10:00:00-10:59:00	Average	0.0133
20	15.3.2019	11:00:00-11:59:00	Average	0.0127
21	15.3.2019	12:00:00-12:59:00	Average	0.0128
22	15.3.2019	13:00:00-13:59:00	Average	0.0134
23	15.3.2019	14:00:00-14:59:00	Average	0.0134
24	15.3.2019	15:00:00-15:59:00	Average	0.0135
Average				0.007
Maximum				0.015
Minimum				0.000

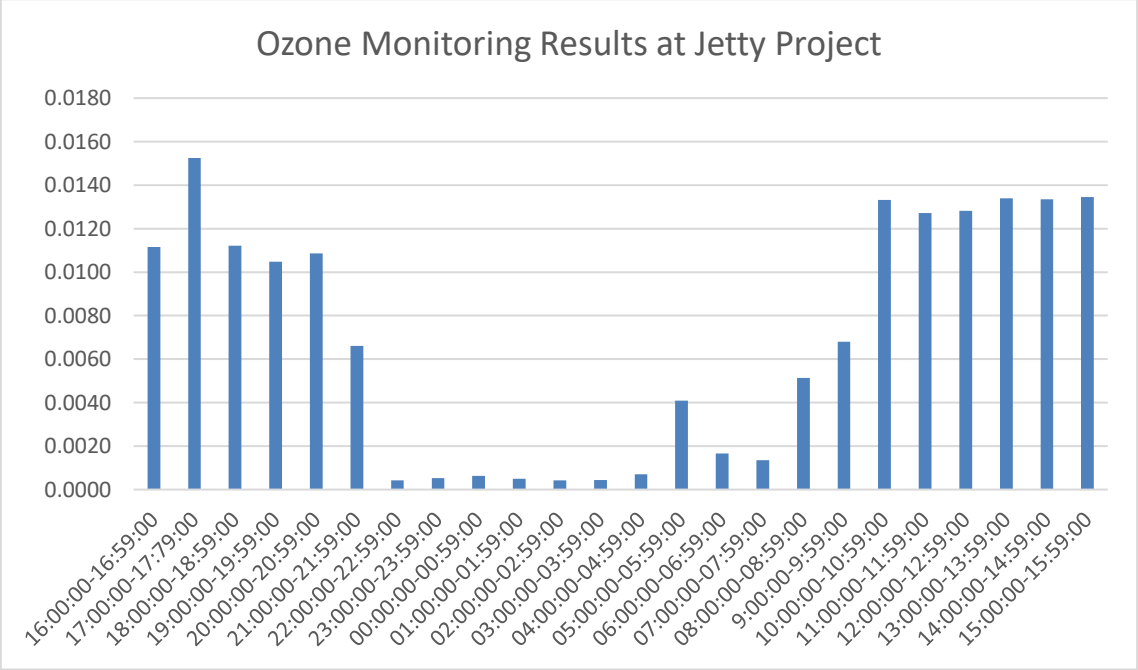


Figure 7. 6 Ozone monitoring at Jetty Project

7.2.4 Noise

Ambient noise level for the proposed project was measured with Digital Sound Level Meter at the project site. The noise level measurement is conducted at one point: this point is near the air monitoring points on 11 March to 12 March 2019. Measuring period is 24 hours continuously. The observed values are described in table (7.6) and the following figures are noise level measurement at the proposed project.

Figure 7. 7 Noise Measurement at proposed project site

Table 7. 6 Observed Values of Noise Level Measurement at Jetty

No.	Date	Time	Observed Mean Value (Source)	Weight	Day/Night	Average
1	15.3.2019	7:00:13-7:59:13	47.71	A	Day	47.54
2	15.3.2019	8:00:13-8:59:13	47.26	A	Day	
3	15.3.2019	9:00:13-9:59:13	45.76	A	Day	
4	15.3.2019	10:00:13-10:59:13	44.19	A	Day	
5	15.3.2019	11:00:13-11:59:13	42.56	A	Day	
6	15.3.2019	12:00:13-12:59:13	42.52	A	Day	
7	15.3.2019	13:00:13-13:59:13	44.09	A	Day	
8	15.3.2019	14:00:13-14:59:13	47.36	A	Day	
9	15.3.2019	15:00:13-15:59:13	48.84	A	Day	
10	14.3.2019	16:00:13-16:59:13	50.19	A	Day	
11	14.3.2019	17:00:13-17:59:13	51.41	A	Day	
12	14.3.2019	18:00:13-18:59:13	53.28	A	Day	
13	14.3.2019	19:00:13-19:59:13	49.58	A	Day	
14	14.3.2019	20:00:13-20:59:13	48.96	A	Day	
15	14.3.2019	21:00:13-21:59:13	49.42	A	Day	
16	14.3.2019	22:00:13-22:59:13	50.98	A	Night	48.36
17	14.3.2019	23:00:13-23:59:13	49.38	A	Night	
18	15.3.2019	0:00:13-0:59:13	49.09	A	Night	
19	15.3.2019	1:00:13-1:59:13	46.66	A	Night	
20	15.3.2019	2:00:13-2:59:13	44.52	A	Night	

21	15.3.2019	3:00:13-3:59:13	50.99	A	Night	
22	15.3.2019	4:00:13-4:59:13	49.97	A	Night	
23	15.3.2019	5:00:13-5:59:13	44.53	A	Night	
24	15.3.2019	6:00:13-6:59:13	49.08	A	Night	
Average				47.85		

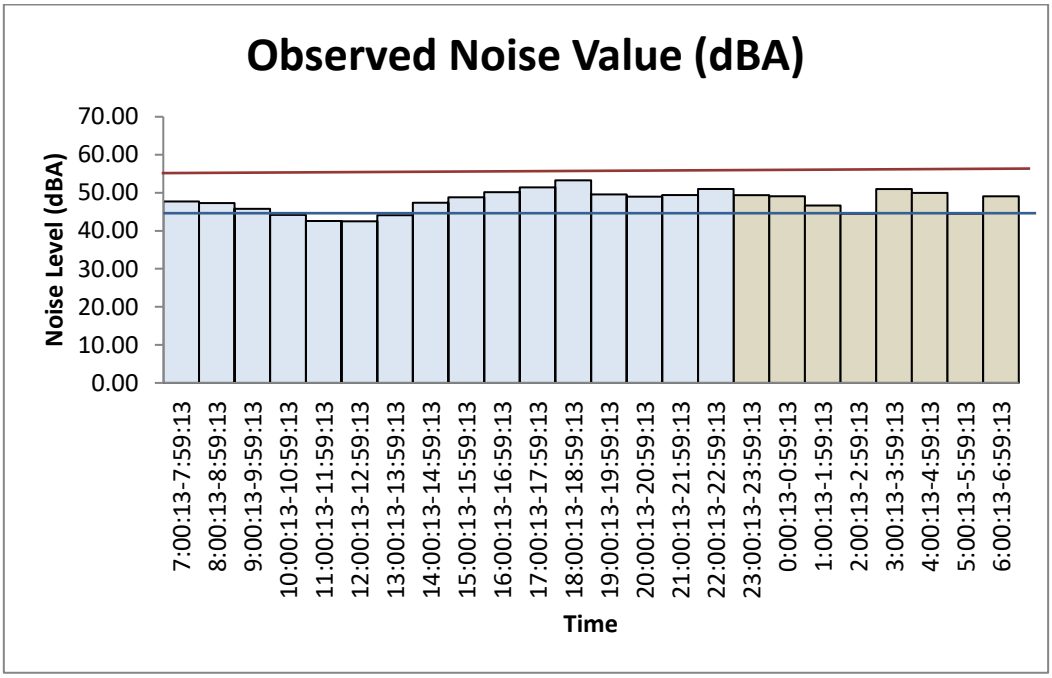


Figure 7. 8 Noise Level at Jetty

Table 7. 7 Comparison of National Environmental Quality (Emission) Guidelines Values for Noise Level and Observed Noise Level

Receptor	One Hour LAeq (dBA)	
	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential, institutional, educational	55	45
Industrial, commercial	70	70
Observed values	47.54	48.36

[a] Equivalent continuous sound level in decibels

Source: National Environmental Quality (Emission) Guidelines, 2015

The observed values are compared with the National Environmental Quality (Emission) Guidelines as shown in Table (7.7) which indicates the separate level for industrial points.

The proposed project is located adjacent to the industrial area. All the observed daytime and night time values are lower than the National Environmental Quality (Emission) Guidelines.

7.2.5 Water Quality

Objectives of the sampling and analysis of water quality is to understand the existing water quality at the selected locations and to monitor the impacts before the operation. The field surveys for environmental quality monitoring and sampling were done during 17 March 2019.

All locations water quality sampling results are shown in Table (7.8) and compared with National Environmental Quality (Emission) Guidelines, WHO guidelines and ambient water quality standards for the protection of aquatic life. Analyzed water quality results were shown in the tables below comparing with the ambient water quality standards. Generally, most of the lab results of parameters analyzed are within the national water quality standard.

Currently, Myanmar does not have surface water quality standards for major rivers and its tributaries, natural and man-made streams or lakes, ground water, or reservoir water. Environmental conservation department is in the process of developing National Ambient Water Quality Standards based on the protection of aquatic life. It is recommended by the environmental specialist to compare the measured water quality results with the standards shown in table (7.9) below.

Table 7. 8 Ambient water quality standards for the protection of aquatic life

Parameter	Unit	Concentration	Reference
Aluminum	mg/l	0.005 (if pH < 6.5) 0.1 (if pH > 6.5)	Australian and New Zealand guidelines for fresh and marine water quality. 2000. Australian and New Zealand Environment Conservation Council. Water Quality Guidelines for the Protection of Aquatic Life. 2016. Canadian Council of Ministers of the Environment. Metal mining technical guidance for environmental effects monitoring. 2012. Environment Canada.
Ammonia	mg/l	0.02	As above
Arsenic	mg/l	0.05	As above
Boron	mg/l	0.5	As above
Cadmium	mg/l	0.0002	As above
Chloride	mg/l	0.86	As above
Chromium (hexavalent)	mg/l	0.01	As above
Chromium (trivalent)	mg/l	0.0089	As above
Coliforms (total)	MPN/100ml	5000	As above

Parameter	Unit	Concentration	Reference
Coliforms (faecal)	MPN/100ml	1000	As above
Color	mg/l	Not significantly higher that seasonally adjusted background value	As above
Copper	mg/l	0.002	As above
Cyanide (free)	mg/l	0.005	As above
Dissolved oxygen	mg/l	6	As above
Ethanol	mg/l	1.4	As above
Fluoride	mg/l	0.2	As above
Iron	mg/l	0.3	As above
Lead	mg/l	0.001	As above
Manganese	mg/l	0.05	As above
Mercury	mg/l	0.0001	As above
Molybdenum	mg/l	0.073	As above
Naphthalene	mg/l	0.016	As above
Nickel	mg/l	0.015	As above
Nitrate	mg/l	5	As above
Nitrite	mg/l	0.06	As above
Oil & grease	-	Substantially absent, no iridescent sheen	As above
pH	-	6.5-9	As above
Phenols	mg/l	0.004	As above
Phosphorus	mg/l	0.15	As above
Selenium (total)	mg/l	0.005	As above
Silver	mg/l	0.0001	As above
Sulphide	mg/l	0.002	As above
Temperature	°C	< 2 increase	As above
Thallium	mg/l	0.004	As above
Total suspended solids	mg/l	10	As above
Tributyltin	mg/l	0.000008	As above
Turbidity	-	< 10% change	As above
Uranium	mg/l	0.015	As above
Zinc	mg/l	0.005	As above

Table 7. 9 Water Quality of Jetty

Parameters	National Environmental Quality (Emission) Guidelines for Ports, Harbors and Terminals	Ambient water quality standards for the protection of aquatic life	Jetty
Biochemical Oxygen Demand (BOD) (5 days at 20 .C)	30 mg/l		10 mg/l
Chemical Oxygen Demand (COD)	125 mg/l		32 mg/l
Oil & Grease	10 mg/l	Substantially absent, no iridescent sheen	<5 mg/l
pH (Lab Results)	6-9	6.5-9	7.4
Total Suspended Solids	50 mg/l	10 mg/l	81 mg/l
Total Nitrogen	10 mg/l		<1 mg/l
Total Phosphorus	2 mg/l		0.027 mg/l
Total Coliform Bacteria	400 CFU/100ml		10 CFU/100ml

Figure 7. 9 Water Quality test

7.2.6 Topography

The project site is located in the Mon State area, about 40km South-East from Mawlamyine and 8km South from Kyeikmaraw. It is located in Kyaikmaraw township, Mon state and Pya Taung is situated approximately 2miles S-W from the site. In its surrounding, Kaw Panaw, Kaw Dun and We Nge Villages are located respectively. The project location map is shown below.

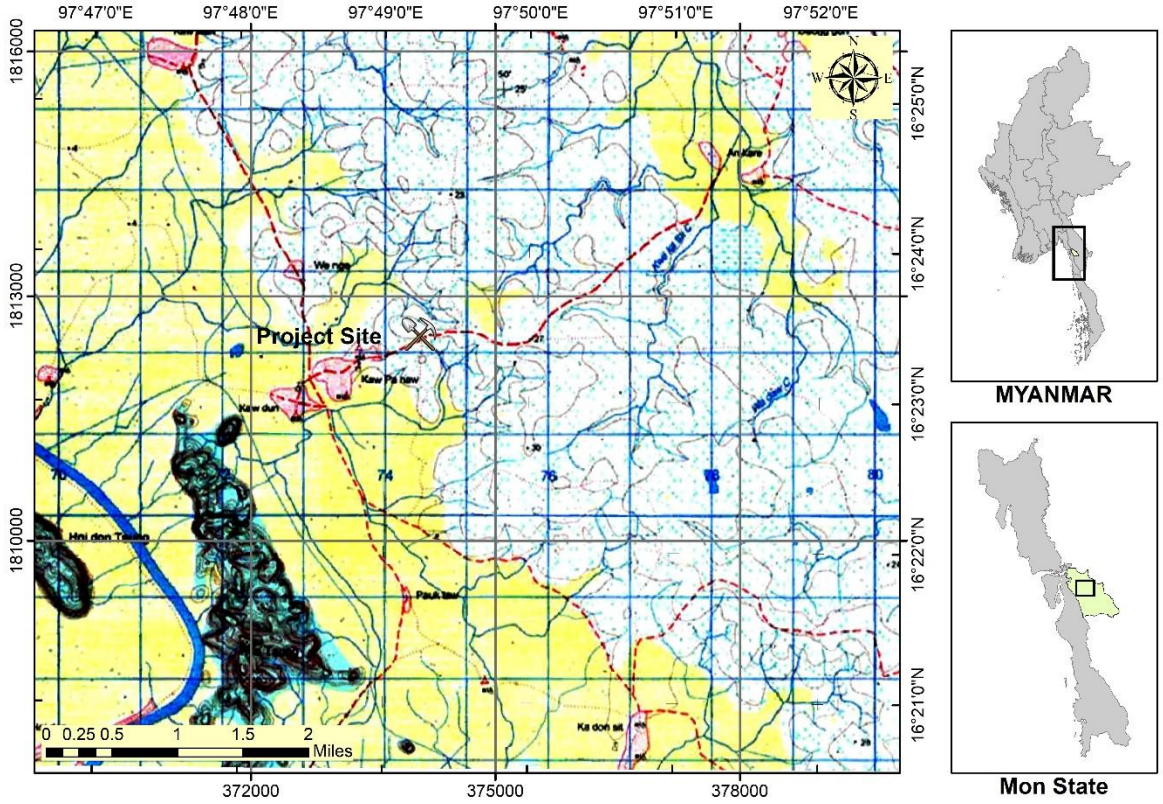


Figure 7. 10 Project Location

7.2.7 Hydrology

The main rivers and streams in the project area are Ataran river, Jaing river, Za Mi stream and Win Yaw stream. Ataran is one of the famous rivers flowing from south to north across the town. Ataran and Jyine rivers are accessible by ships and boats. Most of the rivers and streams provide freshwater and therefore can be used both for agricultures and drinking.

7.2.8 Access and Transportation

The project site is always accessible by boat navigating the Ataran River from Kyaikmaraw, from which project site can be accessed by means of cars or motorcycles. It can also be accessed by car from Mawlamyine during the dry season.

7.2.9 Sediment Characteristics

Sediment sampling was carried out in June 2019 at the Attaran River. The sediment sample was collected from disturbed sediment in the top 5 cm of river bed by using sediment grab instrument. Then the sample has been sent out to the laboratory to know the characteristics for composition analysis. The analysis is aimed to define the situation in which contaminants associated with sediments, are likely to be a threat of aquatic ecosystem, before the project.

The laboratory used for sediment analysis is described below and the lab report can be seen in annex.

- United Analyst and Engineering Consultant Co., Ltd., 3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
  Tel: 0 2763 2828, Fax: 0 2763 2800
  www.uaeconsultant.com, email: uae@uaeconsultant.com

Sediment quality parameters considered for Jetty are:

1. Fat, Oil and Grease (mg/kg)
2. Arsenic (As) (mg/kg)
3. Mercury (Hg) (mg/kg)
4. Lead (Pb) (mg/kg)
5. Cadmium (Cd) (mg/kg)
6. Nitrogen (N) (% w/w N)
7. Phosphorus (P) (mg/kg)
8. Chromium (Cr) (mg/kg)
9. Nickel (Ni) (mg/kg)
10. Copper (Cu) (mg/kg)
11. Total Organic Carbon (% w/w dry weight)
12. Pesticide/ Polychlorinated biphenyls (PCB's) (mg/kg)

Sediment quality results are shown in Table by comparing with the values of Australian and New Zealand Guidelines for Fresh and Marine Water Quality released in Year 2000 (ANZECC/ARMCANZ, 2000). Generally, most of the lab results of parameters analyzed is within the range of guideline values.

Sediment Parameters	Unit	ANZECC/ARMCANZ, 2000		Observed Values
		ISQG-Low (Trigger value)	ISQG-High	
Fat, Oil and Grease	(mg/kg)			ND
Arsenic (As)	(mg/kg)	20	70	66.3
Mercury (Hg)	(mg/kg)	0.15	1	ND
Lead (Pb)	(mg/kg)	50	220	54.5
Cadmium (Cd)	(mg/kg)	1.5	10	ND
Nitrogen (N)	(% w/w N)			ND
Phosphorus (P)	(mg/kg)			466
Chromium (Cr)	(mg/kg)	80	370	31.8
Nickel (Ni)	(mg/kg)	21	52	65.0
Copper (Cu)	(mg/kg)	65	270	35.4
Total Organic Carbon	(% w/w dry weight)			7649
Pesticide/ Polychlorinated biphenyls (PCB's)	(mg/kg)	23	-	ND

ND: Non-detectable

By comparing observed values with guidelines, it can be seen that Nickel concentration is higher than ISQG value. It indicates that river sediment has Nickel contamination and the reason why it happens, might be natural Ni sources or/ and anthropogenic sources such as human settlement and agriculture activities. However, in order to determine whether this exceeding level might be a risk to aquatic ecosystem, seasonal quality measurement and specific studies for example toxicity testing, are required. Other quality parameters are within the guideline values.

7.3 Biological Environment

7.3.1 Ecological Resources

(a) Flora

Flora species usually found in Kyaikmaraw township are Pyinkadoe, Padauk, Inn, Htaukkyunt, Pyinma, Thityinn, Lamu, Thinkhan, Thityar, Kokko, Latpan and Pauk.

(b) Fauna

Wild boar, barking deer and monkeys are found in Kyaikmaraw township.

(c) Cultural Heritages

There is no cultural heritage site in the project area.

(d) Environmental Condition

Kyaikmaraw township has 22.04% of total forest coverage and all of them are reserved forest area. There is no protected public forest in the township.

(e) Environmental Conservation Works

For environmental conservation, total area of 72804.88 acres have been established as the reserved forest area. Currently, there is no protected public forest and total forest plantation area for hard wood are 11 acres.

(f) Natural Disasters

Kyaikmaraw township usually encountered flood in rainy season, especially in heavy raining condition. As a record, no natural disasters such as storm, tsunami, earthquake, fire, has been recorded in Kyaikmaraw township up to September, 2017.

7.4 Social Environment

(a) Economic Overview

Kyaikmaraw township is located in Mon State, and is one of the little undeveloped townships. Agriculture is the main business in the township. From Kyaikmaraw, Mawlamyine, Mudon, Kawkareik and Kyainseikgyi regions are accessible by land and sea routes and therefore has the good communication network. Rubber is the main product of the region and is mainly exported to Mawlamyine and Mudon.

(b) Ethnic Groups

The followings are the record of ethnic groups living in Kyaikmaraw township.

No.	Races	Populations	Township population	Percent of total township population
1	Kachin	-	-	-
2	Kayar	-	-	-
3	Kayin	45558	45558	20%
4	Chin	5	5	0.01%
5	Mon	106978	106978	48.18%
6	Myanmar	28377	28377	13.23%
7	Rakhine	35	35	0.02%
8	Shan	1120	1120	0.47%
9	PaOo	-	-	-
10	Others	39970	39970	19.01%
11	Pakistan	2	2	0.01%
Total		222091	222091	101%

Source: General Administration Department Kyaikmaraw township data (2017)

(c) Households, Families and Populations

Total populations of Kyaikmaraw township up to September, 2017 are shown in the following tables.

Households/ Families

No	Description	Households	Families	Ward	Village Groups	Village
1	Urban	2102	2120	2	43	164
2	Rural	33515	35717	2	43	164
Total		35617	37837	2	43	164

Source: General Administration Department Kyaikmaraw township data (2017)

Populations

No	Description	Over 18 years old			Under 18 years old			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Urban	4308	4628	8936	1967	1952	3919	6275	6580	12855
2	Rural	62814	66685	129499	39581	40156	79737	102395	106841	209236
Total		67122	70313	138435	41548	42108	83656	108670	113421	222091

Source: General Administration Department Kyaikmaraw township data (2017)

(d) Forest

No	Description	Area (acres)	Plants
1	Reserved Forest	72623.30	Pyinkadoe, Inn, Yaymein, Myayar, Didu, Zinpyon, Nabae, Sits
2	Protected Public Forest	-	-
Total		72623.30	-

Source: General Administration Department Kyaikmaraw township data (2017)

(e) Forest Products

No	Type	Unit	Production
1	Firewood	Cubic Tons	430
2	Bamboo	Unit	34000

Source: General Administration Department Kyaikmaraw township data (2017)

(f) Mineral Production

Information about mineral production in Kyaikmaraw township are shown as below.

No	Mineral Type	Location	Amount (Sud)	Cost (in millions)
1	Cobble-stone	Kun Ngan village	4400	11000
2	Cobble-stone	Nga Pu Inn village	1600	4000
3	Cobble-stone	Kaw Pa Naw village	1100	2750
4	Cobble-stone	Hpar Thein village	700	1750
Total			7800	19500

Source: General Administration Department Kyaikmaraw township data (2017)

(g) Land use

Different types of land use in Kyaikmaraw Township can be submitted as follows;

No.	Types of Land	Area (acre)
1.	**Net acre for plantation**	144589
	(i) Farmland	52853
	(ii) Orchard	91736
2.	**Vacant Land Area**	51708
	(i) Farmland	51708
3.	Pasture Land	8005
4.	Land for industrial zone	1492
5.	Urban Lands	2912
6.	Village Lands	9076
7.	Other Lands	3071
8.	Reserved forest and protected forest area	72602
9.	Wild forest	6569
10.	Wild land	11544
11.	Area not to be cultivated	40482
Total		**327494**

Source: General Administration Department Kyaikmaraw township data (2017)

7.5 Socio-economic survey results

E Guard's IEE study team carried out key informant interview at three villages (Malgaro, KawPaNaw and Kaw Don) located near the proposed project. Kaw Don village is governed by KawPaNaw village administrator. Most of the local people are migrate workers for their livelihood. Most of the people in KawPaNaw and Kaw Don are used purified water and tube well water. In Malgaro village, tube well water is used for their drinking and domestic water. In KawPaNaw and Kaw Don villager leaders also said transportation is good. In Malgaro, village leader said transportation is very difficult in during rainy season. They said that, transportation, education, economic health conditions and job opportunity may develop due to the proposed project. They are worried if the proposed project use coal, conflict local people and factory workers and not support for local development.

8. Impact Assessment and Mitigation Measures

8.1 Objectives of the study

The objective of this study is to find out the adverse impacts due to the activities of the project and thereby developing a plan to eliminate or reduce the adverse impacts. On the other hand, positive impacts will be supplemented in line with the project development. This will highlight the significant impacts, which will occur during the lifespan of the project.

In order to identify the relative significance of the potential impacts, the impacts were grouped into the following aspects such as physical, biological, including biodiversity, occupational health and socioeconomic impacts with due consideration on the three phases of the and Jetty project.

8.2 Methodology for the Assessment

The assessment of each impact is based on consideration of the magnitude, duration, spatial and frequency of activities, which are going to be carried out during phases and characteristics of the project site. The significance (quantification) of potential environmental impacts identified during the Basic Assessment has been determined using a ranking scale. The assessment is qualitative and the significance of each impact is classified into five categories.

The following methodology has been applied to assess the environmental impacts of the project mainly on air, water, land, biodiversity including human beings. Each source of impact has been assessed by four parameters, magnitude, duration, extent and probability and each assess have five scales as mentioned below:

Table 8. 1Impact Assessment Parameters and Its scale

Assessment	Scale				
	1	2	3	4	5
Magnitude (M)	Insignificant	Small and have no effect on environment	Moderate and will result in minor changes on environment	High and will result in minor changes on environment	Very High and will result in permanent change on environment
Duration (D)	0-1 year	2-5 year	6-15 year	Life of operation	Post closure
Extent (E)	Limited to the site	Limited to local area	Limited to region	National	International
Probability (P)	Very improbable	Improbable	Probable	Highly probable	Definite

Then, the Significant Point (SP) is calculated by following formula.

Significant Point (SP) = (Magnitude+ Duration+ Extent) * Probability

Impact Significance: Based on calculated significant point, impact significance can be categorized as follows:

Explanation

Significant Point (SP) = (Magnitude+ Duration+ Extent) * Probability

Impact Significance

Significant Point (SP)	Impact Significance
<15	Very Low
15-29	Low
30-44	Moderate
45-59	High
>60	Very High

8.3 Identification of Impacts

There may be some positive and negative impacts in the surrounding environment of the proposed site due to the implementation of the project. The possible environmental impacts are identified based on the analysis of environmental baseline information and project activities. Most of the identified impacts have been quantified to the extent possible on the professional judgment. Each of the environmental issues has been examined in terms of their current conditions, likely impacts during construction, operation and decommissioning.

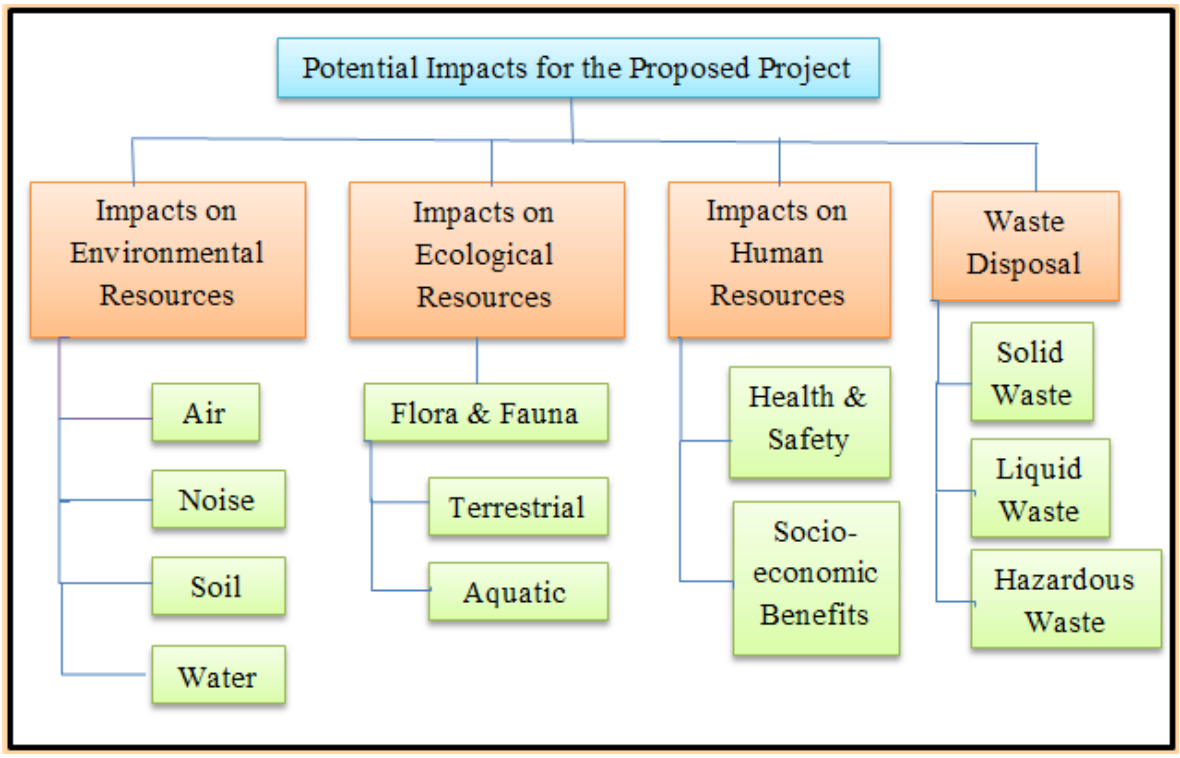


Figure 8. 1 Potential Impact of the Proposed Project

8.4 Impact on Environmental Resources

8.4.1 Impact on Air Quality

Construction and Decommissioning Phase: The proposed project will have no major considerable stress/ pressure on the environment to give rise to any significant adverse impacts on environment. The only major impacts on air during construction phase are predicted to be caused due to airborne dust arising from the construction activities as well as gaseous pollutants from vehicles used for transportation of construction materials and emission from equipment used during construction phase. The dust particles in the form of particular matters will strongly depend on various activities like movement of vehicles, their speed, excavation of earth, back filling etc.

Besides, the dust may also arise from activities for transportation, storage and handling of construction materials, mainly cement. The airborne cement particles can have significant impacts on environment and the nearby marine habitat. For control of the airborne particles of cement enclosed storage facility shall be provided and material shall be covered with tarpaulin during the transportation. Only vehicles having PUC shall be allowed and well-equipped handling and transportation facilities shall be provided throughout the construction phase.

In addition, emergency used of generator and vehicle movements and transportation of raw materials may also generate particulate matters PM10, PM2.5, CO, SO2, NO2, and CO2. However, it can be concluded as the impact is not sufficient because the generator and vehicle movements will run only as short time. The impacts on the environment generated during construction phase will be limited to the construction tenure and will be local. Hence looking to the overall facts described above, it can be concluded that the impacts on air due to the construction and erection activities will be minimum or negligible. It is also concluded that by implementing the proper mitigation measures, the adverse impacts will be almost eliminated or minimized to the lowest extent of damage.

Operation: The major activity at the construction of jetty during operational phase is only providing services and facilities for the power plant and cement plant. As such there is no chemical process or any manufacturing activity involved; hence there will not be any process emission. It is therefore concluded that there will no significant impacts on the air environment due to the proposed project.

8.4.2 Impact on water

Construction and Decommissioning Phase: The major impacts on water quality are envisaged due to the civil works activities like driving of piles, construction of berth, approach way, movement of construction equipment etc. will have a high potential to disperse the fine-grained sediments in the water, thus increasing the particular load which in turn can adversely influence the photosynthetic activity further affecting the aquatic life. However, this rise in turbidity will be only during the construction phase. After the project period, water can also be contaminated by activities related with decommissioning works and waste disposed by workers and staff.

The runoff from the site containing construction materials, debris, and construction waste and excavated earthen materials may have adverse impacts on the water environment especially on nearby river water resources. Further the dispersion of fine sediment of runoff in the water during the construction activities can increase the particulate load in the neighbouring aquatic habitat, which in turn can increase turbidity in consequently affects the rate of the photosynthetic activity of the aquatic life. Proper mitigation measures shall be implemented to avoid such runoff as well as spillage of construction materials so that the materials in runoff cannot enter in to the water bodies.

During construction period, the water quality is likely to be affected due to the construction work and loosening of topsoil in the shore area in vicinity. The soil erosion at site during heavy precipitation contributes to the increase in suspended solids in the sea water. Further, wastewater from vehicle and construction equipment maintenance will contribute to oil and grease concentration. Thus, the impacts will be short term and minor. Potential impact on groundwater resources is not envisaged as there will not be any toxic material release in sub soil region having potential of ground water contamination. After, the project period, water can also be contaminated by activities related with decommissioning works and waste disposed by workers and staffs.

Operation Phase: During operation phase, no significant impact is envisaged on surface and groundwater resources. There is no discharged water in this phase. But the accidental spillage of oil and fuel from the ships and barges will temporary affect the water quality.

8.4.3 Impact on soil

Construction and Decommissioning Phase: The construction activities like excavation for foundation, earth-filling, clearing, stripping, leveling the sites and vehicles movement will entail changes in the landscape, which are expected to be of short duration and not much significant. The excavated earth material if stacked loosely may result into runoff to the mud flats resulting in loss of topsoil. Excavated earth will be stored in stockpiles and covered with plastic/tarpaulin sheets and will be maintained separately and reused for landscape development along the corridor. A temporary labor colony will be developed. Solid wastes generated from the colony will be taken care by the waste disposal plan. The construction waste may pose impacts on land environment by contamination of soil. The accidental spillage of fuels and lubricants oils will be minimized by proper care. Since this phase is temporary impact is marginally negative and short.

Operation Phase: Under ordinary and safe operating conditions, no adverse impact is anticipated on soil during the operation phase. The only source of land pollution would be the solid waste generated from the area and worker's camps. The garbage shall be disposed to the Municipal solid waste disposal site. Spillage of fuel oil and lubricants shall be collected in the trench and shall be stored along with the waste oils. Thus, the land pollution during the operation phase is minimal and not likely to create any significant impact with proper EMP in place.

8.4.4 Impacts on Noise

Construction and Decommissioning Phase: The major Impact on noise level of the proposed project, during the construction phase, is envisaged due to the noise generation by the operation of the machineries, equipment and some mechanical works. There are many equipment and machineries likely to be used during the construction. These are mainly recognized to be Dozers, Cranes, Excavators, Trailers, Generators, and Concrete Conveyor etc. It is envisaged that noise level due to this equipment will be 70-85 dB(A) at receptor point at associated work/construction area. The impacts due to noise of these equipment will be local and temporary as well as negligible due to the efficient implementation of proper mitigation measures like provision of Ear Protective Safety Equipment (ear plug & ear muff) for the personnel likely to be exposed to high noise level. The noise level of these machineries / equipment shall be minimized by proper lubrication, modernization, maintenance, muffling and provision of silencers wherever possible.

The affected area will be the project site under construction activities for development of the proposed project and nearby area of the region. The area of the project is a port area and does not have any residential area in the range of noise propagation to cause adverse influence on environment. Further, construction activity would be carried out at daytime to prevent increase in noise level during night time.

There is no considerable habitat of fauna in vicinity of the project site. The major effects of the noise due to the predicted sources will be limited to the workers exposed to the high noise area. Thus, there would not be any considerable impacts on ecological factors as well as social layout. However, considering the adverse impacts on personnel engaged in construction works, efficient mitigation measures will be planned and implemented. The most efficient mitigation will include provision of PPEs (ear protective safety equipment) as well as planning of work hours and shift of workers.

After the lifespan of the project, decommissioning of the jetty can also affect noise level and mitigation measures can be taken as in construction phase.

Operation Phase: During operation phase, vehicles movement, using diesel generators, barges, vessels and crane are major noise pollution sources.

During the operation phase the major source expected to increase the noise level at the jetty area are arrival of cargo and vehicles movement to transport raw materials for the cement plant. However, this increase in noise level will be lower compared to the construction phase. The increase in noise level would be in the vicinity of plant area and attempts will be made to reduce the noise level below 75 dB(A) outside the project premises. Proper lubrication,

muffling and modernization of equipment shall be done to reduce the noise, diesel generator set with acoustic enclosure shall be provided. Due to increase in various activities there may be some increase in background noise levels. The workers working in high noise area shall be provided with ear protected equipment.

8.5 Impact on Ecological Resources

Construction and Decommissioning Phases: The main impacts are likely to occur due to the increase in turbidity due to movement of ships and construction works. The turbidity can affect the photosynthetic activities of marine flora as well as oxygen level. This can affect the entire food web of the particular fresh water area. In Operation phase, noise pollution can have significant impact on some species and affect their reproduction.

8.6 Impact on Human

8.6.1 Occupational Health and Safety

During construction and decommissioning phases, over-exertion, ergonomic injuries and illness, such as repetitive motion, over-exertion, and manual handling, is among the most common causes of injuries in these phases. Slips, trips and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent causes of lost time accidents at construction and decommissioning sites. Falls from elevation associated with ladders, scaffolding, and partially built or demolished structures are among the most common cause of fatal or permanent disabling injury at these sites. Construction and demolition activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes and extremities. Vehicle traffic and use of lifting equipment in the movement of machinery and materials on a construction site may pose temporary hazards, such as physical contact, spills, dust, emissions and noise.

8.6.2 Socio-economic benefits

It can be assumed that most of socio-economic impacts by the proposed project are positive. It can create temporary employments for the local people during construction and decommissioning phases. There will be more permanent jobs during the operation phase of 50 years or more.

8.7 Type of Waste

Waste generated during the lifecycle of the project (construction, operation and decommissioning phase) includes solid waste, liquid waste and hazardous waste. Nuisance appeared from improper disposal of waste should be taken into account in impacts by the project.

8.7.1 Solid Waste

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Hazardous solid wastes include soil contaminated by oil spill from vehicles or equipment. During operation phase, non-hazardous solid wastes include office, kitchen and dormitory wastes. General domestic waste such as paper, newspaper, plastic bottles, plastic bags, and municipal solid waste can be generated from the office and human activities. All of the solid waste during the operation phase will be collected in separated receptacles which are placed in each corner of the operation area. After that contact Kyaikmaraw Township Development Committee for final disposal.

8.7.2 Liquid waste

Construction and decommissioning activities may include the generation of sanitary wastewater discharges in varying quantities depending on the number of workers. Moreover, wastewater from kitchen and bath rooms may pose liquid waste during operation phase.

8.7.3. Hazardous waste

The period of construction and decommissioning phase can contaminate soil by producing hazardous waste, which will potentially be encountered on-site due to previous land use activities, or small amount of machinery maintenance materials, such as oily rags, used oil filter and used oil, as well as spill cleanup materials from oil and fuel spills. In addition, release of petroleum-based products will be generated, such as lubricants, hydraulic fluids, and fuels during their storage, transfer of use in equipment. During operation period, hazardous wastes will consist of engine oil leaks, spills during diesel refueling, and diesel storage as well as spill cleanup materials from oil and fuel spills.

8.8 Impacts and Significance

The project activities, their impacts and significance of impact are provided in **Table (8.2)** in details. According to the results of analysis, it can be concluded that most of the project activities have the low significance on environment while some show moderate significance which needs to improve for environmental performance.

Table 8. 2 Potential Impacts, Project Activities and Impact Significance of the Proposed Project

Item	Environmental Impacts	Project Activities	Significance of Potential Environmental Impacts					Impact Significance
			M	D	E	P	SP	
A.	Construction Phase							
1.	Air Pollution	• Dust and gaseous emission from vehicles used for transporting the materials and construction activities. • Dust emission from movement of vehicles, excavation of the earth and back filling and etc. • Emission from emergency diesel generator. • Temporary impact on ambient air quality due to dust from debris road construction machinery, etc.	3	2	2	5	35	Moderate
2.	Water Pollution	• Spillages or accidental discharged of oil and diesel. • Oil spill and grease leaks from transporting vehicles and machinery equipment used	3	2	3	5	40	Moderate
3.	Soil Contamination	• Accidental spillage of oil and diesel used by vehicles operating and movement • Transportation of heavy construction materials • Leakage from the emergency generators	2	2	1	3	15	Low

Item	Environmental Impacts	Project Activities	Significance of Potential Environmental Impacts					Impact Significance
			M	D	E	P	SP	
4.	Noise Pollution	• Vehicles used in construction activities, for examples Dozers, Cranes, Excavators, Trailers, Generators, and Concrete Conveyor etc • Vehicle movement for transporting the construction materials • Pile driving activities • Use of emergency generator	4	2	1	5	35	Moderate
5.	Solid Waste Disposal	• Solid wastes such as excavation activities, scrap wood and metals, and small concrete spills. • Waste from construction and decommission activities and machinery. • Waste from kitchen, dormitory and office.	2	2	1	5	25	Low
6.	Liquid Waste Disposal	• Sewage from workers and office staffs. • Domestic liquid waste disposal from office, kitchen and dormitory.	2	2	2	4	24	Low
7.	Hazardous Waste Disposal	• Engine oil leaks, spills at diesel storage and during diesel refueling. • Used oil and lubricant discharged from the maintenance of vehicles and	2	2	1	3	15	Low

Item	Environmental Impacts	Project Activities	Significance of Potential Environmental Impacts					Impact Significance
			M	D	E	P	SP	
		machines.						
8.	Occupational Health and Safety (Accidents, Injuries)	• Accidental cases cause by construction and decommission activities. • Movement of vehicles, crane and Dozers, Excavators, etc. • Electricity and emergency diesel generators. • Falls from elevation associated with ladders, scaffolding.	4	2	2	4	32	Moderate
9.	Socio-economic Condition	• Job opportunities for local people • Increase roads and schools' facilities	-	-	-	-	-	Positive Impact
B.	Operation phase							
1.	Air Pollution	• Emission from vessels, barges and ships for transportation • Emission from exhaust of transport vehicles and other machineries	2	4	1	3	21	Low
2.	Water Pollution	• Leakage of oil and lubricants from vehicles • Accidental oil spills from barges and ships	3	4	2	3	27	Low
3.	Soil Contamination	• Accidental spillage of oil and diesel used	2	4	1	3	21	Low

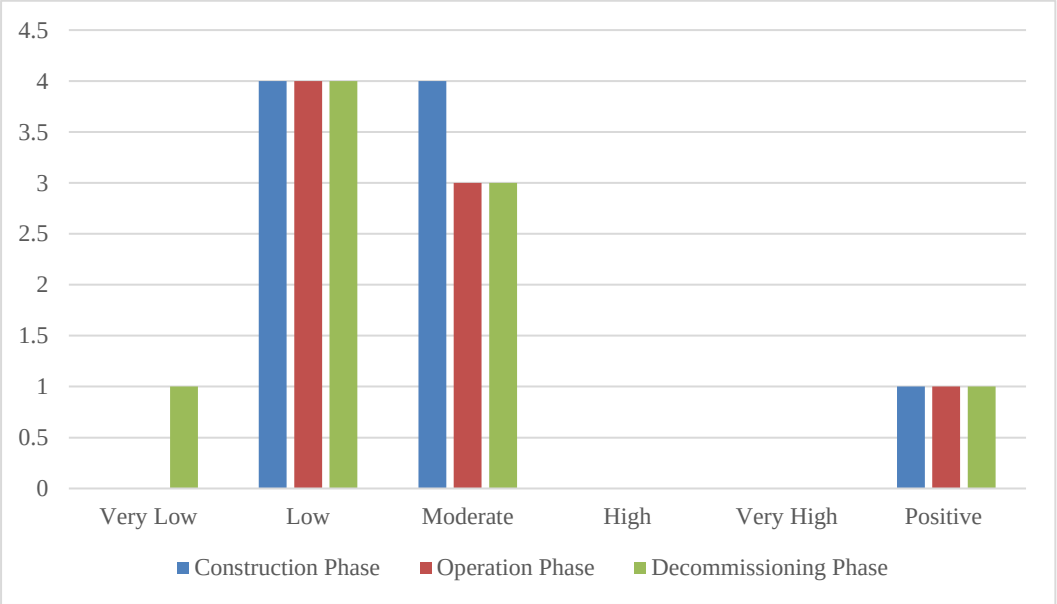
Item	Environmental Impacts	Project Activities	Significance of Potential Environmental Impacts					Impact Significance
			M	D	E	P	SP	
		by vehicles operating and movement						
4.	Noise Pollution	• Noise from operation vehicles • Use of emergency generator	2	4	2	4	32	Moderate
5.	Waste Disposal	• Sewage system • Construction wastes such as wood, iron, debris, and human wastes • Waste from kitchen, dormitory and office	3	4	1	5	40	Moderate
6.	Hazardous Waste	• Leakage of fuel and lubricants from workshop and fuel storage tank • Maintenance operations of heavy machineries	2	4	1	3	21	Low
7.	Occupational Health and Safety	• Physical hazards such as exposure to dust, noise and spills • Movement of vehicles, crane and Dozers, Excavators, etc	3	4	1	5	40	Moderate
8.	Socio-economic Condition	• Job opportunities for local people	-	-	-	-	-	Positive Impact
C.	Decommissioning Phase							
1.	Air Pollution	• Gaseous and dust emission from the activities of decommissioning of buildings and related materials.	3	1	2	5	30	Moderate

Item	Environmental Impacts	Project Activities	Significance of Potential Environmental Impacts					Impact Significance
			M	D	E	P	SP	
2.	Water quality	• Activities related with decommissioning works and waste disposed by decommissioning workers. • Oil spillage from demolition machinery equipment.	2	1	2	4	20	Low
3.	Soil pollution	• Accidental spillage of oil from transportation vehicles and decommissioning activities.	2	1	2	3	15	low
4.	Noise pollution	• Transportation of demolished materials. • Heavy vehicles and equipment from decommissioning activities.	3	1	2	5	30	Moderate
5.	Waste disposal	• Demolished wastes such as bricks, concrete materials, glass, iron, wood materials • Wastes from toilets facilities.	2	1	2	5	25	Low
6.	Hazardous waste	• Accidental wastes used lubricants from vehicles and machines.	2	1	1	4	16	Very low
7.	Marine biodiversity	• Accidental spillage from decommissioning machinery.	4	1	3	5	40	Moderate
8.	Occupational health and safety	• Injury by handling the heavy loads. • Air and noise pollution	4	1	2	4	28	Low
9.	Socio-economic condition	• Temporary job opportunities for local people.	-	-	-	-	-	Positive impact

8.9 Summary for significance of impacts

The project activities and significance of impacts are provided in above table. Primary and secondary data are used to assess the environmental impacts. The potential environmental impacts are assessed in a comprehensive and scientific manner. The results after scoring evaluation of significant environmental impacts can be summarized in the following table (8.3).

Table 8. 3 Summary for significance of impacts



According to the result of analysis, it can be concluded that some of the project activities at **construction phase** have Low level of impact significance but impact on air, impact on water quality, impact on noise and occupational health and safety impact have Moderate level of impact significance. During the **operation phase**, most of the project activities have Low level of impact significance and waste disposal and noise impact have moderate level of impact significance. At the **decommissioning phase**, most of the project activities have Low level of impact significance but impact on air quality, noise level and marine biodiversity have Moderate level.

8.10 Mitigation measures on adverse impacts

8.10.1 Mitigation Measures of Impact on Air

During construction and decommissioning phase, reduction and control of air emission include minimizing dust from material handling sources by using covers or control equipment (e.g. water suppression, bag house or cyclone), minimizing dust from open area sources by installing enclosures and covers, and increasing the moisture content, applying water to minimize dust from vehicles. Water spraying of construction roads to prevent excess dust. During decommissioning phase, dust spraying mechanism should be installed for the control of dust emissions. Transportation vehicles should be maintained daily. During operation phase, effective air ventilation system and air-conditioning system with refrigerant HFC (R410A) instead of HCFC (R22) shall be adopted to

minimize Global Warming Potential. Air emission should not exceed the National Environmental Quality (Emissions) Guidelines values.

8.10.2 Mitigation Measures of Impact on Water

During construction and decommissioning phase and also in operation, discharge of sanitary wastewater will be managed by providing adequate sanitation facilities. No operational activities will be conducted during rough weather so that the possibilities of oil spill will be reduced. Water contamination will also be reduced by avoiding earthwork in rainy season, discharging generated wastewater into the sewer line, passing through the impervious soil layer or covers upon the soil surface to prevent of waste, oil and grease permeating into the soil. Educate and create awareness among the workers regarding potential environmental impacts to prevent spillage while filling diesel oil and lubricants. Water effluent levels should be within acceptable limits of the National Environmental Quality (Emissions) Guidelines values.

8.10.3 Mitigation Measures of Impact on Soil

Soil erosion can be reduced by avoiding construction works in heavy rainfall periods, designing channels and ditches for post-construction flows. The operation of the excavator will be ceased during rough weather in order to reduce potential oil spills. Soil contamination can be reduced through using secondary containment in fuel storage area and diesel generators and by refilling oil with care for preventing spillage. Also, wastewater discharging drain should be well designed for reducing the contamination of soil due to oil spillage and also wastewater from the floor of the two jetties, kitchen, and sanitation facilities.

8.10.4 Mitigation Measures of Impact on Noise

Temporary noise barriers and properly controlled system of equipment and occupational preventive measures should be applied in construction and decommissioning phases. Noise enclosure should be built for diesel generator. Workers employing in noisy areas should be worked on shifts and hearing protective wear such as earplugs, earmuffs, etc. should be provided. Construction and decommissioning activities will not be worked during night time and the speed of vehicles should be limited. Mitigation measures such as using earplugs and other hearing protective wear should be given to the workers in order to reduce the impacts of noise.

8.10.5 Mitigation Measures of Impact on Human

During construction and decommissioning phases, prevention and control measures for OHS include;

- Training of workers in lifting and materials handling techniques
- Planning of work site layout to minimize the need for manual transfer of heavy loads.
- Excavator positioned to minimize disruptions to jetty users.

- Vessel owner and jetty users will have to be informed of the ground levelling and jetty works schedule
- Implementing good house-keeping practices such as sorting and placing loose construction materials or demolition debris away from foot paths
- Cleaning up excessive waste debris and liquid spills regularly
- Locating electrical cords and ropes in common areas and marked corridors
- Use of slip retardant foot wear
- Training and use of personal fall arrest system.
- Wearing appropriate PPE, such as safety glasses, face shields, hard hats, and safety shoes.
- PPE such as dust masks should be used where dust levels are excessive.

During operation phase, in order to guarantee a safe working environment, the proponent is also undertaking to provide:

- All necessary fire safety measures as required by the Fire Services Department for fire protection. These include hose reel installation in the building and surrounding compound, fire extinguishers installation in the building. These will be regularly inspected and maintained.
- Protective barrier such as machine guards should be used where high risks of accidents are present, such as in the vicinity of cutting machines. Provide suitable personal protective equipment such as earplugs, goggles, helmets, dust masks, steel toe cap boots and heat resistant gloves and overalls, to protect the workers against heat, airborne contaminants and noise.
- First Aid Equipment
- Good sanitation system, good air ventilation system, systematic waste disposal places and enough drinking water will be provided.

Furthermore, establishment, implementation and maintenance of the safety measures should also include:

- Establishing safe work systems and procedures, including safety rules and safe working procedures;
- Provision of appropriate information, instruction and training to the staff;
- Measures to ensure that equipment are properly used and maintained, safety rules are compiled with and safe working procedures are followed by the staff, such as providing appropriate supervision to the workers. Regular reviewing the effectiveness of the safety measures, safety rules and safe working procedures and revising the measures, rules and procedures whenever necessary.

In addition, for the welfare of staff and employee, the proponent will also provide the following facilities:

- Staff house for workers
- Library for knowledge
- Green garden with flowers and trees for the pleasant environment

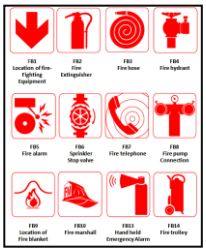
- Health clinic for health care and cure of workers
- Dining rooms with adequate desk, chair, soap
- Sound proof, good lighting and air fresh factory
- Factory security, fire security and staff security for safety of workers
- Sufficient bath rooms and toilets separated for women and men

Table 8. 4 PPE and Their Function

Part of Body to be protected	Required PPE	Functions of PPE	Features and characteristics of PPE
Eyes and face	Protective Goggles	Protection from dust, particles, flying chips, chemical splattering and smoke	
	Safety Glasses	Protection from particles, flying chips and the impact of fragments	
Head	Helmet	Use head gear which conforms to recognized safety standards	
Hearing	Ear muffs	Protection from high noise levels	
	Earplugs	washable, reusable earplugs	
Hand	Gloves	Protection from skin absorption of harmful substances, severe cuts, severe abrasions, irritating materials, thermal burns, harmful temperature extremes and electric shock	 
Respiration	Dust respirator	Protection from dust, fine particles	 
Body	Reflective clothing	For working in busy traffic: brightly-colored reflective clothing can increase the visibility of employees and reduce their chances of being	

Part of Body to be protected	Required PPE	Functions of PPE	Features and characteristics of PPE
		struck by vehicles or machinery	
Foot	Safety Footwear	Protection from falling objects, slips, electric shock and burns	 

Table 8. 5 Safety Signage and their Description

Description	Safety Signage
These signs should be tagged to indicate the location of fire-fighting equipment, fire extinguisher, fire hose, fire hydrant, fire alarm, fire telephone, fire pump connection, fire blanket, fire trolley, etc.	
These signs should be used to make workers and visitors worn within the operation area.	 
These signs indicate exit routes in the event of a fire or emergency.	
These signs should be used to make people aware of a nearby danger (e.g., transformer, generator.)	
Use these safety signs to warn employees of hazards and warn employees on ways they can avoid injuries.	 

8.10.6 Mitigation Measures of Solid Waste

During construction and decommissioning phase, solid waste should be stored in dedicated waste storage area in the jetty compound. Some should be reused in land filling. Facilities for waste reduction include establishing a waste management hierarchy

that considers prevention, reduction, reuse and recovery. The major waste types that would be generated by construction activities would include materials from excavation works, marine sediments excavated from the foundation/piling, small quantity of chemical waste from the maintenance and servicing of construction equipment and general refuse from the workforce. Waste must be segregated into hazardous and non-hazardous waste. Solid waste should be collected in separate bins and transferred to by contacting Kyaikmaraw Township Development Committee for final disposal.

- Instituting of good housekeeping and operation practices, including inventory control to reduce the amount of waste resulting from materials that are out of date, off-specification, contaminated, damaged, or excess to plant needs,
- Instituting procurement measures that recognize opportunities to return usable materials such as containers and which prevents the over ordering of materials.

8.10.7 Mitigation Measures of Liquid Waste

Adequate number of toilets or sanitary facilities should be provided during the whole project. During operation phase, waste from canteen and dorm should be disposed of at bins and sanitary waste from offices should be collected at septic tanks. The client will provide adequate toilets for employees and staffs at the project site. Toilet rooms should be marked distinctly for gender with easily recognizable symbols or pictures and must have an adequate exhaust ventilation system. Sufficient lighting should be provided for toilet rooms. Toilets and shower are as should be cleaned daily with a disinfectant cleaner. In order to prevent contamination to the underground water and surface water, frequent cleaning and pumping out of septic tank should be done and final disposal should be at Kyaikmaraw Township Development Committee.

Table 8. 6 Number of Toilets for Workers by Health and Safety Executive (UK)

Number of people at work	Number of toilets	Number of washbasins
1-5	1	1
6-25	2	2
26-50	3	3
51-75	4	4
76-100	5	5

(Source: www.hse.gov.uk)

The principle of Reduce, Reuse and Recycle should be applied in managing factory's solid waste such as capital assets, office supplies, materials waste in order to save resources and money of the factory. Solid waste such as plastic, organic items, glass items and metal will be collected in separate rubbish bins and sent to Kyaikmaraw Township Development Committee for final disposal.

8.10.8 Mitigation Measures of Hazardous Waste

Construction and decommissioning activities may pose the potential for release of petroleum-based products such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. These materials may also have been encountered during decommissioning activities in building components or industrial process equipment. Barges must prepare properly for berthing at the jetty site to avoid collision. Techniques for prevention, minimization, and control of these impacts include:

- Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids
- Using impervious surfaces for refueling areas and other fluid transfer areas
- Assessing the presence of hazardous substances in or on building materials (e.g., Polychlorinated biphenyls, asbestos-containing flooring or insulation) and decontaminating or properly managing contaminated building materials
- Isolated storage for hazardous wastes released from the site should be provided and installation of fire extinguisher shall be done near storage of hazardous wastes. All hazardous wastes should be disposed of by recycling, treatment, and burial in accordance with Kyaikmaraw Township Development Committee facilities.

Table 8. 7 Determination of Residual Impact after Mitigation

Project Phase	Negative Impact			Positive Impact	Mitigation	Residual Impact
	Low	Moderate	High			
Construction Phase	4	4	x	1	✔	Low
Operation Phase	4	2	1	1	✔	Low
Decommissioning Phase	4	3	x	1	✔	Low

9. Results of the Public Consultation

9.1 Purpose of the Consultation Meeting

It is important to disclose the information about the project during the preparation of IEE report and the opinions of all stakeholders should be considered in implementation of the project. Consultation meeting should be held with people potentially to be affected by the project, administrative bodies, community-based organizations non-governmental organizations, and social organizations. Especially results of consultation with project affected people should be considered in evaluation of impacts, design of mitigation measures and monitoring plans. It is also needed to negotiate with related governmental organizations.

9.2 Methodology and Approach

Information disclosure should be done by announcing the public consultation meeting about the proposed project and its potential impacts to the public and social organizations via local and national media, by posting on the website of the project proponent, by setting up signboards at the project area within an adequate time needed to inform the public. All feedbacks from public consultation meetings should be well addressed and considered in the formulation of EMP, environmental monitoring plan and CSR plan. In this case, the proponent has to inform and invite governmental officials and private companies near the project site and local community to attend the public consultation meeting.

Public consultation and information disclosure concerning with the Initial Environmental Examination (IEE) for the Projects proposed by June Cement Industry Limited was held on 15th June 2019 at Malgaro village, Kyaikmaraw Township, Mon State. It is aimed at disclosing the findings of environmental and social studies and the likely impacts upon them as well as mitigation and monitoring schemes to remediate the impacts caused by the project activities. The impacts were studied for all activities to be carried out in three phases: construction phase, operation phase and decommissioning phase. It is also aimed at receiving public recommendations, feedbacks upon the studies.

Table 9. 1 Summary of attendance lists

No.	Category	Number of Participants
1.	Hluttaw	9
2.	Governmental Institutions	22
3.	Private Company	11
4.	Media	4
5.	Local People	106
	Total	**152**

9.3 Agenda of Public Consultation Meeting

The Stakeholder meeting was held by the following Agenda:

1. Opening Ceremony
2. Opening speech by U Saw Aung Myint Khine (Minister of Kayin Ethnic Affair, Mon State)
3. Speech by U Khin Zaw Oo (Amyotha Hluttaw Representative, Mon State)
4. Presentation of project descriptions about related projects of June Cement Industry Ltd. by U Tin Oo (Director, June Cement Industry Ltd.)
5. Presentation about the Initial Environmental Examination and Procedure of IEE by U Tin Aung Moe (Director, E Guard Environmental Services)
6. Questions and Suggestions by Attendees
7. Closing Remarks by U Saw Kyaw Win Maung (Pyithu Hluttaw Representative, Mon State)

1. Opening Ceremony

2. Opening Speech by U Saw Aung Myint Khine (Minister of Kayin Ethnic Affair, Mon State)

Briefly, he said, all of you know that today's ceremony is public consultation for related four projects of cement industry. Public consulation is a must to do and all of you can ask the questions freely which you would like to know without hesitating.

3. Speech by U Khin Zaw Oo (Amyotha Hluttaw Representative, Mon State)

Firstly, he said that he didn't know the detail process of project as well as the villagers (local people). So, the villagers should ask the questions so as to know clearly about the project and he also prepared to ask. He hoped that the project client will be explained how they prepared and planned so that the project would not impact the public and environment. Apparently, June Company proposed MIC and bought the farmlands from nearby villages for the project since 2010. June Company will construct the road near the villages in order to ease project transportation. So the transportation becomes better than before and 700 people will be assigned when the June project is operating. Therefore, local people will get the opportunities. On the other hand, June Company is currently supporting and funding the local people from nearby villages (for example, education, healthcare, etc).

4. Presentation of project descriptions about related projects of June Cement Industry Ltd. by U Tin Oo (Director of June Cement Industry Ltd.)

Briefly, he presented about the related projects, facts and figures of the projects, existing projects' conditions and corporate social responsibility of June Cement Industry Ltd.

5. Presentation about the initial environmental examination and procedure of IEE by U Tin Aung Moe (Director of E Guard Environmental Services)

He firstly explained about the requirements of Initial Environmental Examination of the project which has been prepared in line with the EIA procedure of Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC), objectives of public consultation, related laws and regulation, background environmental condition of project site. He also presented the anticipated environmental and social impacts, mitigation measures, processes and schedule that will be mentioned and prepared in the IEE Report.

6. Questions and Suggestions by Attendees

Jetty Project

Questions (1): U Khin Zaw Oo (Amyotha Hluttaw Representative, Mon State)

He said that how do you plan for jetty project especially the condition of fishermen who are working along the Attaran River before and after the project? Besides, how do you pay 2 percent of profit for CSR? Does 2 percent of CSR intend to Kyaikmaraw Township or Mon State?

Answers: U Tin Oo (Director, June Cement Industry Ltd.)

He said that when the jetty project is finished, we will only allow the ship transfer within the tonnage limits. Currently, the main operation relating to the project is sand transportation to the project site via barges that are sometimes cause some disturbances to fishing activities especially hook with fishing net. Therefore, care has to be taken to implement this operation by pointing out with small boat in front of the barges so as to solve this problem. We will also reduce the quantity of shipping time to the lowest during the fishing season. In the case of CSR, CSR should be for Kyaikmaraw Township because our project is located at Kyaikmaraw Township and this township is higher potential to affect by project activities. Thus, we will emphasize the CSR for Kyaikmaraw Township. We will have to plan and fund for CSR or community development. Even though we haven't planned of funded for CSR, we already supported education, healthcare and donated 5 million to Mei Ka Yo village and 10 million to Kawt Pa Naw village in the last two years. At present, we are building crematory that is imported from Myawaddy at Mei Ka Yo village and the crematory construction will be finished soon.

Jetty and Channel Project

Questions (2): U Aung Tin Oo (Fishermen Head)

He asked, if fishermen are affected by ship transferring of June Cement Project, who will response that case and who is a respondent person? Nowadays, MCL Company cooperates with the member of fishing team by giving the number of contacted person, ship number. According to the construction of jetty and channel, fishermen who are

working there will face the difficulties and lost their opportunities. So, how will you do if fisher men lost their opportunities?

Answers: U Tin Oo (Director, June Cement Industry. Ltd)

Obviously, there may be more or less confrontation between the barges and fisher men due to the project. We will give the contact number of responsible person or set up 24 hour hot line number to inform their grievance or complaint. As well, we will do an engagement with the affected fishermen and we will do best for not losing too much.

Cement Production Project

Questions (3): U Naing Shwe Win (Villager, Mei Ka Yo Village)

He wanted to know, which power plant is going to be used for cement industry? How many MW to be used for that industry? How many tonnages are produced per day? Where is the clay production area? Is it near the village and how far is it? Does it affect or impact to the nearest village? As for him, he isn't going to object or protest the June Company. MCL Company is currently using Attaran River for their ships' transportation. The river is almost damaged by MCL Company. Also, June Company will have to be used Attaran River for their ships' transportation in the future. So, the Attaran River is probably going to be more damaged. So, which company does we complaint about the impacts in the future? Which organization or department has responsibility to act upon the company that damages the environment seriously? Which organization or department monitors whether the project damages the public or not?

Answers: U Tin Oo (Director, June Cement Industry. Ltd)

Recently, we are intending to use coal-fired plant (15 MW of 2 quantities) for power supply. We've proposed coal-fired plant to get permission from the Union of Myanmar. We didn't get permission yet so that we haven't constructed coal-fired plant. We are going to use a very small amount of clay for cement production. Limestone percentage is 80-83%, clay percentage is 12% and laterite percentage is 8% are needed for cement production. Fortunately, small amount of clay composition is found in limestone production area and we only need around 4% of clay for cement production. Therefore, we will excavate a small amount of clay at clay site. During the production of clay, we will manage carefully not to damage the environment and also the nearby villages. For barges transportation, the public can complaint by informing to the responsible person by calling 24 hours hot line number. For deciding whether the project damages or not, environment conservation department will be monitoring in the future. Nowadays, ECD has many modern instruments for environmental monitoring and the public can see the monitoring results on the website.

Questions (4): Daw Pa Pa (Local People, Mei Ka Yo Village)

She said that, we have lost our farmlands without getting any compensation. Therefore, we would like to get the compensation not only by giving cash but also providing an alternative land. So, do we lose ours without getting any compensation like that? Which opportunities can we get?

Answers: U Tin Oo (Director, June Cement Industry. Ltd)

He said that the purpose of today's ceremony is only noticing and requesting opinions from the local people for the related projects of June Cement Industry. Therefore, Land acquisition case is probably concerned with the land acquisition department so we can't decide it right now.

Limestone Production Project

Questions (5): U Naing Htun Kyi (Villager, Mei Ka Yo Village)

He said that the main constituent of cement production is limestone. There is a historical cave near the production area of limestone. He only concern about this cave not to damage. How do you manage not to damage the cave during the limestone production period?

Answers: U Tin Oo (Director, June Cement Industry. Ltd)

He said that we are also Buddhism and we will focus on not to be damaged during the operation period. Foremost, we will operate the limestone production from the boundary of MCL Company that is far away from the historical cave. When we blast the limestone, we will use delay detonator which vibrates lesser than the others. Besides, we will do operation charily till the end.

Questions (6): U Khin Zaw Oo (Philanthropic Officer, Mei Ka Yo Village)

He said, it is sure that stones will be reached and affect the nearest farms that are not bought or owned by the June Company because of the blasting of limestone. What would you do if it happened? And the public should know the detail of the projects and June Company should disclose its projects clearly.

Answers: U Tin Oo (Director, June Cement Industry Ltd.)

He said that the farms near the limestone site will not be damaged by the project because we will be using one type of mining method that starts to extract the inner portion of mineral, we would not blast or explode the outer portion. Even if there is damage to the farms, we would buy the farms with reasonable price or give compensation. And if you want to know the details of project, you can list the facts what you want to know and you can ask directly the company office.

Clay Production Project

Questions (7): U Htain Win (Villager, Mei Ka Yo Village)

He asked about the location of clay production. The villagers are now facing difficulties about transportation due to the construction of factory. The result of air and water monitoring results need to display as Myanmar language so as to read easily by local people. He desired that local people from nearby villages should include in the Grievance Mechanism. And what kind of coal will be used for clean-coal system?

Answers: U Tin Oo (Director, June Cement Industry. Ltd)

We will start using clay from the plot No. 406 and we will manage not to impact the others as much as we can. For announcing the results of air and water monitoring results, we will display it with Myanmar Language by using LED board. Subsequently, we will organize the Grievance Mechanism with public, stakeholders, responsible person, mayors and philanthropic people. In the case of coal, there are four grades of coal and we will be using third-grade coal that is imported from Australian and Indonesia.

9.4 Public Consultation Photos

Attendee Registration

Opening speech by U Saw Aung Myint Khine (Minister of Kayin Ethnic Affair, Mon State Government)

Speech by U Khin Zaw Oo (Amyotha Hluttaw Representative, Mon State)

Presented by U Tin Oo (Director of June Cement Industry Ltd.)

U Tin Aung Moe (Director of E Guard Environmental Services)

Questions by Attendee

Questions by Attendee

Questions by Attendee

10. Institutional Requirement and Environmental Management Plan

10.1 Institutional Requirements

The development of the proposed project will be managed by June Cement Industry Limited. The project proponent should appoint one Health, Safety and Environment (HSE) Coordinator and Assistants for Health, Safety and Environment (HSE) issues throughout the lifespan of the project. HSE Coordinator is responsible for implementation and monitoring of Environmental Management Plan (EMP) and Monitoring Plan as well as coordination with contractors, local authorities and the nearby communities. The HSE Team also makes regular review of EMP to cover all potential impacts, amendments and modifications.

10.2 Environmental Management Plan

The environmental management practices, procedures and responsibilities are defined herein to get full compliance with the existing environmental policy, laws, rules and regulations of the Republic of the Union of Myanmar. The Environmental Management Plan (EMP) is prepared for the proposed project covers the anticipated impacts of the said project, mitigation measures, management and monitoring plans during each of the phases:

- ✓ Construction
- ✓ Operation
- ✓ Decommissioning

The objectives of EMP are as follows:

- ✓ Identify the possible environmental impacts of the proposed activities;
- ✓ Develop measures to minimize, mitigate and manage these impacts and
- ✓ Estimate the budget of EMP for each phase.

June Cement Industry Limited must manage the development of the proposed project by implementing the EMP, which is composed of five parts as follows:

- ✓ Environmental Management Plan
- ✓ Environmental Monitoring Plan
- ✓ Emergency Preparedness and Response Plan
- ✓ Corporate Social Responsible Plan
- ✓ Community Grievance Redress Mechanism

10.3 Responsibilities of the EMP

In order to ensure the sound development and effective implementation of the EMP, it will be necessary to identify and define the responsibilities. The environmental management practices, procedures, and responsibilities are defined herein to get full compliance with the existing environmental policy, laws, rules and regulations of the Republic of the Union of Myanmar. The following entities should be involved in the implementation of this EMP:

1. June Cement Industry Limited
2. Environmental Conservation Department (Mon State)
3. Third-party Environmental Consultant Firm

The HSE Team's structure is described as below table. At this stage, names of the assigned persons are not available. Team Leaders are also responsible for coordination with Construction Company, local authorities and the nearby communities.

No.	Title in Company Organization	Title in HSE Team
1	Project Manager	Head of Team
2	Safety Manager	Team Leader (Health & Safety)
3	Environmental Manager	Team Leader (Environment)
4	Operation Manager	Member
5	Construction Manager	Member
6	Administration Manager	Member

1. June Cement Industry Limited

HSE Coordinator

HSE Coordinator is responsible and accountable for ensuring the following:

- Observe HSE regulations, wears all required safety equipment, encourages safe working practices, corrects obvious hazards immediately, or reports them to the General Manager.
- Development of HSE culture among all workers, during the operation and decommissioning phases.
- Regular site visiting and reporting during the operation and decommissioning works to check whether the objectives of EMP are being followed.
- Manage safety and health throughout the jetty process.
- Keep full records of environmental management activities and present to annual independent third-party environment audit.
- Undertaking regular safety and health inspections and audits onsite.
- Ensure equipment to be regularly checked and properly maintained
- Provide necessary information and instructions, as well as providing and arranging training to the workers and supervising them to follow safety rules and safe working procedures strictly.
- Carry out risk assessments and considering how risks could be reduced
- Attend Occupational Safety and Health seminars and reading professional journals

HSE Assistants

The HSE Assistants are responsible for assisting HSE Coordinator during the implementation of the EMP;

- Assist in the development and presentation of relevant HSE training during the construction, operation and decommissioning phases.
- Liaise with local authorities where required, to ensure safety and health issues are resolved in a timely manner, to the benefit of the project.
- Determine health and safety goals and strategies for the company ensuring that they meet all fiscal, strategic and legislative requirements.
- Develop and review policies and procedures ensuring that all health and safety measures are being taken.
- Ensure that all governmental legislation is being followed at all times and in all facilities.

- Review all health and safety reports analysing compiled data to determine areas of improvement.
- Assist in conducting inspections of the workplace ensuring safety standards are met and being enforced consistently.
- Direct planning projects aimed at integrating health and safety activities into the company's production efforts.
- Manage non-compliance offenses of a high level.
- Manage investigation and reporting of health and safety incidents and hazard assessments.
- Maintain a strong knowledge of legislative changes that are upcoming in order to begin pro-actively implementing and developing procedures.
- Monitor and review workplace accommodations and return to work programs.
- Review job site safety compliance inspections including hazard analysis, safe work procedures and write reports and recommendations

2. Environmental Conservation Department -ECD (Mon State)

ECD (Mon State) is responsible for the general supervision and coordinating over all matters relating to the environment and for providing guidance for existing regulatory frameworks.

3. Third-party Consultant Firm

The Third-Party Consultant Firm is to ensure that the EMP developed is up-to-date and is being followed properly by June Cement Industry Limited. Periodic audits shall be performed in order to find out whether the expected outcomes are achieved as envisaged in the plan by comparing with the operating standards. If not, corrective actions have to be followed.

Table 10. 1 Environmental Management Plan for construction phase

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
1.	Air Quality	Jetty construction area	Gaseous emission, Dust emission	• Control the speed of vehicles and fuel consumption • Inspection and proper management for the construction machineries and transportation vehicles • Optimize the number of trips by heavy duty vehicles. • To provide PPE • Watering to the construction site	Already included in cost estimation for EMP	Low	June Cement Industry Limited.
2.	Water Quality	Jetty construction area	Water quality pollution,	• Implement proper management for the drainage system • Regular inspection for construction vehicles and other transportation vehicles • Transportation vehicles should service only in workshop.	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				• No discharge of oil or chemical to the surface water			
3.	Soil Quality	All construction area (fuel storage and maintenance areas)	Soil contamination	• Use modernized machineries and maintain regularly • Use proper handling methods to avoid spills or leakages	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited
4.	Noise and Vibration	All construction area	Negative impacts on construction workers and public	• Avoid operating heavy machinery from 7 pm to 7 am. • Stop vehicle engines while unloading materials. • Construction vehicle route should away from residential area • Keep construction machinery in good condition and maintain regularly. • Keep all generators and heavy-duty equipment in enclosures.	Already included in cost estimation for EMP	Moderate	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				• To provide PPE (ear plugs and earmuffs.)			
5.	Occupational Health and Safety	All construction area	Health and safety problems for construction workers	• Display prominently health and safety management plan at the site with language that workers can read. • To provide purified drinking water and adequate toilets. • Provide Personal Protective Equipment (PPEs) such as safety shoes, safety gloves, helmet, goggles, earmuffs etc. • Tag emergency telephone numbers and contact persons for emergency cases. • Restrict entering the project site without PPEs. • Make adequate safety measures including	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				availability of first-aid facilities and develop a plan to send the injured workers to the nearest clinics or hospitals. • Arrange First aid training, safety training, firefighting training and other essential trainings for those who handling the construction machineries.			
6.	Waste Disposal	All the construction area	Contamination of soil and water	• Project proponent will conduct with third party waste disposal service in line with Kyaikmarw Township Development Committee guidelines for disposal of excavated soil. • Separate into hazardous and non-hazardous wastes. • Dispose of construction waste by contacting Kyaikmaraw Township	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				Development Committee • Make temporary disposal site at the project and collect in separated bins. • Use recycled or refurbished construction materials. • Provide adequate sanitation facilities for construction workers. • Keep and handle systematically fuel and lubricants for construction. • Ensure systematic disposal of used oil by collecting with leak proof containers and paving the ground.			
7.	Biodiversity (Terrestrial and aquatic)	In the project area	Habitat loss, species loss and entrance of invasive species	• No discharge of oil or chemical to the surface water • Dredging should be avoided during construction phase	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				• Avoid vehicles maintenance near river • To minimize vegetation clearance for other activities			
8.	Socio-economic	In the local area	Positive impact	• Create job opportunities for local construction workers.			June Cement Industry Limited

Table 10. 2 Environmental Management Plan for Operation Phase

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
1.	Air Quality	All operation area	Gaseous emission, Dust emission	• Maintain and regular check the emergency generators, refrigerators and air conditioning systems • Watering existing road to prevent dust emission	Already included in cost estimation for EMP	Very Low	HSE Team of June Cement Industry Limited
2.	Water Quality	All operation	Surface Water pollution,	• Regular inspection and maintenance of	Already included in cost	Very	HSE Team of June Cement

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
		area	Groundwater depletion	transportation vehicles and emergency generators. • All staff must be trained and made aware conservation practices and proper methods of water use system	estimation for EMP	Low	Industry Limited
3.	Soil Quality	All operation area	Soil Contamination	• Machines, equipment and vehicles' maintenance and handling should be carried out at the maintenance area. • Monitoring for soil impact will need to check at the storage area of wastes, fuel storage area, maintenance area, toilet facilities and treatment plants • Provide oil and lubricant storage facility with paving floor or placing secondary containments	Already included in cost estimation for EMP	Very Low	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
4.	Noise and Vibration	All operation area	Negative impacts on, workers and public	• Noisy machines such as emergency generators must be placed with enclosures • Regular check and maintenance of emergency generators and other noisy machines. • Operating machines should be allowed during daytime.	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited
5.	Occupational Health and Safety	All operation area	Health and safety problems for staffs	• Arrange appropriate medical check-up facilities. • Providing appropriate PPE for workers. • Provide First Aid Kits training, safety training, fire-fighting training and other necessary training for all staffs. • Provide safety sign at the project area.	Already included in cost estimation for EMP	Low	HSE Team of June Cement Industry Limited
6.	Traffic Impact	Jetty site	Traffic	• Drivers must inspect their	Already	Low	HSE Team of

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
			congestion	vehicles before the trips properly • Drinking alcohol should be prohibited during working. • Reduce speed limit the essential places such as school, clinic, monastery and so on. • Awareness of road safety procedures have to be provided to villagers and school children by the HSE Coordinator at appropriate times.	included in cost estimation for EMP		June Cement Industry Limited
7.	Waste Disposal	All operation area	Contamination of soil and water	• All employee must be followed and practiced by the principle of waste reduction, recycling, recovery and reusing • Install fire extinguishers near the hazardous waste storage • Collected recyclable and reusable wastes • The project proponent must provide temporary	Already included in cost estimation for EMP	Moderate	HSE Team of June Cement Industry Limited

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				waste disposal place before final waste disposal • Final wastes will be disposed in line with Kyaikmaraw Township Development Committee.			
8.	Biodiversity (Terrestrial and aquatic)	In the project area	Habitat loss, species loss and entrance of invasive species	• Barges must not dispose of any oily waste to the river • Check regularly for the barges not to discharge of oil or chemicals to the surface water while loading • Conserve the existing fauna and flora.			HSE Team of June Cement Industry Limited
9.	Socio-economic	In the local area	Positive impact	• Create job opportunities for local staffs.			HSE Team of June Cement Industry Limited

Table 10. 3 Environmental Management Plan for Decommissioning Phase

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
1.	Air Quality	All decommissioning area	Gaseous emission, Dust emission	• Strictly avoid the open burning of solid waste at project site • Provide PPE to against dust • Regular check for vehicles and machines used in decommissioning phase • Control the speed of limit used in decommissioning	Already included in cost estimation for EMP	Low	Contractor for Decommissioning
2.	Water Quality	All decommissioning area	Water pollution	• Avoid directly disposed of demolished materials into the river. • Reuse other reusable demolished materials	Already included in cost estimation for EMP	Low	Contractor for Decommissioning
3.	Soil Quality	All decommissioning area	Soil Contamination	• Maintain the decommissioning machines and vehicles regularly to avoid oil spill and leakage	Already included in cost estimation for EMP	Very Low	Contractor for Decommissioning

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
4.	Noise and Vibration	All decommissioning area	Negative impacts on decommissioning workers and public	• Install temporary noise barriers. • Regularly maintain for decommissioning noise generation machines and vehicles. • Avoid working at nighttime.	Already included in cost estimation for EMP	Low	Contractor for Decommissioning
5.	Occupational Health and Safety	All decommissioning area	Health and safety problems for decommissioning workers.	• Provide Personal Protective Equipment (PPEs) such as safety shoes, safety gloves, helmet, goggles, earmuffs etc. • Tag emergency telephone numbers and contact persons for emergency cases. • Restrict entering the project site without PPEs. • Provide first aid kits on site.	Already included in cost estimation for EMP	Low	Contractor for Decommissioning
6.	Biodiversity	In the project area	Habitat loss,	• No discharge of oil			

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
	(Terrestrial and aquatic)		species loss and entrance of invasive species	or chemicals into the surface water • Preserve the existing aquatic biodiversity by not allowing any cargo vessels at the jetty			
7.	Waste Disposal	All decommissioning area	Contamination of soil and water	• Recycle some of demolished solid wastes. • Segregate waste of demolished materials into hazardous and non hazardous waste • Other solid wastes should be stored in dedicated waste storage area in the project site and transferred to Kyaikmaraw Township Development Committee for final disposal. • Provide adequate sanitation facilities	Already included in cost estimation for EMP	Low	Contractor for Decommissioning

No.	Potential Impacts	Location	Impacts	Mitigation Measures	Estimated Cost of Proposed Measures	Residual Impacts	Responsible Party
				for decommissioning workers.			
8.	Socio-economic	In the local area	Positive impact	• Create job opportunities for local workers	-	-	Contractor for Decommissioning

10.3 Environmental Monitoring Plan

The following tables describes for the environmental monitoring plan for the proposed project.

Table 10. 4 Environmental Monitoring Plan

No.	Environmental concerns	Parameters	Frequency	Location	Estimated cost (MMK)	Responsible Party
Construction Phase						
1.	Ambient Air Quality	PM_{10}, $PM_{2.5}$, CO, CO_2, NO_2, SO_2, O_3.	Once a year	Jetty site One point	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
2.	Noise Level	Equivalent Noise Level (dBA)	Once a year	Two points (point source and receptor)	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
3.	Water Quality	PH, Color, Temperature, Salinity, Turbidity, BOD, Total Hardness, Total Dissolved Oxygen, Total Suspended Solid	Once a year	Jetty site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
Operation Phase						
1.	Ambient Air Quality	PM_{10}, $PM_{2.5}$, CO, CO_2, NO_2, SO_2, O_3.	Once a year	Jetty site One point	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
2.	Noise Level	Equivalent Noise Level (dBA)	Once a year	Two points (point source and receptor)	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
3.	Water Quality	PH, Color, Temperature, Salinity, Turbidity, BOD, Total Hardness, Total Dissolved	Once a year	Jetty site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited

		Oxygen, Total Suspended Solid				
4.	Solid Waste	Waste segregation and collection system	Monthly	Temporary disposal site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
5.	Health and Safety Plan	Number and types safety equipment, Health care facilities, Safety training for workers	Monthly	Project Site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
Decommissioning Phase						
1.	Ambient Air Quality	PM_{10}, $PM_{2.5}$, CO, CO_2, NO_2, SO_2, O_3.	Once a year	A suitable point on site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
2.	Noise Level	Equivalent Noise Level (dBA)	Once a year	Two points (point source and receptor)	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited
3.	Water Quality	PH, Color, Temperature, Salinity, Turbidity, BOD, Total Hardness, Total Dissolved Oxygen, Total Suspended Solid	Once a year	Jetty site	Already included in cost estimation for EMP	HSE coordinator and June Cement Industry Limited

10.4 Emergency Preparedness and Response Plan

The project proponent should prepare an emergency preparedness plan in order to prevent consequences of natural disasters such as fire, floods and earthquakes and man-made errors. Building designs should be drawn to resist natural disasters like earthquakes and storm.

For all emergency cases, emergency response plan must be developed by the proponent and train to all staffs in order to evacuate systematically during emergency cases. Recovery plan must be developed because recovery plan should be followed after severe damages

The proponent will prevent fire hazards as follows:

- To remove all conditions which favour fire in the compound,
- To remove all flammable things including garbage and wastes and to make the campus

ever clean,

- To store, refill, use and dispose fuels as per instructions
- To install the transmission lines as per instructions and technology prescribed by Myanmar Electric Power Enterprise,
- To install lightning conductor in the building,
- To give trainings for fire prevention and awareness training and organize fire prevention committee,
- To use fire hydrants, water storage tank and fire extinguishers
- For electrical fires turn off power before fighting

Preparedness Measures on natural disaster are as follows:

- To give awareness training to the employees about the natural disasters
- To give disaster risk reduction training
- To provide emergency response training, including search and rescue, medical first aid
  and evacuation management, etc.
- To educate about not to throw trash into the rivers.
- To adopt the flood warning system and in the working area and inform about it to the employees and the nearest community.

In case of floods, the following emergency response plan will be done immediately.

- ✓ Avoid building in flood areas;
- ✓ Construct barriers (levees, beams, floodwalls) to stop floodwater from entering;
- ✓ If a flood is likely in your area, listen to the radio or television for information;
- ✓ Do not walk through moving water;
- ✓ If you have to walk in water, wherever possible, walk where the water is not moving; Use a stick to check the firmness of the ground in front of you;
- ✓ Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely;
- ✓ Do not touch electrical equipment if you are wet or standing in water;
- ✓ Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage; Water may also be electrically charged from underground or downed power lines;
- ✓ Stay out of any building if it is surrounded by floodwaters;
- ✓ Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards; and
- ✓ Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

In case of earthquake, the following emergency response plan will be done immediately.

- ✓ Avoid windows, hanging objects, mirrors, tall furniture, large appliances and cabinets filled with heavy objects;
- ✓ Do not try to run out of the structure during strong shaking and stay under a table or desk;
- ✓ Move to a clear area if you can safely walk. Avoid power lines, buildings and trees;
- ✓ Check around you for dangerous conditions, such as fires, downed power lines and structure damage;
- ✓ Check the people around you for injuries; provide first aid. Do not move seriously injured persons unless they are in immediate danger;

- ✓ Move as little as possible so that you don't kick up dust. Cover your nose and mouth with a handkerchief or clothing;
- ✓ Do not operate electrical switches, appliances or open-flame equipment if gas leaks are suspected. Sparks or flames can ignite gas from broken lines causing an explosion;
- ✓ Inspect your work area carefully for structural damage. Carefully open exit doors - they sometimes jam; and
- ✓ Protect hands and feet from broken glass or debris. Keep head and face protected.

Emergency plan in case of oil spills

An emergency response plan for spills involving diesel, grease & oil would be in place prior to commencement of the construction. This plan would be consisting of the following precautionary and preparatory measures including;

- ➢ Placement of the fuel storage area away from sensitive environment.
- ➢ Training of the workers on good practices in fuel handling and response protocols;
- ➢ Installation of warning signs;
- ➢ Installation of response kits at easily accessible locations. The kit would include absorbents, personal protective equipment and clean-up equipment such as oil boom.
- ➢ Risk assessment, including identification of hazards, potential triggers, contaminant pathways, and impact thresholds for different chemicals
- ➢ Response procedure, defining roles and responsibilities of key personnel
- ➢ Communication protocols- among responsible personnel, and to authorities and neighbours, if required
- ➢ Long-term environmental monitoring, if required.

10.5 Corporate Social Responsible Plan

June Cement Industry will implement Corporate Social Responsibility (CSR) Plan together with Environmental Management Plan (EMP) through the project lifespan. The objective of this plan is to create social welfare of factory workers and local community, and to prove that the establishment of the proposed project is beneficial for not only the project owner but also for the local community. The project proponent has a plan to use 2% of net profit for the corporate social responsibility fund. Moreover, we always look forward the according to the priority for the sustainable socio-economic development of local people and add additional funds for CSR Plan if it is not enough.

Table 10. 5 Corporate Social Responsible Plan for June Cement Industry Limited

No.	Activities	Responsible Party	Timing	Estimated Amount (% of Net Profit)
1.	Activities related to religious affairs	June Cement Industry Limited	Annually	0.7%
2.	Activities related to education matters	June Cement Industry Limited	Annually	0.3%
3.	Activities related to local development	June Cement Industry Limited	Annually	1%
Total				2%

10.6 Community Grievance Redress Mechanism

People who live in the project effective area or stakeholders can complain about the impacts that they suffer though Grievance Committee, which includes the responsible persons of June Cement Industry Limited quarter administrator and representative of Township Fire Department. Small issues are solved at the Grievance Committee stage and other unresolved problems are submitted to higher responsible authorities and finally decided by the court in legal terms. The following diagram show steps of Grievance Redress Mechanism of June Cement Industry Limited.

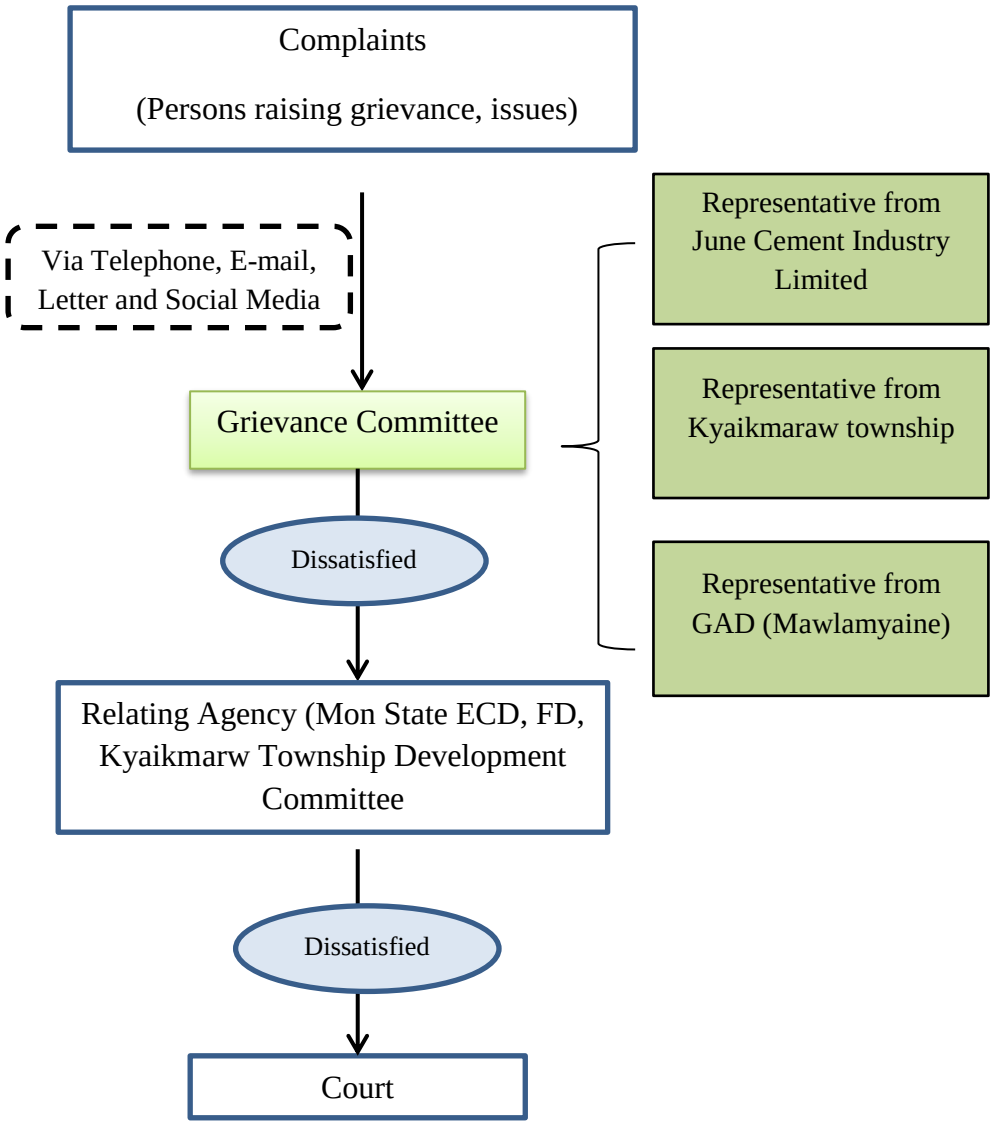


Figure 10. 1 Steps of Grievance Redress Mechanism of June Cement Industry Limited.

10.7 Cost Estimation for EMP

The following table shows the expenditures for the implementation of Environmental Management Plan and it can change according to the situation. We, June Cement Industry Limited also commit that we will add required funds for the implementation of Environmental Management Plan including monitoring plan if this following cost estimation is not enough at the time of real practices through the project lifespan.

Table 10. 6 Cost estimation for EMP implementation

No.	Item	Unit	Quantity	Unit Cost (USD)	Cost (USD)
(A) Mitigation Measures					
1.	Dust Control	Day	365	100	36,000
2.	Noise control measure			Lump sum	3,000
3.	Secondary Containment and Leakage Proof Container			Lump sum	1,000
4.	Planting Trees and grasses Within Compound and bank of river	Nos.			1,500
5.	Fire Extinguishers	Nos.			300
6.	PPE and First Aid Kits			Lump sum	3,000
7.	Medical Check-up and health care facilities			Lump sum	5,000
8.	Solid waste disposal	Month	12	20	2,400
	Subtotal				**52,200**
(B) Monitoring					
1.	Air Quality	Year	2	600	1,200
2.	Noise Quality	Year	2	1,000	2,000
3.	Water Quality	Year	2	800	1,600
4.	Environmental Auditing	Year	1	1,000	1,000
	Subtotal				**5,800**
(C) Environmental Supervision and Advisors					
1.	HSE Coordinator	Month	12	800	9,600
2.	HSE Assistant	Month	12	400	4,800
	Subtotal				**14,400**
	Contingency				**3,000**
Total					**75,400**

11. Conclusion and Recommendations

11.1 Conclusion

This Initial Environmental Examination (IEE) Report and Environmental Management Plan (EMP) was prepared by E Guard Environmental Services Co., Ltd. for construction of two jetties proposed by June Cement Industry Limited. The main objective of the study is to identify the major environmental impacts due to the implementation of the project activities in all three phases (construction phase, operation phase and decommissioning phase). Initial Environmental Examination (IEE) has been conducted for the proposed project under the Environmental Impact Assessment Procedure as per the comments of Environmental Conservation Department (ECD). The project proponent has to implement the proposed project in compliance with the National laws and regulations for environmental protection.

In this IEE report study, baseline environmental data collection and site visit activities conducted on 12th March, 2019. According to the data interpretation for ambient air quality, noise level, water quality results were compared with National and Environmental Quality (emission) guideline and international guideline standards. According to the observed data, dust level of PM10 is within the guideline value but PM2.5 is exceeding the guideline value. Other gases are within the limit of guideline values. Noise level and water quality results are also within the acceptable limit of guideline values. Therefore, there is no significance social impact.

This project can create job opportunities for local people in all three phases. The assessment of each impact is based on consideration of the magnitude, duration, extent and probability of activities which are going to be carried out during construction, operation and decommissioning phases. The impacts for the environment are mostly low during the implementation of the project. All of the impacts during construction, operation and decommissioning phases can be minimized by using mitigation measures and implementing Environmental Management Plan.

Environmental Monitoring Plan (EMOP) must need to implement for monitoring the environmental quality of the proposed project. Then, the estimated budget need for implementing Environmental Management Plan and Environmental Monitoring Plan are mentioned in this report. Moreover, CSR plan, firefighting plan, emergency preparedness and response plan and grievance redress mechanism to solve the complaints related with the proposed project are also described in this report. It is also necessary to consider every opinion of all stakeholder potential to be affected by the development of the proposed project.

11.2 Recommendations for Future Works

The following recommendations have been made for efficient and effective implementation of environmental conservation, health and safety and social responsibilities through the lifespan of the proposed project.

- ✓ Follow the comments and suggestions made by ECD after reviewing this IEE report.
- ✓ Once EMP is approved by concerned authorities, strict implementation is essential.
- ✓ For full and proper implementation of EMP, well understanding and supports by proponent and authority is deem necessity.
- ✓ Well experienced and knowledgeable HSE Manager and HSE Assistants shall be appointed.
- ✓ Daily, monthly and annual action plan shall be formulated based on this EMP and practiced at operation level.
- ✓ Necessary care and environmentally sound practices should be taken for activities out of factory site particularly on raw material collection and transport.
- ✓ Keep full records of environmental management activities and present to annual independent third-party environment audit.
- ✓ Follow the audit report and comments.
- ✓ Abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.
- ✓ Implement Grievance Redress Mechanism (GRM) to solve the complaints and Corporate Social Responsibility (CSR) plan.
- ✓ Implement EMP and EMOP for balancing development and environmental conservation

Finally, the proponent should follow the comments and suggestions made by ECD after reviewing this IEE report. Once EMP is approved by concerned authorities, effective implementation of EMP by the project proponent is essential. The proponent should abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

References

- ✓ National Environmental Quality (Emission) Guidelines (2015)
- ✓ Environmental Impact Assessment Guidelines (2014)
- ✓ Environmental Impact Assessment Procedures (2015)
- ✓ IFC International Finance Corporation, *Environment, Health and Safety Guidelines, Construction and Decommissioning*, World Bank group, 2007.
- ✓ IFC International Finance Corporation, *Environment, Health and Safety Guidelines, Occupational Health and Safety*, World Bank group, 2007.
- ✓ IFC International Finance Corporation, *Environment, Health and Safety Guidelines, General*,
  World Bank group, 2007.
- ✓ Environmental Impact Assessment for Jetty Works Project in V. Fulidhoo
- ✓ Environmental and Social Management Framework
  FIJ: Transport Infrastructure Investment Sector Project

အများပြည်သူလေ့လာသုံးသပ်အကြံပြုနိုင်ရန် ဖြန့်ဝေထားရှိမှုအစီအစဉ်

June Cement Industry Limited ၏ ဆိပ်ခံတံတားဆောက်လုပ်ခြင်းနှင့် ပတ်သက်၍ ရေးသားပြုစုထားသော ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာ (IEE) အား အများပြည်သူများ ဝင်ရောက်လေ့လာသုံးသပ်၍ အကြံပြုချက်များပေးနိုင်ပါရန် အောက်ပါနေရာများတွင် ဖြန့်ဝေပေးပို့ထားရှိပါသည်။

၁။ အမှတ် (၂၁-က)၊ တောင်ဝိုင်းလမ်း၊ ပဲဆီရုံ ကုံးထိပ်၊ ဈေးကျိုရပ်၊ မော်လမြိုင်မြို့

၂။ အီးဂတ်ပတ်ဝန်းကျင်ဆိုင်ရာဝန်ဆောင်မှုကုမ္ပဏီ၏ ဝက်ဘ်ဆိုဒ်

(http://www.eguardservices.com/disclosure)

၃။ ပြည်ထောင်စုဝန်ကြီးရုံး၊ သယံဇာတနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ နေပြည်တော်

၄။ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော်

၅။ ညွှန်ကြားရေးမှူးရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မွန်ပြည်နယ်

၆။ မွန်ပြည်နယ်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကော်မတီ

၇။ အမှတ် (၁) သတ္တုလုပ်ငန်း

၈။ ကျိုက်မရောမြို့နယ် အုပ်ချုပ်ရေးမှူးရုံး၊ မွန်ပြည်နယ်

၉။ ကော့ပနောကျေးရွာအုပ်ချုပ်ရေးမှူးရုံး၊ ကျိုက်မရောမြို့နယ်၊ မွန်ပြည်နယ်

Appendix

Appendix 1 Project Proponent Commitment letter

JUNE CEMENT INDUSTRY LTD.
No.(80), Sayarsan Lane, Bahan Township, Yangon, Myanmar.
Tel: 95-1-202743, 296754 Fax:95-1-299832

Commitment to follow Environmental Conservation Law, Rules and Regulation, Environmental Standards and Mitigation Measures Stated in the Environmental Management Plan (EMP) of IEE Reports

With regard to the above matter, we, June Cement Industry Limited has established for related projects (Jetty construction, channel construction, clay soil production and laterite production) needed for Cement plant. Our company strongly commits that all our operations will be performed in an environmentally friendly manner by following Environmental Conservation Law 2012, Environmental Conservation Rules 2014, Environmental Impact Assessment Procedure and National Environmental Quality (emission) Guidelines (2015) and relevant environmental standards through successful implementation of mitigation measures stated in the Environmental Management Plan (EMP), EMoP, CSR Plan and Grievance Redress Mechanism of IEE Reports.

Myint Soe
Managing Director
June Cement Industry Ltd;

Appendix 2 Third Party commitment letter

eguard ENVIRONMENTAL SERVICES

No. (11), Airport Avenue Road, (လေဆိပ်ရိပ်သာလမ်း)
Yangon Airport Road, Saw Bwar Gyi Gone Quarter,
Insein Township, Yangon 11011, Myanmar.
Tel: (95) 1 666512 Fax: (95) 19667757
H.P (95) 9 44801676

Commitment to follow and compliance with Environmental Conservation Law, Rules, Environmental Impact Assessment Procedure, National Environmental (Quality) Emission Guidelines, Standards and Mitigation Measures Stated in the Environmental Management Plan (EMP) of IEE reports

With regard to the above matter, we, E Guard Environmental Services has prepared the Initial Environmental Examination (IEE) Reports for related projects (Jetty construction, channel construction, clay soil production and laterite production) needed for Cement plant. Our company strongly commits that this IEE report has been prepared by following Environmental Conservation Law (2012), Environmental Conservation Rules (2014), Environmental Impact Assessment Procedure (2015), National Environmental (Quality) Emission Guidelines (2015) and relevant environmental standards through successful implementation of mitigation measures and monitoring plan stated in the Environmental Management Plan (EMP) of IEE Reports.

Tin Aung Moe
Director
E guard Environmental Services

Email: info@eguardservices.com URL: www.eguardservices.com

Appendix 3 Company Registration

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ 009630

အမျိုးသားစီမံကိန်းနှင့် စီးပွားရေးဖွံ့ဖြိုးတိုးတက်မှုဝန်ကြီးဌာန

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ် အက်တမ်းတိုး

အမှတ် .....၉..... / ၂၀၁၃ - ၂၀၁၂

မြန်မာနိုင်ငံ ကုမ္ပဏီများ အက်ဥပဒေအရ ဇွန် ဘိလပ်မြေ စက်မှုလက်မှုနှင့် ထုတ်လုပ်မှု လီမိတက် အား ပေးရန်တာဝန် ကန့်သတ်ထားသော လီမိတက် ကုမ္ပဏီအဖြစ် ၂၀၁၁ ခု၊ ဧပြီ လ၊ ၁ ရက်နေ့တွင် မှတ်ပုံတင်ထားခြင်းအား ၂၀၁၃ ခု၊ နိုဝင်ဘာ လ၊ ၂၉ ရက်နေ့မှစ၍ သက်တမ်းတိုး ခွင့်ပြုလိုက်သည်။

ညွှန်ကြားရေးမှူးချုပ် (ကိုယ်စား)
(နန်းရီရီသန်း ၊ ညွှန်ကြားရေးမှူး)
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

THE GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF NATIONAL PLANNING AND ECONOMIC DEVELOPMENT

CERTIFICATE OF INCORPORATION

NO. 9 of 2011 - 2012

I hereby certify that the tenure of JUNE CEMENT INDUSTRY LIMITED incorporated under the Myanmar Companies Act on 1st APRIL, 2011 is renewed with effected from 29th NOVEMBER, 2013

For Director General
(Nang Yi Yi Than, Director)
Directorate of Investment and Company Administration

Appendix 4 Exporter/Importer Registration

7549

The Government of the Republic of the Union of Myanmar
Ministry of Commerce
Directorate of Trade

CERTIFICATE OF EXPORTER/IMPORTER REGISTRATION

1. Enterprise Name (မြန်မာ/အင်္ဂလိပ်) June Cement Industry Ltd.
2. Registration No: 25871(23-06-11)
3. Registration Term: FOUR YEAR
4. Start Date : 12-03-2015
5. End Date : 31-03-2018
6. Address : (မြန်မာ/အင်္ဂလိပ်) No.(80), Sayarsan Lane, Bahan T/S, Yangon Region,Myanmar
7. Business Registration No : 9/2011-2012(1-4-2011)
8. Type of Business : (မြန်မာ/အင်္ဂလိပ်)
   - ☐ Sole Proprietorship(တစ်ဦးတည်းပိုင်)
   - ☐ Partnership(အစုအဖဝဲ)
   - ☑ Limited Company(လီမိတက်ကုမ္ပဏီ)(Myanmar/Foreign)
   - ☐ Co-operative Society(သမဝါယမအသင်း)
   - ☑ Others(Please specify)အခြား(ဖော်ပြရန်) သင်းဖွဲ့မှတ်တမ်းပါလုပ်ငန်း( )မျိုး ဆောင်ရွက်ခွင့်ရှိသည်။
9. Type of Service : ○ New ◉ Extension
10. Contact No :

Telephone No.	Fax No.	e-mail
202743 299832 296754	95-1-299832	

11. Remarks :

12. Terms and Conditions : စည်းကမ်းချက်များ
    I hereby register the above mentioned enterprise as Exporter/Importer subject to the following terms and conditions: (အောက်ဖော်ပြပါစည်းကမ်းချက်များဖြင့် ဖိုကုန်သွင်းကုန် လုပ်ငန်းရှင်အဖြစ် မှတ်တမ်းတင်ခွင့်ပြုသည်)
    (a) Line of goods permitted - all items except prohibited and restricted items.
    ခွင့်ပြုသည့်ကုန်ပစ္စည်းအမျိုးအမည် - တားမြစ်ကန့်သတ်ထားသော ကုန်ပစ္စည်းအမယ်များမှလွဲ၍ ကုန်ကုန်ပစ္စည်းများအားလုံး
    (b) The enterprise must abide by the Export/Import rules and Regulations prescribed for the registered Exporters/Importers.(လုပ်ငန်းရှင်သည် မှတ်ပုံတင် ဖိုကုန်သွင်းကုန်လုပ်ငန်းလုပ်ကိုင်သူများ လိုက်နာရမည့်စည်းကမ်းချက်များကို လိုက်နာရမည်)

Stamp

For Director General

EIREGEX031586EIREGEX12130012

12.3.15

Appendix 5 Water Quality Laboratory result

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No. 688600

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

W0319 587

WATER QUALITY TEST RESULTS FORM

Client: Jetty
Nature of Water: Surface Water
Location: Kyeikmayaw Township
Date and Time of collection: 17.3.2019
Date and Time of arrival at Laboratory: 18.3.2019
Date and Time of commencing examination: 19.3.2019
Date and Time of completing: 24.3.2019

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)		°C	
Fluoride (F)		mg/l	1.5 mg/l
Lead (as Pb)		mg/l	0.01 mg/l
Arsenic (As)		mg/l	0.01 mg/l
Nitrate ($N.NO_3$)		mg/l	50 mg/l
Chlorine (Residual)		mg/l	
Ammonia (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)	32	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	10	mg/l	
Cyanide (CN)		mg/l	0.07 mg/l
Zinc (Zn)		mg/l	3 mg/l
Copper (Cu)		mg/l	2 mg/l
Silica (Si)		mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr. Chemist
ISO TECH Laboratory

Approved by
Signature:
Name: Soe Thit
B.E (Civil) 1980,
Technical Officer
ISO TECH Laboratory

(a division of WEG Co.,Ltd.)
No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-30339681, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

ISO 9001:2015 Cert. No. 688600

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

W0319 587

WATER QUALITY TEST RESULTS FORM

Client: Jetty
Nature of Water: Surface Water
Location: Kyeikmayaw Township
Date and Time of collection: 17.3.2019
Date and Time of arrival at Laboratory: 18.3.2019
Date and Time of commencing examination: 19.3.2019
Date and Time of completing: 24.3.2019

Results of Water Analysis

		WHO Drinking Water Guideline (Geneva - 1993)
pH	7.4	6.5 - 8.5
Colour (True)	TCU	15 TCU
Turbidity	NTU	5 NTU
Conductivity	micro S/cm	
Total Hardness	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	mg/l as $CaCO_3$	
Magnesium Hardness	mg/l as $CaCO_3$	
Total Alkalinity	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	mg/l as $CaCO_3$	
Iron	mg/l	0.3 mg/l
Chloride (as CL)	mg/l	250 mg/l
Sodium chloride (as NaCL)	mg/l	
Sulphate (as SO_4)	mg/l	500 mg/l
Total Solids	mg/l	1500 mg/l
Suspended Solids	mg/l	
Dissolved Solids	mg/l	1000 mg/l
Manganese	mg/l	0.05 mg/l
Phosphate	mg/l	
Phenolphthalein Acidity	mg/l	
Methyl Orange Acidity	mg/l	
Salinity	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature: Hein
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr. Chemist
ISO TECH Laboratory

Approved by
Signature: Soe Thit
Name: B.E (Civil) 1980,
Technical Officer
ISO TECH Laboratory

(a division of WEG Co.,Ltd.)
No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-30339681, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No. 688600

M0319 053

WATER QUALITY TEST (MICROBIOLOGY) RESULTS FORM

Client: Jetty
Nature of Water: Surface Water
Location: Kyeikmayaw Township
Date and Time of collection: 17.3.2019
Date and Time of arrival at Laboratory: 18.3.2019
Date and Time of commencing examination: 18.3.2019
Date and Time of completing: 19.3.2019

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

Total Coliform Count	10	CFU/100ml	Not detected
Thermotolerant (fecal) Coliform Count	2	CFU/100ml	Not detected
pH	7.4		6.5 - 8.5
Turbidity	210	NTU	5 NTU
Colour (True)	90	TCU	15 TCU
Free Chlorine	Nil	mg/l	
Total Chlorine	Nil	mg/l	

Remark : Unsatisfactory for drinking purpose.

: This certificate is issued only for the receipt of the test sample.

: < - Less than

Tested by

Signature: Hein
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr. Chemist
ISO TECH Laboratory

Approved by

Signature:
Name: Soe Thit
B.E (Civil) 1980,
Technical Officer
ISO TECH Laboratory

(a division of WEG Co.,Ltd.)
No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-30339681, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ANALYSIS REPORT

ORIGINAL

Job Ref: 2000391/19
Date: 25/03/2019

Sample Described as	:	**Waste Water**
Client Name	:	**Jetty Project**
Sample Received Date	:	18. March .2019
Sample Brought By	:	Client
Sample Marking	:	SW
Sample Location	:	Kyaik Ma Yaw
Analysed Date	:	19. March .2019
Lab Code No.	:	091/19

No.	Test Parameter	Method	LOQ	Unit	Result
1	Total Suspended Solid	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 2540-D.Dried at 103-105 °C	20	mg/L	81
2	Total Nitrogen	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 4500-N_{org} B.Macro Kjeldahl Method	1	mg/L	<1
3	Total Phosphrous	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;4500-P E.Ascorbic Acid Method	0.01	mg/L	0.027
4	Oil & Grease	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;5520B	5	mg/L	<5

********** End of Report **********

SGS (Myanmar) Limited

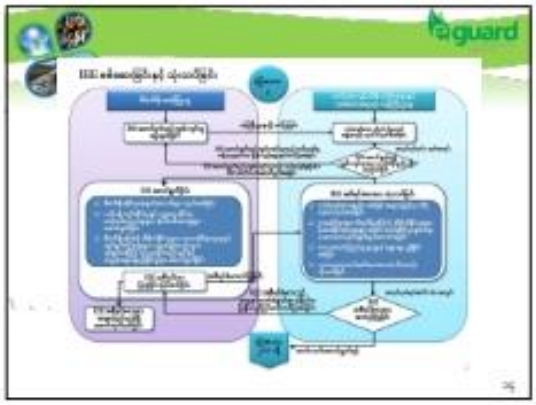
(Nu Nu Yi)
Manager

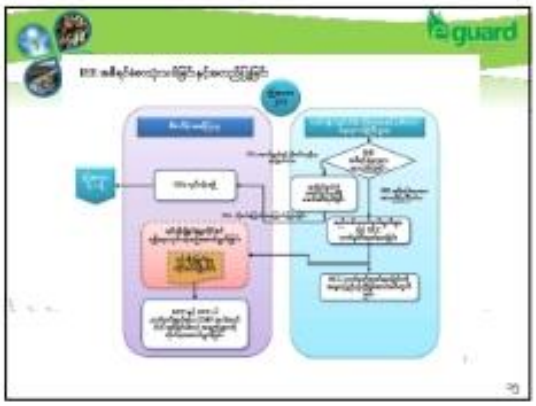
Appendix 6 Presentation by Project Proponent and Third Party


ကျေးဇူးတင်ပါသည်။


ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း
(Initial Environmental Examination)
E Guard Environmental Services


E Guard Environmental Services Co., Ltd.






ကနဦးပတ်ဝန်းကျင်အခြေအနေ လေ့လာဆန်းစစ်ခြင်း၏ ရည်ရွယ်ချက်များ
• စီမံကိန်းဆောင်ရွက်မှုကြောင့်ဖြစ်ပေါ်လာနိုင်သည့် ပြဿနာရပ်များကို ခန့်မှန်းတတ်ခြင်း
• ထိခိုက်လာနိုင်မှုများကိုလျော့နည်းနိုင်ရန်အတွက်နည်းများကို အကြံပြုတင်ပြခြင်း
• ဆောင်ရွက်နိုင်သည့်နည်းလမ်းများ ကြိုတင်ပြင်ဆင်ပြီးအကောင်အထည်ဖော်ဆောင်ရွက်ခြင်း
• ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းလုပ်ငန်း လုပ်ဆောင်ရန် ရှိပါ့မည်းနိုးစစ်ခြင်း
အများပြည်သူနှင့် ဝေစုခန့်ငြိမ်းသဘောတူရေးညှိနှိုင်းရေးဆိုင်ရာလုပ်ငန်းများ
• ဖြစ်ပေါ်လာနိုင်သည့် ဆောင်ကျိုးဆိုးကျိုးများကိုကာကွယ်ခြင်း
• ပါဝင်သက်ဆိုင်သူများဆီမှခြိမ်းခြောက်မှုများများ ထိခိုက်သက်ရောက်လာနိုင်မှုများကိုလျော့နည်းနိုင်ရန်
• စီမံကိန်းဆောက်လုပ်ရေးအတွက်ဆောင်ရွက်ခြင်းနှင့် လည်ပတ်ခြင်းဆိုင်ရာ ပူးပေါင်းပါဝင်သာမှုနှင့် တာဝန်ယူနိုင်မှု
• အငြင်းပွားမှုဆောင်ရွက်ခြင်းနှင့် စီမံကိန်းဆောက်လုပ်ရေးတွင် ဝေစုမမျှတမှုရှိနေခြင်း


စီမံကိန်းပတ်ဝန်းကျင်ဆိုင်ရာ ဆုံးရှုံးနိုင်ခြေများ


စီမံကိန်းပတ်ဝန်းကျင်ဆိုင်ရာ ဆုံးရှုံးနိုင်ခြေများနှင့်ထိခိုက်လာနိုင်ခြင်း


ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်
ထိုကဲ့သို့လျော့နည်းစေသည့် အရေးယူဆောင်ရွက်မှုများနှင့်
စောင့်ကြပ်ကြည့်ရှုမည့် အစီအစဉ်
စီမံကိန်းတည်ဆောက်သည့် ကာလ

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်

ထိုက်ရှိလျှော့နည်းစေသည့် အရေးယူဆောင်ရွက်မှုများနှင့် စောင့်ကြပ်ကြည့်ရှုမည့် အစီအစဉ်

စီမံကိန်းလည်ပတ်သည့် ကာလ

၃၀

စဉ်	သတ်မှတ်ချက်	စီမံကိန်းဆောင်ရွက်ချက်	လျော့နည်းစေရန်အရေးယူဆောင်ရွက်ချက်
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

စဉ်	သတ်မှတ်ချက်	စီမံကိန်းဆောင်ရွက်ချက်	လျော့နည်းစေရန်အရေးယူဆောင်ရွက်ချက်
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

စဉ်	သတ်မှတ်ချက်	စီမံကိန်းဆောင်ရွက်ချက်	လျော့နည်းစေရန်အရေးယူဆောင်ရွက်ချက်
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

စဉ်	သတ်မှတ်ချက်	စီမံကိန်းဆောင်ရွက်ချက်	လျော့နည်းစေရန်အရေးယူဆောင်ရွက်ချက်
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

စဉ်	သတ်မှတ်ချက်	စီမံကိန်းဆောင်ရွက်ချက်	လျော့နည်းစေရန်အရေးယူဆောင်ရွက်ချက်
[illegible]	[illegible]	[illegible]	[illegible]


ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးစီမံချက်
guard
စီမံကိန်းသည်မြေတော်သည့် ထား
စဉ်
ထိခိုက်နစ်နာစေနိုင်ခြေရှိသော ပုဂ္ဂိုလ်များ
ထိခိုက်စေနိုင်သည့်အကြောင်းအရာ
၁ ကောလုတရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၂ ထုတ်သည် တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်းနှင့် ပြင်ပ သင့်တော်သော နေရာ နှစ်ခု
၃ ရေအရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းအနီး အသုံးပြုသော သားဆီစီတွင်းရေ
၄ ဆီပြားရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၅ အစိုင်အခဲ ဖွန့်ဖြန်းရောင်းသူ ဂျာကိုဖြူ လေဆိုး စီမံကိန်းဧရိယာ ဖွန့်ဖြန်းပြောင်းရွှေ့ရာ

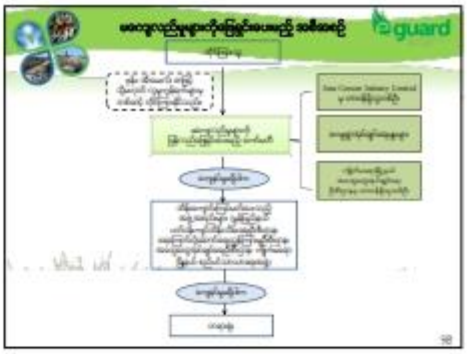

ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးစီမံချက်
guard
စီမံကိန်းလည်ပတ်သည့် ထား
စဉ်
ပတ်ဝန်းကျင်ဆိုင်ရာ အရေးကြီးသောအင်္ဂါ
ထိခိုက်နစ်နာစေနိုင်ခြေရှိသော ပုဂ္ဂိုလ်များ
ထိခိုက်စေနိုင်သည့်အကြောင်းအရာ
၁ ကောလုတရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၂ ထုတ်သည် တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်းနှင့် ပြင်ပ သင့်တော်သော နေရာ နှစ်ခု
၃ ရေအရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းအနီး အသုံးပြုသော သားဆီစီတွင်းရေ
၄ ဆီပြားရောင်းစားသူ တစ်နှစ်တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၅ အစိုင်အခဲ ဖွန့်ဖြန်းရောင်းသူ ဂျာကိုဖြူ လေဆိုး စီမံကိန်းဧရိယာ ဖွန့်ဖြန်းပြောင်းရွှေ့ရာ


ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးစီမံချက်
guard
စီမံကိန်းပိတ်ဝင်းထည့်သော
စဉ်
ပတ်ဝန်းကျင်ဆိုင်ရာ အရေးကြီးသောအင်္ဂါ
ထိခိုက်နစ်နာစေနိုင်ခြေရှိသော ပုဂ္ဂိုလ်များ
ထိခိုက်စေနိုင်သည့်အကြောင်းအရာ
၁ ကောလုတရောင်းစားသူ တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၂ ထုတ်သည် တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်းနှင့် ပြင်ပသင့်တော်သော နေရာ နှစ်ခု
၃ ရေအရောင်းစားသူ တစ်ကြိမ် စီမံကိန်းအနီး အသုံးပြုသော သားဆီစီတွင်းရေ
၄ ဆီပြားရောင်းစားသူ တစ်ကြိမ် စီမံကိန်းဧရိယာအတွင်း သင့်တော်သောနေရာ တစ်ခု
၅ အစိုင်အခဲ ဖွန့်ဖြန်းရောင်းသူ တစ်ကြိမ် စီမံကိန်းဧရိယာ ဖွန့်ဖြန်းပြောင်းရွှေ့ရာ


စောင့်ကြပ်ကြည့်ရှုရမည့်နည်းလမ်းများ
guard
• ကျန်းမာရေးနှင့် ဝေဒနာဖြစ်ရပ်ပေါ်ပေါက်ခြင်းရေး တာဝန်ခံရေး တိုက်ရိုက်စောင့်ကြပ်ခြင်း။
• ပတ်ဝန်းကျင်ထိခိုက်မှု ရှိ၊ မရှိကို ပုံမှန်စစ်ဆေးခြင်း၊ တာရှည်ထိခိုက်မှုပါခြင်း။
• ပြည်သူလုပ်ထုံးအကြပြုရေးများ ဆွေးနွေးရေးများနှင့် ကန့်ကွက်မှုများအတွက် သဘင်များ ရယူပြီး ဖြေရှင်းဆောင်ရွက်ခြင်း။
• ပါဝင်ပတ်သက်ခြင်းမရှိသည့် ကြားခံနေအဖွဲ့ အစည်းများစစ်ဆေးခြင်း။


အရေးပေါ်ကိစ္စများအတွက်စီမံချက်
guard
ဒီဇာတ်ရွေ့ရာတည်
ကြိုတင်တားဆီးရေး နည်းလမ်းများ
ဖြစ်ပွားနိုင်ခြေရှိသော ဖြစ်ရပ်များနှင့် ရင်ဆိုင်ရမည့် နည်းလမ်း
ဖြစ်ပွားပြီးနောက် ထိခိုက်နစ်နာသူများ ကုစားရေး


လူမှုရေးတာဝန်ယူမှု (CSR)
guard
အသက်ဝင်အပြင်ကိစ္စ၏ ၂% ကို ရပ်ရွာလူအဖြစ် ထားရှိပြီး တောက်ဝါဂုဝ်ငန်များတွင် အသုံးပြုရန်ရည်မှန်းထားသည်။
စဉ်
အကြောင်းအရာ
ရပ်ရွာ၏ ရာခိုင်နှုန်း
၁။ ပညာရေးအတွက် အထောက်အပံ့ ၄၀
၂။ ကျန်းမာရေးအတွက် အထောက်အပံ့ ၃၀
၃။ လူမှုရေးအတွက် အထောက်အပံ့ ၃၀


guard

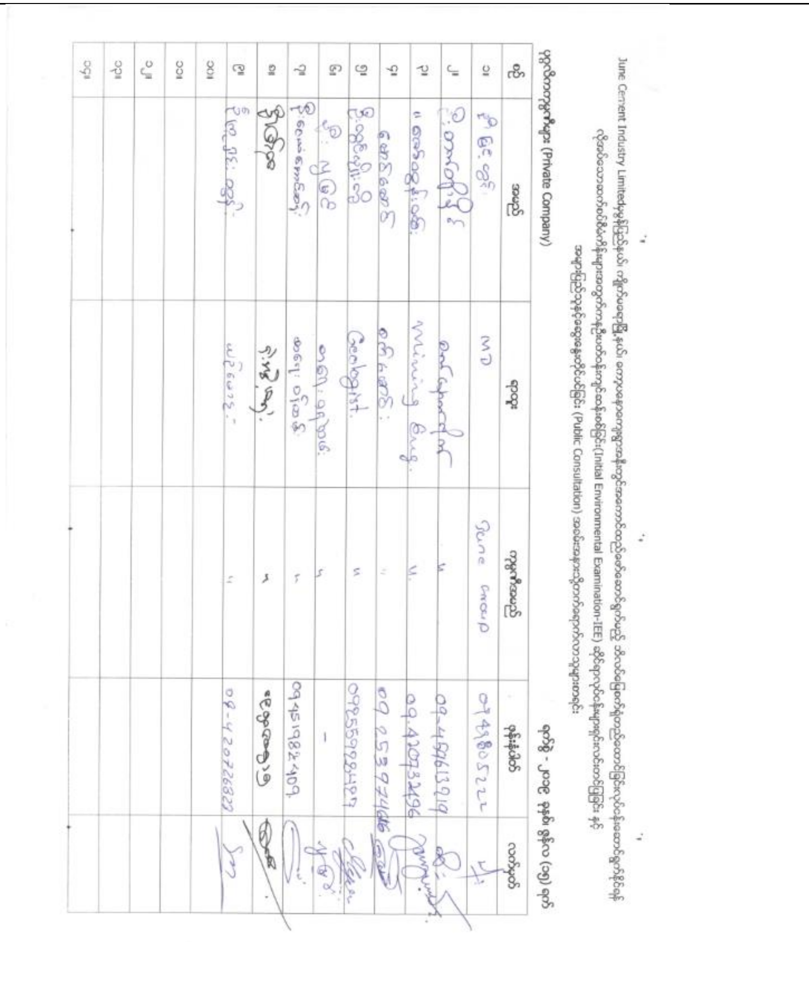

နိဂုံး
guard


အကြံပြုချက်
guard


guard
ကျေးဇူးတင်ပါသည်။


guard
Group%20Public%20Consultation%20Powerpoint

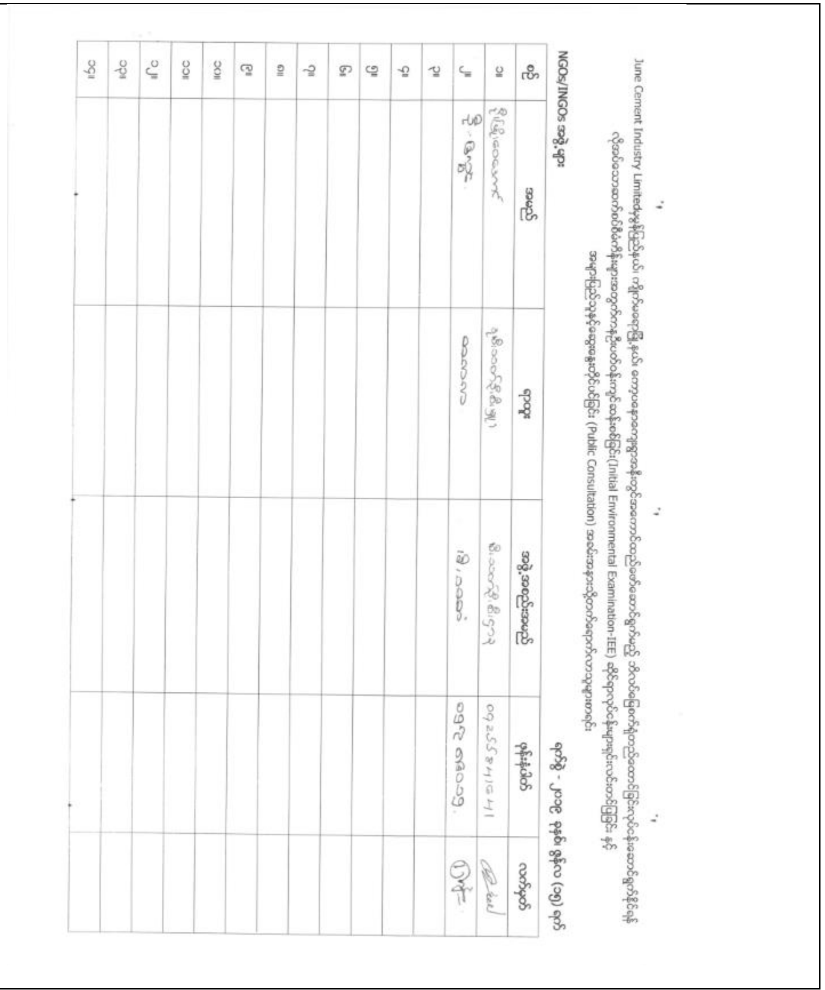
Appendix 7 Attendence Lists


June Cement Industry Limited ... (Initial Environmental Examination-IEE) ... (Public Consultation) ...

ပုဂ္ဂလိကကုမ္ပဏီများ (Private Company)

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ရာထူး	ကုမ္ပဏီအမည်	ဖုန်းနံပါတ်	လက်မှတ်
၁။	[illegible]	MD	June Group	0943805222	[illegible]
၂။	[illegible]	[illegible]	〃	09-454613919	[illegible]
၃။	[illegible]	Mining Eng.	〃	09.420732496	[illegible]
၄။	[illegible]	[illegible]	〃	09 253974646	[illegible]
၅။	[illegible]	Geologist.	〃	09255998427	[illegible]
၆။	[illegible]	[illegible]	〃	–	[illegible]
၇။	[illegible]	[illegible]	〃	09451982409	[illegible]
၈။	[illegible]	[illegible]	〃	[illegible]	[illegible]
၉။	[illegible]	[illegible]	〃	09-420726822	[illegible]
၁၀။					
၁၁။					
၁၂။					
၁၃။					
၁၄။					


June Cement Industry Limited ... (Initial Environmental Examination-IEE) ... (Public Consultation) ...

NGOs/INGOs အဖွဲ့များ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ရာထူး	အဖွဲ့အစည်းအမည်	ဖုန်းနံပါတ်	လက်မှတ်
၁။	[illegible]	[illegible]	[illegible]	09255841641	[illegible]
၂။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
၃။					
၄။					
၅။					
၆။					
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					
၁၃။					
၁၄။					

June Cement Industry Limited မှ မွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော့ကျေးရွာအနီးတွင် အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သော ဆက်စပ်စီမံကိန်းများအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများ ရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အစမ်းနားသို့တက် ရောက်လာသူများစာရင်း

လွှတ်တော်

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	မှတ်ပုံတင်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
၂။	[illegible]	[illegible]	[illegible]	NLD - [illegible]	[illegible]
၃။	[illegible]	[illegible]	[illegible]	[illegible]	
၄။	[illegible]			[illegible]	[illegible]
၅။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 09-44213 9892
၆။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
၇။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
၈။	[illegible]	[illegible]	[illegible]	[illegible] (NLD)	[illegible]
၉။	[illegible]	[illegible]	[illegible]	[illegible] (NLD)	[illegible]
၁၀။	[illegible]	[illegible]	[illegible]	[illegible] (NLD)	[illegible]
၁၁။	[illegible]	[illegible]	[illegible]	[illegible] (NLD)	[illegible]
၁၂။					

June Cement Industry Limited မှ မွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော့ကျေးရွာအနီးတွင် အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သော ဆက်စပ်စီမံကိန်းများအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများ ရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အစမ်းနားသို့တက် ရောက်လာသူများစာရင်း

သတင်းမီဒီယာများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	မှတ်ပုံတင်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
၂။	[illegible]	[illegible]	MLM	Field Reporter	[illegible]
၃။	[illegible]	[illegible]	MLM	Reporter	[illegible] 09-255808027
၄။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 09771578182
၅။	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 09-7744 77864
၆။					
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော်ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

အစိုးရဌာနဆိုင်ရာအဖွဲ့အစည်းများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဖွန်လ (၁၅) ရက်

စဉ်	အမည်	ရာထူး	ဌာန	ဖုန်းနံပါတ်	လက်မှတ်
၁။	[illegible]	[illegible]	ECD	09-420770477	
၂။	[illegible]	[illegible]	[illegible]	09-45532109၊	
၃။	[illegible]	[illegible]	[illegible]	09-442139392	
၄။	[illegible]	[illegible]	[illegible]	09-442099909	
၅။	[illegible]	[illegible]	[illegible]	09-427384837	
၆။	[illegible]	[illegible]	[illegible]	09-449253598	
၇။	[illegible]	[illegible]	[illegible] SIC	09-694207755	
၈။	[illegible]	HA	[illegible]	09[illegible]	
၉။	[illegible]	[illegible]	[illegible]	[illegible]	
၁၀။	[illegible]	[illegible]	[illegible]	09-401887518	
၁၁။	[illegible]	[illegible]	[illegible]	09-401582120	
၁၂။	[illegible]	[illegible]	[illegible]		
၁၃။					
၁၄။					

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော်ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

အစိုးရဌာနဆိုင်ရာအဖွဲ့အစည်းများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဖွန်လ (၁၅) ရက်

စဉ်	အမည်	ရာထူး	ဌာန	ဖုန်းနံပါတ်	လက်မှတ်
၁။	[illegible]	[illegible]	[illegible]	0925639G832	
၂။	[illegible]	L4V. [illegible]	[illegible] RHC	09791495357	
၃။	[illegible]	[illegible]	[illegible]		
၄။					
၅။	[illegible]	[illegible]	[illegible]	09-425344039	
၆။	[illegible]	[illegible]	[illegible]	09-42527030	
၇။	[illegible]	[illegible]	[illegible]	09477488065	
၈။	[illegible]	[illegible]	[illegible]	09-452455576	
၉။	[illegible]	[illegible]	[illegible]	[illegible]	
၁၀။	[illegible]	[illegible]		09-495532087	
၁၁။	[illegible]	[illegible]	—	09-423894540	
၁၂။	[illegible]	—	[illegible]	—	
၁၃။	[illegible]	[illegible]	[illegible]	09-4598207727	
၁၄။					

June Cement Industry Ltd;

IEE's Public Consultation သို့ တက်ရောက်လာမည့်လူဦးရေးစာရင်း

စဉ်	အမည်	လိပ်စာ	လက်မှတ်
၁။	ဦး ခိုင် မြဝင်း	[illegible]	[signature]
၂။	〃 စေး နွယ်	〃	[signature]
၃။	〃 အောင်သိန်း	ကျော့မြည်	[signature]
၄။	〃 အောင်ဝင်း	[illegible]	[signature]
၅။	〃 မြအောင်	〃	[signature]
၆။	〃 ထွန်း	〃	[signature]
၇။	〃 သိန်းထွန်း	ကျော့မြည်	[signature]
၈	〃 [illegible]	[illegible]	[signature]
၉			
၁၀			
၁			
၂			
၃			
၄			
၅			
၆			
၇			
၈			
၉			
၂၀			
၁			
၂			
၃			
၄			

June Cement Industry Limited [illegible] (Initial Environmental Examination-IEE) [illegible] (Public Consultation) [illegible]

စဉ်	အမည်	[illegible]	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁	[illegible]	09425335205	[illegible]	[illegible]	[signature]
၂	[illegible]	—	[illegible]	[illegible]	[signature]
၃	[illegible]	—	〃	[illegible]	[signature]
၄	[illegible]	09-7556 74741	〃	[illegible]	[signature]
၅	[illegible]	—	[illegible]	[illegible]	[signature]
၆					
၇					
၈					
၉					
၁၀					
၁၁					
၁၂					
၁၃					
၁၄					
၁၅					

June Cement Industry Limitedမှမူနှိပ်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနောကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘီလပ်မြေက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန်
လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့်
အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖရေသစ်ပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ဖုန်းနံပါတ်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။		-			
၂။		-			
၃။		-			
၄။		-			
၅။		-			
၆။		-			
၇။		-			
၈။		-			
၉။		-			
၁၀။					
၁၁။					
၁၂။		-			
၁၃။					
၁၄။		-			

June Cement Industry Limitedမှမူနှိပ်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနောကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘီလပ်မြေက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန်
လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့်
အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖရေသစ်ပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ဖုန်းနံပါတ်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။		-			
၂။		09692370846			
၃။		09961943340			
၄။		09420760234			
၅။		09.79[illegible]1992959			
၆။					
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					
၁၃။		09-771044831			

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော‌ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖဒေသခံပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ဖုန်းနံပါတ်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	—	[illegible]	[illegible]	[illegible]
၂။	[illegible]	—	"	[illegible]	X
၃။	[illegible]	—	"	[illegible]	X
၄။	[illegible]	09-797488195	[illegible]	[illegible]	[illegible]
၅။	[illegible]	09-425299813	"	[illegible]	[illegible]
၆။					
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					
၁၃။					
၁၄။					

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော‌ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖဒေသခံပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	ဖုန်းနံပါတ်	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	—	[illegible]	[illegible]	[illegible]
၂။	[illegible]	—	[illegible]	"	—
၃။	[illegible]	—	[illegible]	"	[illegible]
၄။	[illegible]	—	"	[illegible]	[illegible]
၅။	[illegible]	—	"	[illegible]	[illegible]
၆။	[illegible]	[illegible] –	[illegible]	[illegible]	[illegible]
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					
၁၃။					
၁၄။					

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော့ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖဒေသခံပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	[illegible]	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	–	[illegible]	[illegible]	[illegible]
၂။	[illegible]	–	။	[illegible]	[illegible]
၃။	[illegible]	–	[illegible]	[illegible]	[illegible]
၄။	[illegible]	–	[illegible]	[illegible]	[illegible]
၅။	[illegible]	–	[illegible]	[illegible]	[illegible]
၆။	[illegible]	–	။	[illegible]	[illegible]
၇။	[illegible]	–	။	[illegible]	[illegible]
၈။	[illegible]	–	။	[illegible]	[illegible]
၉။	[illegible]	–	[illegible]	[illegible]	[illegible]
၁၀။	[illegible]	–	[illegible]	[illegible]	[illegible]
၁၁။	[illegible]	09-796024877	[illegible]	[illegible]	[illegible]
၁၂။	[illegible]	0978114 3673	[illegible]	[illegible]	[illegible]
၁၃။	[illegible]	09425268861	[illegible]	[illegible]	[illegible]
၁၄။	[illegible]	–	[illegible]	[illegible]	[illegible]

June Cement Industry Limitedမှမွန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနော့ကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန် လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့် အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အခမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖဒေသခံပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဇွန်လ (၁၅) ရက်

စဉ်	အမည်	[illegible]	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။	[illegible]	01-8850	[illegible]	[illegible]	[illegible]
၂။	[illegible]	09-425357489	[illegible]	[illegible]	[illegible]
၃။	[illegible]		[illegible]	[illegible]	[illegible]
၄။	[illegible]	09-25958294	[illegible]	[illegible]	[illegible]
၅။	[illegible]		[illegible]	[illegible]	[illegible]
၆။	[illegible]	09 779282547	[illegible]	[illegible]	[illegible]
၇။	[illegible]		[illegible]	[illegible]	[illegible]
၈။	[illegible]		[illegible]	[illegible]	[illegible]
၉။	[illegible]		[illegible]	[illegible]	[illegible]
၁၀။	[illegible]		[illegible]	[illegible]	[illegible]
၁၁။	[illegible]		[illegible]	[illegible]	[illegible]
၁၂။	[illegible]		[illegible]	[illegible]	[illegible]
၁၃။	[illegible]		[illegible]	[illegible]	[illegible]
၁၄။	[illegible]		[illegible]	[illegible]	[illegible]

June Cement Industry Limitedမှမန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနောကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန်
လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့်
အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အစမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖအသေးစိတ်ပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဖွန်လ (၁၅) ရက်

စဉ်	အမည်	လိပ်စာ	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။					
၂။					
၃။					
၄။					
၅။					
၆။					
၇။					
၈။					
၉။					
၁၀။					
၁၁။					
၁၂။					
၁၃။					
၁၄။					

June Cement Industry Limitedမှမန်ပြည်နယ်၊ ကျိုက်မရောမြို့နယ်၊ ကော့ပနောကျေးရွာအနီးတွင်အကောင်ထည်ဖော်ဆောင်ရွက်မည့် ဘိလပ်မြေစက်ရုံတည်ထောင်ခြင်းလုပ်ငန်းဆောင်ရွက်နိုင်ရန်
လိုအပ်သောဆက်စပ်စီမံကိန်းများအတွက်ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(Initial Environmental Examination-IEE) ဆိုင်ရာလုပ်ငန်းများရှင်းလင်းတင်ပြခြင်း နှင့်
အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်း (Public Consultation) အစမ်းအနားသို့တက်ရောက်လာသူများစာရင်း

ရပ်မိရပ်ဖအသေးစိတ်ပြည်သူများ

ရက်စွဲ - ၂၀၁၉ ခုနှစ်၊ ဖွန်လ (၁၅) ရက်

စဉ်	အမည်	လိပ်စာ	နေရပ်လိပ်စာ	အလုပ်အကိုင်	လက်မှတ်
၁။		–			
၂။		–			X
၃။		–			
၄။		09771196412			
၅။					
၆။					
၇။					
၈။		09782235272			
၉။		–			
၁၀။		–			
၁၁။					
၁၂။					
၁၃။					
၁၄။					

Appendix 8 Corporate Social Responsibility

၂၀၁၇-၂၀၁၈ ပညာသင်နှစ် ကော့ပနောကျေးရွာ အခြေခံပညာအထက်တန်းကျောင်း (ခွဲ)
ပညာရည်ချွန်ဆုပေးပွဲချီးမြှင့်ခြင်း - ၁,၀၉၅,၀၀၀/-

ဘုန်းတော်ကြီးကျောင်းများအတွက် ကထိန်းသယ်နှင်းလှူဒါန်းခြင်း။
(၂,၄၅၀,၀၀၀/-)

ဘုန်းတော်ကြီးကျောင်းများအတွက် ဝါဆိုသင်္ကန်းလှူဒါန်းခြင်း
(၁,၂၀၀,၀၀၀/-)

(၃၀. ၃. ၂၀၁၇)

ကျိုက်မရောမြို့နယ် အခမဲ့ကုသိုလ်ဖြစ် ဆေးကုခန်း
လစဉ်အလှူငွေနှင့် မျက်စိခွဲစိတ်ခြင်း အလှူငွေ
(၂,၉၀၀,၀၀၀/-)

ကော့ပနော၊ ကော့ဒွန်း၊ ဝဲငဲ့ကျေးရွာများရှိ သက်ကြီးပုဂ္ဂိုလ်
(၉၀)ဦးအတွက် အလှူငွေ (၁,၈၀၀,၀၀၀/-)

ကျိုက်မရောမြို့နယ် မယ်ကရိုကျေးရွာ ရေဘေးအတွက် လှူဒါန်းခြင်း
ရေသန့် (၂၀၉)ဗူး၊ ဆန် (၁၀) အိတ် (၄၄၉,၄၄၀/-)

(၅.၈.၂၀၁၈)

ကျိုက်မရောမြို့နယ်၊ မယ်ကရိုကျေးရွာ ရေဘေးအတွက် လှူဒါန်းခြင်း
ရေသန့် (၁၈၂၅)ဘူး ၊ ခေါက်ဆွဲခြောက် (၁၆၂၀) ထုပ်၊
ဆန် (၃) အိတ်၊ ဆီ (၃) ဘူး
(၇၄၁,၂၀၀/-)

Appendix 9 Sediment Results (1)

United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel. 0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

ANALYSIS REPORT

PROJECT NAME	: CONSTRUCTION OF JETTY PROJECT		
CUSTOMER NAME	: E-GUARD ENVIRONMENTAL SERVICE CO., LTD		
ADDRESS	: NO.11, AIRPORT AVENUE ROAD YANGON MYANMAR		
CONTACT INFORMATION	: TEL : +97 9700 5170 e-mail : Chue@guardservies.com		
SAMPLING SOURCE	: -		
SAMPLE TYPE	: SEDIMENT	**RECEIVED DATE**	: JUNE 27, 2019
SAMPLING DATE	: JUNE 16, 2019	**ANALYTICAL DATE**	: JUNE 27 - JULY 15, 2019
SAMPLING TIME	: -	**REPORT NO.**	: 2019-U39342
SAMPLING METHOD	: -	**WORK NO.**	: 2019-004613
SAMPLING BY	: CUSTOMER	**ANALYSIS NO.**	: T19AI861-0001
ANALYZED BY	: MISS CHOMTHANAN APHIPATPAPHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			JETTY T19AI861-0001	
NITROGEN	% w/w	AOAC OFFICIAL METHOD 955.04	ND	0.05
TOTAL ORGANIC CARBON	mg/kg (dry weight)	HIGH-TEMPERATURE COMBUSTION METHOD (SM: 5310 B)	6,749	-
FAT OIL AND GREASE	mg/kg (dry weight)	SOXHLET EXTRACTION METHOD (SM: 5520 E)	ND	100
PCBs	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8082 A)	ND	0.10
METALS				
ARSENIC (As)	mg/kg (dry weight)	ACID DIGESTION AND HYDRIDE GENERATION AAS METHOD (U.S.EPA 1996:3050 B AND 1992:7061 A)	66.3	0.100
CADMIUM (Cd)	mg/kg (dry weight)	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (U.S.EPA 1996:3050 B AND 2007:7000 B)	ND	0.300
MERCURY (Hg)	mg/kg (dry weight)	ACID DIGESTION AND COLD VAPOUR AAS METHOD (U.S.EPA 2007:7471 B)	ND	0.100
CHROMIUM (Cr)	mg/kg (dry weight)	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (U.S.EPA 1996:3050 B AND 2007:7000 B)	31.8	0.500
COPPER (Cu)	mg/kg (dry weight)	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (U.S.EPA 1996:3050 B AND 2007:7000 B)	35.4	0.300
LEAD (Pb)	mg/kg (dry weight)	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (U.S.EPA 1996:3050 B AND 2007:7000 B)	54.5	1.55
NICKEL (Ni)	mg/kg (dry weight)	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (U.S.EPA 1996:3050 B AND 2007:7000 B)	65.0	1.00
PHOSPHORUS (P)	mg/kg (dry weight)	ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (U.S.EPA 1996:3050 B AND 2018:6010 D)	466	0.250
ORGANOCHLORINE PESTICIDES				
α-BHC	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081 B)	ND	0.001
β-BHC	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081 B)	ND	0.001
δ-BHC	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081 B)	ND	0.001

Sediment Results (2)

United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel. 0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			JETTY T19AI861-0001	
γ-BHC	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
HEPTACHLOR	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ALDRIN	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
HEPTACHLOR EPOXIDE	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ENDOSULFAN I	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
p,p-DDE	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
DIELDRIN	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ENDRIN	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ENDOSULFAN II	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
p,p-DDD	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ENDRIN ALDEHYDE	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
ENDOSULFAN SULFATE	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
p,p-DDT	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
METHOXYCHLOR	mg/kg (dry weight)	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (ECD) METHOD (U.S. EPA 2007:3550 C AND 8081B)	ND	0.001
SAMPLE CONDITION			BROWN SEDIMENT	

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE

*United Analyst Engineering Consultant Co., Ltd is Sub-contractor of REM-UAE Laboratory and Consultant Co., Ltd

Majuwan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

JULY 24, 2019