PLUS WORLD COMPANY LIMITED

ENVIRONMENTAL IMPACT ASSESSMENT

Purified Drinking Water (Wave Plus) Factory

Prepared by:

MYANWEI
ENVIRONMENTAL SOLUTIONS

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED

3/22/2023

MYANWEI
ENVIRONMENTAL SOLUTIONS

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22. 3. 2023

Subject; Commitment of Environmental Impact Assessment (EIA) report

We refer to the captioned EIA report, which has been prepared and finalized by MYANWEI Environmental Solutions Company Limited in compliance with EIA procedure (December 2015) and other relevant laws and rules. We believe, to the best of our knowledge at that time of writhing,

- The EIA report is accurate and complete
- The EIA report has been prepared in strict compliance with all applicable laws, rules, regulations and procedures in force

We hereby undertake that; Plus World Company Limited in respect of the Manufacturing of Purified Drinking Water in Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar will at all times comply fully with:

- Any and all commitments and obligations in the EIA report
- Any and all plans and the various components thereof, including impact avoidance, mitigation and remediation

PLUS WORLD CO., LTD.

22. 3. 2023

Subject: Commitment of Plus World Company Limited

We refer to the captioned EIA report, which has been prepared by Myanwei Environmental Solutions Co., Ltd. (Third Party Consultant) in compliance with EIA procedure (2015) and other related laws/rules. We believe, to the best of our knowledge at the time of writing, that; The EIA report has been prepared in strict compliance with all applicable laws, rules, regulations and procedures in force.

Plus World Co., Ltd. will at all times comply fully with all commitment and obligations in the EIA report.

Plus World Company Limited

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AQG Air Quality Guideline

AIDS acquired immune deficiency syndrome

BOD Biological Oxygen Demand

COD Chemical Oxygen Demand

CSR Corporate Social Responsibility

CSRP Corporate Social Responsibility Plan

EIA Environmental Impact Assessment

ECD Environmental Conservation Department

EMS Environmental Management System

ECC Environmental Compliance Certificate

EMP Environmental Management Plan

IEE Initial Environmental Examination

IEC Independent Environmental Consultant

IFC International Finance Corporation

kVA Kilo Volt Ampere

kW Kilowatt

MSL Mean Sea Level

MONREC Ministry of Natural Resources and Environmental Conservation

NEQG National Environmental Quality (Emission) Guideline

OSH Occupational Safety and Health

O&M Operation and Management

PP Project Proponent

PDCA Plan-Do-Check-Act

SA Social Accountability

TGC Team Group of Companies

TB Tuberculosis

TSS Total Suspended Solid

WHO World Health Organization

°C Celsius

dB decibels

µg micro gram

lux luminous

m^3 cubic meter

PM Particulate Matter

PP Particulate

SO_2 Sulfur dioxide

NO_2 Nitrogen dioxide

အစီရင်ခံစာအကျဉ်းချုပ်

နိဒါန်း

Plus World ကုမ္ပဏီလီမိတက်သည် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းလုပ်ထုံးလုပ်နည်း (၂၀၁၅) အရ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာကို ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းအတွက် ဆောင်ရွက်ခဲ့ပါသည်။ မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု ကော်မရှင်မှ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းအစီရင်ခံစာကိုဆောင်ရွက်ရန် စာအမှတ် No.001/ MIC (OSS)/01(13/2020) ဖြင့် ၂၈ ရက် ဖေဖော်ဝါရီလ ၂၀၂၀ ခုနှစ်တွင် ထုတ်ပြန်ခဲ့ပါသည်။ စီမံကိန်းရင်းနှီးမြှုပ်နှံမှု ကာလသည် နှစ် (၃၀) ဖြစ်၍ တည်ဆောက်ရေးကာလသည် တစ်နှစ်ကြာမြင့်မည်ဖြစ်ပါသည်။ Plus World ကုမ္ပဏီလီမိတက် ၏ရင်းနှီးမြှုပ်နှံမှုသည် ၁၀၀ ရာခိုင်နှုန်း နိုင်ငံသား ရင်းနှီးမြှုပ်နှံမှုဖြစ်၍ မြန်မာ ကျပ်ငွေ (၁၀၀,၀၀၀) အား ရင်းနှီးမြှုပ်နှံခဲ့ပါသည်။ စက်ရုံသည် မြေတိုင်းအမှတ်(၅၃၂/ဘီ)၊ အမှတ်၊ ၄၁၀-ဘီ/၇၅(က)၊ ပုလဲအိမ်ရာ၊ စကာဝါလမ်း၊ မဂ်လာဒုံ မြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး တွင် တည်ရှိ၍ စုစုပေါင်းမြေဧရိယာမှာ ၃.၉၆၈ ဧက ဖြစ်ပါသည်။ Plus World ကုမ္ပဏီလီမိတက်သည် နယ်ပယ်အတိုင်းအတာ သတ်မှတ်ခြင်း အစီရင်ခံစာကို သယံဇာတနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန မှ ချမှတ်ထားသော ဥပဒေနှင့် နည်းဥပဒေအတိုင်းဆောင်ရွက်ပြီးစီးခဲ့၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာကို စာအမှတ် YGN/EIA/5(2) (2062/2022) ဖြင့် ၂ ရက် သြဂုတ်လ ၂၀၂၂ ခုနှစ်တွင် အတည်ပြုစာ ရရှိခဲ့ပြီးဖြစ်ပါသည်။

ဆောင်ရွက်မည့် လုပ်ငန်းအမျိုးအစား	Manufacturing of Purified Drinking Water
ကုမ္ပဏီမှတ်ပုံတင်အမှတ်	၁၀၃၂၉၆၂၇၇ (ဖ/၁၀/၂၀၁၆)
ရင်းနှီးမြှုပ်နှံမှု အမျိုးအစား	၁၀၀ ရာခိုင်နှုန်း (နိုင်ငံသား)
ရှယ်ယာ အမျိုးအစား	သာမန် အစုရှယ်ယာ
မြေဧရိယာ	၃.၉၆၈ ဧက
ဆက်သွယ်ရမည့်ပုဂ္ဂိုလ်	ဦးစိုးမိုးလှိုင်
ဆက်သွယ်ရန်ဖုန်း	၀၉-၄၃၀၃၃၁၃၀
ဆက်သွယ်ရန်အီးမေးလ်	soemoehlaing.plusworld@gmail.com

ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းအစီရင်ခံစာကို Myanwei Environmental Solutions ကုမ္ပဏီလီမိတက်မှ ဆောင်ရွက်ခဲ့ပါသည်။ စီမံကိန်းဆောက်လုပ်ခြင်း၊ စီမံကိန်းလည်ပတ်ခြင်း နှင့် စီမံကိန်းဖျက်သိမ်းခြင်းအဆင့်များတွင် ဖြစ်နိုင်ချေရှိသော အကျိုးသက်ရောက်မှုများ သတ်မှတ်ခြင်းများကို နယ်ပယ်တိုင်းတာသတ်မှတ်ခြင်းအစီရင်ခံစာတွင် ဆောင်ရွက်ခဲ့ပါသည်။ စီမံကိန်းဆောက်လုပ်ခြင်း၊ စီမံကိန်းလည်ပတ်ခြင်း နှင့် စီမံကိန်းဖျက်သိမ်းခြင်း အဆင့်များတွင် ဖြစ်နိုင်ချေရှိသော ပတ်ဝန်းကျင်အကျိုးသက်ရောက်မှုပမာဏများကို သင့်တော်သောလျှော့ချခြင်းများဖြင့်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ဖော်ပြထားပါသည်။

မူဝါဒ၊ ဥပဒေ နှင့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်အကျဉ်းချုပ်

ဤကဏ္ဍ တွင်မြန်မာနိုင်ငံ ဥပဒေ၊ နည်းဥပဒေ နှင့် အဖွဲ့အစည်းဆိုင်မူဘောင်၊ နိုင်ငံတကာ စံချိန်၊ စံညွှန်းများ၊ အဆိုပြုစီမံကိန်းနှင့် သက်ဆိုင်သော ပတ်ဝန်းကျင်နှင့် လူမှုစီးပွါး ကဏ္ဍများကို ဖော်ပြပါမည်။ အဆိုပြုစီမံကိန်းဖော်ဆောင်ရာတွင် ချမှတ်ထားသော ဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများ၊ နိုင်ငံတကာ စံချိန်စံညွှန်းများနှင့် အညီလုပ်ဆောင်သွားမည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာနသည် သယံဇာတနှင့် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဝန်ကြီးဌာန အဖြစ်သို့ ၂၀၁၈ ဧပြီတွင် ပြောင်းလဲပြင်ဆင်၍ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု ကိစ္စရပ်များကိုဆောင်ရွက်လျက်ရှိပါသည်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (Environmental Conservation Department) သည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေ ဥပဒေ (၂၀၁၂) အရ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းလုပ်ငန်းစဉ်များကို စီစဉ်ဆောင်ရွက်ပါသည်။

အောက်ဖော်ပြပါ ပတ်ဝန်းကျင်ထိခိုက်မှု ကာကွယ်ခြင်းနှင့် သက်ဆိုင်သော အမျိုးသား မူဝါဒ၊ ဥပဒေ၊ နည်းဥပဒေများသည် အဆိုပြုစီမံကိန်းနှင့် ဆက်စပ်လျက်ရှိသော ဥပဒေများနှင့် စံချိန်စံညွှန်းများကို အဆိုပြုစီမံကိန်းမှ လိုက်နာဆောင်ရွက်သွားမည်ဖြစ်သည်။ အဆိုပြုစီမံကိန်း၏ထိခိုက်မှု ဆန်းစစ်ခြင်းကိုလည်း ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဥပဒေ၊ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး နည်းဥပဒေများနှင့် သက်ဆိုင်ရာ ချမှတ်ထားသော စည်းမျဉ်းစည်းကမ်းများ၊ နိုင်ငံတကာ စံချိန်၊ စံညွှန်းများနှင့် အညီ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာကို ပြုစုရေးသားသွားပါမည်။

စီမံကိန်းအကြောင်းအရာဖော်ပြချက်

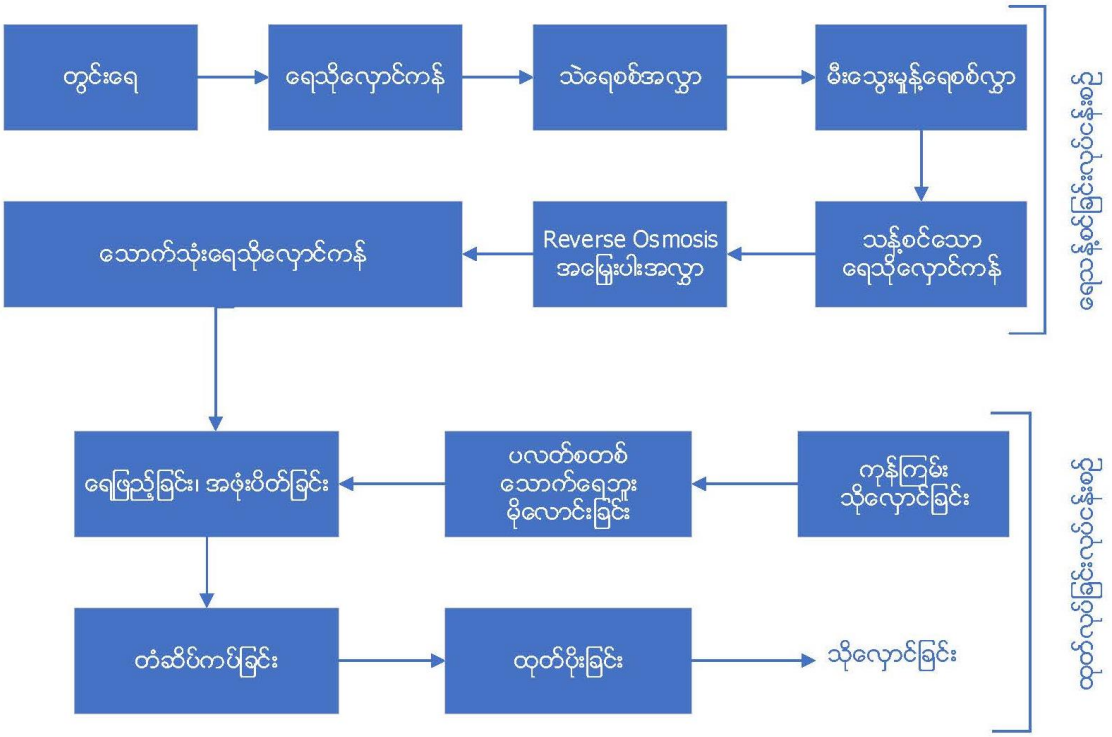
စီမံကိန်း ဧရိယာသည် မြေတိုင်းအမှတ်(၅၃၂/ဘီ)၊ အမှတ်၊ ၄၁၀-ဘီ/၇၅(က)၊ ပုလဲအိမ်ရာ၊ စကာဝါလမ်း၊ မဂ်လာဒုံ မြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး တွင် တည်ရှိပြီး မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၂.၄၇'' နှင့် အရှေ့လောင်ဂျီတွဒ် ၉၆°၈'၃၉.၂၅'' တွင် တည်ရှိ၍ စုစုပေါင်း မြေဧရိယာမှာ ၃.၉၆၈ ဧကဖြစ်ပါသည်။ စီမံကိန်းသည် သောက်ရေသန့် ထုတ်လုပ်သော စက်ရုံဖြစ်ပါသည်။ စီမံကိန်းသည် ဇန်နဝါရီလ ၂၀ ရက်နေ့ ၂၀၂၀ ခုနှစ်တွင် ဆောက်လုပ်ရေးလုပ်ငန်းများ စတင်ဆောက်လုပ်ခဲ့ပါသည်။ ဆောက်လုပ်ရေးအမျိုးအစားသည် steel structure R/C အမျိုးစားဖြစ်ပါသည်။ စီမံကိန်းအတွင်းရှိ အဓိကအဆောက်အအုံတွင် ရေသန့်စင်စက် အဆောက်အဦ၊ ကုန်ကြမ်းကုန်ချော ထားရှိသည့် အဆောက်အအုံနှင့် ဝန်ထမ်းအဆောင်များပါဝင်ပါသည်။ အဓိက အဆောက်အအုံဝန်း၏အကျယ်မှာ ၄၁၅'၈'' x ၁၃၄'၆'' ခန့်ရှိပါသည်။ စီမံကိန်း မြေဧရိယာအား နှစ် ၃၀ ခန့်ငှားရမ်းဆောင်ရွက်ထားပါသည်။ ကွင်းဆင်းစစ်ဆေးဆောင်ရွက်သည့် မတ်လ ၄ရက် ၂၀၂၀ ခုနှစ် တွင် အဆောက်အဦး လေးခုသည် ပြီးလုနီးပါးဖြစ်နေပါသည်။ တည်ဆောက်ရေးကာလသည် ရှစ်လခန့် ကြာမြင့်၍ ဖေဖော်ဝါရီလ ၂၀၂၁ ခုနှစ်တွင် ပြီးဆုံးခဲ့ပါသည်။ ဆောက်လုပ်ရေးလုပ်ငန်းများ တည်ဆောက်ချိန်တွင် လုပ်သား ၈၇ ယောက် ဖြင့် ဆောင်ရွက်ခဲ့ပါသည်။

စီမံကိန်းဧရိယာတွင် တည်ဆောက်သည့်အဆောက်အဦများ

စဉ်	အဆောက်အဦးအမျိုးအစားများ	အရေအတွက်	မှတ်ချက်
၁။	စက်ရုံ အဓိကအဆောက်အဦ	၁	၁ ထပ်အဆောက်အဦ
၂။	အိပ်ဆောင်အဆောက်အဦ	၁	၄ ထပ်အဆောက်အဦ
၃။	ကုန်သိုလှောင်ရုံ	၁	၁ ထပ်အဆောက်အဦ
၄။	ရေသန့်စင်ခန်း	၁	၁ထပ်အဆောက်အဦ

စီမံကိန်း သည် ရေသန့်ထုတ်လုပ်ခြင်းအတွက် ရေသန့်ဘူး ထုတ်လုပ်သည့်စက်များဖြင့် ပြုလုပ်ပါသည်။ ထုတ်လုပ်သည့်ရေသန့်ဘူးများမှာ (၁-လီတာ, ၀.၆-လီတာ, ၀.၃-လီတာ, နှင့် ၂၀-လီတာ) အမျိုးအစားများ ထုတ်လုပ်ပါသည်။ ရေဘူးဖြည့်သည့်စက်ဖြင့် ရေဘူးဆေးခြင်း၊ ရေဖြည့်ခြင်း၊ အဖုံးဖုံးခြင်းစသည့်လုပ်ငန်းများကို ရေဘူးဖြည့်သည့်စက်ဖြင့် ပြုလုပ်ပါသည်။ထို့နောက် ရေဘူး များကို တံဆိပ်ကပ်သည့် စက်များဖြင့် ကပ်ပါသည်။ ထို့နောက် ရေဘူးများကို စနစ်တကျထုတ်ပိုး၍ ကုန်သိုလှောင်ရုံတွင် စနစ်တကျ သိမ်းထားပါသည်။

ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းစဉ်တွင် ရေသန့် ရရှိရန်အတွက် ရေထဲတွင် ပါဝင်သော အညစ်အကြေး အနည်အနှစ်များကို သန့်စင်ရန် Reverse Osmosis (R/O) ရေသန့်စင်ခြင်းစနစ် ဖြင့် စနစ်တကျ ဆောင်ရွက်၍ ရေသန့် ရရှိရန် ဆောင်ရွက်ပါသည်။



ပုံ ရေသန့်ထုတ်လုပ်ပုံအဆင့်ဆင့်

Plus World ကုမ္ပဏီလီမိတက်သည် သောက်ရေသန့် ထုတ်လုပ်သော စက်ရုံဖြစ်ပါသည်။ စက်ထုတ်လုပ်နိုင်သည့် ပမာဏသည် ၂၄၀၀ဘီပီအိပ်(စ်) ရှိ၍ လုပ်ငန်းလုပ်သည့် အချိန်မှာ ၁၆ နာရီ ဖြစ်၍

အလုပ်ချိန်ကို နှစ်ပိုင်းခွဲထားပါသည်။ စက်ရုံသည် တစ်လလျှင် ၂၆ ရက်လုပ်၍အလုပ်လုပ်ရက်ရှိ၍ ရေသန့်ဘူး ထုတ်လုပ်သည့်ပမာဏမှာ အလုပ်ချိန် တစ်ပိုင်းလျှင် ၁၇၂၈၀၀ ပုလင်းရှိပါသည်။ Wave Plus ရေသန့်ဘူးများကို ပြည်တွင်းတွင် ဖြန့်ဖြူးရောင်းချပါသည်။

စဉ်	အမျိုးအစား	ပထမနှစ်ထုတ်လုပ်မှု ပမာဏ	ဒုတိယနှစ် ထုတ်လုပ်မှု ပမာဏ	တတိယနှစ်ထုတ်လုပ်မှု ပမာဏ
၁	၁ လီတာ	၃၆,၈၆၄,၀၀၀	၄၄,၂၃၆,၈၀၀	၅၃,၀၈၄,၁၆၀
၂	၀.၆ လီတာ	၄၆,၀၈၀,၀၀၀	၅၅,၂၉၆,၀၀၀	၆၆,၃၅၅,၂၀၀
၃	၀.၃ လီတာ	၃၆,၈၆၄,၀၀၀	၄၄,၂၃၆,၈၀၀	၅၃,၀၈၄,၁၆၀

လျှပ်စစ်ဓါတ်အားပေး ရရှိရေးအတွက် ထရန်စဖော်မာ ၁၅၀၀ ကေဗွီအေ နှင့် ၃၁၅ ကေဗွီအေ ကို စက်ရုံဝန်းအတွင်း တွင် တည်ဆောက်၍ ရန်ကုန်လျှပ်စစ်ဓါတ်အားပေး ကော်မရှင်းမှ ရယူ အသုံးပြုပါသည်။ လျှပ်စစ်သုံးစွဲသည့်ပမာဏမှာ တစ်နှစ်လျှင် ၂၈၀၀၀၀၀ KW/hour သုံးစွဲပါသည်။ လျှပ်စစ်မီးပြတ်တောက်လျှင် သုံးစွဲရန် ၅၀၀ ကေဗွီအေ ရှိသော မီးစက်ကို ထားရှိထားပါသည်။ ရေသန့်ထုတ်လုပ်ရန်အတွက် စက်ရုံဝန်းအတွင်းတွင် အဝိစိတွင်း (၆) တွင်းထားရှိ၍ တစ်နာရီလျှင် လီတာ ၃၀၀၀၀ အထိ ထုတ်လုပ်နိုင်ပါသည်။

စက်ရုံမှ ဆောင်ရွက်ထားရှိမှုအခြေအနေ

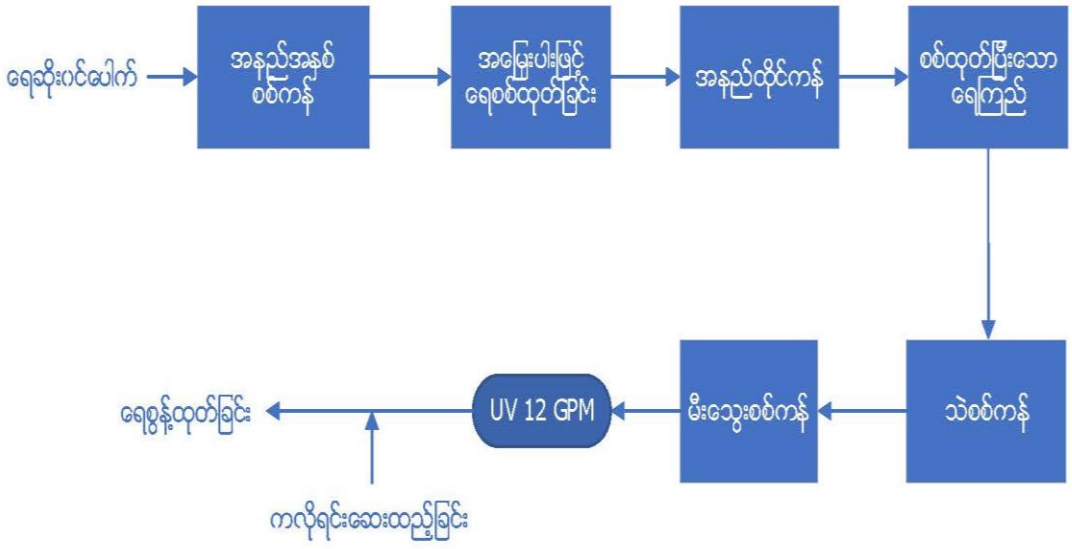
စီမံကိန်း လည်ပတ်ရာတွင် လုပ်သား ၃၆၅ ဦးခန့် ထားရှိရန် လျာထား ထားပါသည်။ ဝန်ထမ်း ၂၈ နေရာတွင် အင်ဂျင်နီယာ၊ စာရင်းကိုင်၊ ကြီးကြပ်ရေးမှူး၊ စီမံ နှင့် လုံခြုံရေးဝန်ထမ်းများပါဝင်ပါသည်။ ထို့ကြောင့် စက်ရုံတည်ရှိခြင်းကြောင့် လုပ်သားအမြောက်အများ သည် အလုပ်အကိုင်အခွင့်အလမ်းများ တိုးပွါးလာမည် ဖြစ်ပါသည်။

စီမံကိန်း ဧရိယာအတွင်းတွင် ရေတွင်း (၆) တွင်းရှိ၍ ၂လက်မ ပိုက်ဖြင့် ဆက်သွယ်၍ ရေများကို ရေစုပ်စက်ဖြင့် ရေရရှိရေးဆောင်ရွက်၍ ရရှိလာသောရေများကို ၃၀၀၀၀ ဂါလံဆန့် ရေကန်နှင့် ၅၀၀၀၀ ဂါလံ ဆန့်ရေကန်တွင် အသီးသီး သိုလှောင်ထားပါသည်။ ရေအသုံးပြုသောပမာဏမှာ တစ်နာရီလျှင် လီတာ ၃၀၀၀၀ ခန့် အသုံးပြုပါသည်။

စက်ရုံ ပတ်ပတ်လည်တွင် ရေစီးရေလာကောင်းရန် ကွန်ကရစ်ရေမြောင်းများပြုလုပ်ထားပါသည်။ မိုးရေ နှင့် ဝန်ထမ်းများအသုံးပြုသော ရေများသည်စက်ရုံရေမြောင်းမှ တဆင့် စက်ရုံဝန်းကျင်ရှိ အနီးအနား ရေမြောင်း သို့စီးဆင်းသွားပါသည်။

ရေဆိုးသန့်စင်စနစ်

စီမံကိန်း လည်ပတ်ချိန်တွင် မိလ္လာမှထွက်ရှိလာသော ရေဆိုးများကို စွန့်ပစ်ခြင်းမပြုလုပ်ပဲ ရေဆိုးများကို ကောင်းစွာ သန့်စင်နိုင်သော Membrane Bioreactor (MBR) စနစ်ကို အသုံးပြု၍ သန့်စင်ပြီးသောရေများကို ရေမြောင်းအတွင်းသို့ စွန့်ပစ်သွားမည်ဖြစ်ပါသည်။ ရေဆိုးသန့်စင်မှု အဆင့်ဆင့် မှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။



မိလ္လာရေဆိုးသန့်စင်သည့်စနစ်

အမှိုက်စွန့်ပစ်မှုအခြေအနေ

စီမံကိန်း ဆောက်လုပ်ချိန်တွင် အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီဖြင့်ချိတ်ဆက်၍ ဆောက်လုပ်ရေးအမှိုက်များကို စနစ်တကျ စွန့်ပစ်ပါသည်။

စီမံကိန်းလည်ပတ်ချိန်တွင် ထွက်ရှိသောအမှိုက်များမှာစာရွက်စာတမ်းများ၊ ပလက်စတစ်ဘူးခွံများ၊ အဖုံးများ ထွက်ရှိပါသည်။ ပြန်လည်ပြုပြင်သုံးစွဲလို့ရသည့်အမှိုက်များကို ပြန်လည်သုံးစွဲ၍ စွန့်ပစ်ရသည့် အမှိုက်များကို ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးကော်မတီဖြင့် ချိတ်ဆက်၍စွန့်ပစ်ပါသည်။

မီးဘေးအန္တရာယ် ကင်းရှင်းရေး

စက်ရုံအဆောက်အဦးအတွင်းတွင် အရေးပေါ်ဖြစ်လာရင် စနစ်တကျဆောင်ရွက်နိုင်ရန် မီးအချက်ပေးစနစ်များ တပ်ဆင်ထားခြင်း၊ ဆေးလိပ် detectors များ တပ်ဆင်ထားခြင်းများကို ဆောင်ရွက်ထားပါသည်။ ထို့ပြင် အရေးပေါ်မီးဘေးအန္တရာယ် ဖြစ်ပေါ်လာလျှင်လည်းအလိုလျောက်ရေဖြန်းပေးသော စနစ်များကို အဆောက်အဦးအတွင်းတွင် တပ်ဆင်ထားပါသည်။ စက်ရုံအဆောက်အဦးအတွင်းတွင် လည်း မီးသတ်ပိုက်ခေါင်းများကို လုံလောက်စွာ တပ်ဆင်ထားပါသည်။ လျှပ်စစ် ဝါယာကြိုးများ အရေးပေါ် လောင်ကျွမ်းပျက်စီးမှုများ ဖြစ်ပေါ်လာလျှင် အလိုလျောက်မိန်းဘရိတ်ကာများ ကျသည့်စနစ်ကို လည်းတပ်ဆင်ထားပါသည်။ လျှပ်စစ် ဝါယာကြိုးများ ချို့ယွင်းမှု ရှိမရှိကို စစ်ဆေးသည့်အဖွဲ့လည်း စက်ရုံတွင်ဖွဲ့စည်းထားပါသည်။ အရေးပေါ်ဖြစ်လာလျှင် မီးငြိမ်းသတ်ရန် မြေအောက်ရေကန် နှင့် အမိုးပေါ်ကန်များမှလည်းအလွယ်တကူ ဆောင်ရွက်နိုင်ရန် ဆက်သွယ်ထားပါသည်။ စက်ရုံရှိလုပ်သားများလည်း မီးသတ်ခြင်းအတွက် လေ့ကျင့်ပေးခြင်းလုပ်ငန်းများကိုလည်း မီးသတ်တပ်ဖွဲ့နှင့် စနစ်တကျ နှစ်စဉ်လေ့ကျင့်မှုများ ပြုလုပ်ခဲ့ပါသည်။ မီးသတ်ပစ္စည်းများတပ်ဆင်ခြင်းနှင့် အရေးပေါ်ဆောင်ရွက်ရေးအစီအစဉ်များကိုလည်း မီးသတ်ဦးစီးဌာန၏ ညွှန်ကြားမှုအတိုင်းဆောင်ရွက်ခဲ့ပါသည်။

ပတ်ဝန်းကျင်အခြေအနေလေ့လာမှု

Plus World ကုမ္ပဏီလီမိတက်၏ မင်္ဂလာဒုံ မြို့နယ် ရန်ကုန်တိုင်းဒေသကြီးတွင်တည်ရှိပါသည်။ ၂၀၁၉ခုနှစ် မင်္ဂလာဒုံမြို့နယ်၏ လူဦးရေစာရင်းအရ ၂၆၃,၇၉၈ လူဦးရေ ရှိပါသည်။ မြို့နယ်၏၉၀ ရာခိုင်နှုန်းအထက်သည် ဗုဒ္ဓဘာသာ ကိုးကွယ် သူဖြစ်ပါသည်။ မင်္ဂလာဒုံမြို့နယ်တွင် အမျိုးမျိုးသော စီးပွါးရေး လုပ်ငန်းများ လုပ်ကိုင်ကျ၍ထွန်းကားသော မြို့နယ်ဖြစ်ပါသည်။ ထို့ပြင် စက်ရုံလုပ်ငန်းများ လုပ်ကိုင်လည် ပတ်ကျသော မြို့နယ်တခုဖြစ်ပါသည်။ ၂၀၁၉ ခုနှစ် မြို့နယ် စာရင်းအရ အဓိက နေမကောင်း ဖြစ်ကျသော ရောဂါများမှာ တီဘီ၊ သွေးတိုးရောဂါ၊ ဝမ်းပျက်ဝမ်းလျောရောဂါ၊ ဝမ်းကိုက်ရောဂါ နှင့် အသဲရောင်အသဲဝါရောဂါ အစရှိသောရောဂါများအဖြစ်များပါသည်။ ၂၀၁၉ ခုနှစ် မြို့နယ်ကျန်းမာရေးဦးစီးဌာန ၏ စာရင်းအရ မတော်တဆ ထိခိုက်ဒဏ်ရာရရှိမှု တို့မရှိသည်ကို တွေ့ရှိခဲ့ရပါသည်။ မင်္ဂလာဒုံမြို့နယ်တွင် နိုင်ငံခြားခရီးသွားဧည့်သည်များ သွားလာမှုနည်းပါးပါသည်။ မင်္ဂလာဒုံမြို့နယ်သည် အဓိက စီးပွါးရေးလုပ်ငန်းလုပ်ကိုင်သောမြို့နယ်ဖြစ်ပြီး လုပ်ငန်းရှင်များ ဇာတိနေထိုင်သည့်လူမျိုးများ၏ ခရီးသွား ဧည့်သည်အနည်းငယ်သာ လာရောက်ကြပါသည်။

ပတ်ဝန်းကျင်တိုင်းတာမှုအခြေအနေ

စီမံကိန်း ကြောင့် ပတ်ဝန်းကျင်ထိခိုက်မှု ရှိမရှိ သိရှိရန် စီမံကိန်းဆောက်လုပ်ချိန်နှင့် လည်ပတ်ချိန်တွင် ပတ်ဝန်းကျင်တိုင်းတာမှုများ၊ လူမှုစီးပွါးရေးစစ်တမ်းများကောက်ယူမှုများ ပြုလုပ်ခဲ့ပါသည်။ ပထမဦးစွာ နယ်ပယ်တိုင်းတာသတ်မှတ်ခြင်းအစီရင်ခံစာဆောင်ရွက်သည့်အချိန် ၂၀၂၀ ခုနှစ်တွင် တိုင်းတာမှု တစ်ကြိမ် ပြုလုပ်ခဲ့ပြီး ၂၀၂၂ ခုနှစ် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာ ဆောင်ရွက်ချိန်တွင် တိုင်းတာမှု တစ်ကြိမ် ပြုလုပ်ခဲ့ပါသည်။ နယ်ပယ်တိုင်းတာသတ်မှတ်ခြင်းအစီရင်ခံစာ ပြင်ဆင်သည့်အချိန် ၂၀၂၀ ခုနှစ် နှင့် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာ ဆောင်ရွက်ချိန် ၂၀၂၂ ခုနှစ် တွင် တိုင်းတာရရှိသော အချက်အလက်များကို ပတ်ဝန်းကျင်အကျိုးသက်ရောက်မှုများအတွက် အဆင့်ခွဲခြားသတ်မှတ်ရန် အသုံးပြုခဲ့ပါသည်။

စဉ်	အမျိုးအစား	တိုင်းတာသည့်ရက်	ကိုဩဒိနိတ်	တိုင်းတာသည့်အမျိုးအစား
၂၀၂၀ ခုနှစ်တွင် တိုင်းတာသည့် ပတ်ဝန်းကျင်အရည်အသွေးအမျိုးအစားများ				
၁	လေအရည်အသွေး	၁၅ ရက်၊ ဒီဇင်ဘာလ၊ ၂၀၂၀	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၄.၅၁'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၄၀.၆၃''	(1) Sulfur dioxide (SO_2), (2) Carbon monoxide (CO), (3) Carbon dioxide (CO_2), (4) Nitrogen dioxide (NO_2), (5)Volatile Organic Compound (VOC), (6) Ozone (O_3) (7) Total Suspended Particulate (TSP), (8) Particulate Matter (PM_{10}) and (9)Particulate Matter ($PM_{2.5}$)

၂	အသံဆူညံမှု	၁၅ ရက်၊ ဒီဇင်ဘာလ၊ ၂၀၂၀	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၃.၃၇'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၃၉.၆၃''	dBA
၃	ရေအရည်အသွေး	၁၅ ရက်၊ ဒီဇင်ဘာလ၊ ၂၀၂၀	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၁.၄၅'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၄၁.၃၅''	(1) Temperature, (2) Odor, (3) Color, (4) pH, (5) Turbidity, (6) SS, (7) DO, (8) COD, (9) TOC, 10) BOD5, 11) Oil and Grease, (12) Total Coliforms,
၂၀၂၂ ခုနှစ်တွင် တိုင်းတာသည့် ပတ်ဝန်းကျင်အရည်အသွေးများ				
၄	လေအရည်အသွေး (၁)	၆ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၃.၀၂'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၃၉.၉၀''	(1) Sulfur dioxide (SO_2), (2) Carbon monoxide (CO), (3) Carbon dioxide (CO_2), (4) Nitrogen dioxide (NO_2), (5)Volatile Organic Compound (VOC), (6) Ozone (O_3) (7) Total Suspended Particulate (TSP), (8) Particulate Matter (PM_{10}) and (9)Particulate Matter ($PM_{2.5}$)
၅	လေအရည်အသွေး (၂)	၇ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၄.၇၇'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၄၃.၁၆''	(1) Sulfur dioxide (SO_2), (2) Carbon monoxide (CO), (3) Carbon dioxide (CO_2), (4) Nitrogen dioxide (NO_2), (5)Volatile Organic Compound (VOC), (6) Ozone (O_3) (7) Total Suspended Particulate (TSP), (8) Particulate Matter (PM_{10}) and (9)Particulate Matter ($PM_{2.5}$)
၆	အသံဆူညံမှု (၁)	၆ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၃.၀၂'' အရှေ့လောင်္ဂီတွဒ် ၉၆°၈'၃၉.၉၀''	dBA

၇	အသံဆူညံမှု (၂)	၇ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၄.၇၇'' အရှေ့လောင်တ္ဂီတွဒ် ၉၆°၈'၄၃.၁၆''	dBA
၈	ယာဉ်သွားလာမှုကောက်ယူခြင်း (၁)	၆ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၁၅.၅၄'' အရှေ့လောင်တ္ဂီတွဒ် ၉၆°၈'၃၉.၄၂''	လမ်းအခြေအနေ
၉	ယာဉ်သွားလာမှုကောက်ယူခြင်း (၂)	၇ ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂	မြောက်လတ္တီတွဒ် ၁၆°၅၈'၅.၀၁'' အရှေ့လောင်တ္ဂီတွဒ် ၉၆°၈'၅၂.၂၇''	လမ်းအခြေအနေ

ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့်လျော့ချရေးနည်းလမ်းများ

စီမံကိန်းဆောင်ရွက်ချိန် ဆောက်လုပ်ရေးလုပ်ငန်းမစတင်မီ၊ ဆောက်လုပ်ရေးလုပ်ငန်းဆောင်ရွက်ချိန်၊ စီမံကိန်းလုပ်ငန်းစတင်လည်ပတ်ချိန်နှင့် စီမံကိန်း ပိတ်သိမ်းချိန်တို့တွင် ဖြစ်လာနိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့် လျော့ချရေးလုပ်ငန်းများ ကို ထည့်သွင်းဖော်ပြထားပါသည်။

စီမံကိန်း၏ ဆောက်လုပ်ရေး အကြိုလုပ်ငန်းစဉ်များ စတင်ရေးဆွဲချိန်တွင် ရူပဗေဒဆိုင်ရာ ပတ်ဝန်းကျင်ထိခိုက်မှုများ၊ ဇီဝဗေဒဆိုင်ရာ ပတ်ဝန်းကျင်ထိခိုက်မှုများ၊ နှင့် လူမှုစီးပွါးဆိုင်ရာ ပတ်ဝန်းကျင်ထိခိုက် မှုများ အတွက် ဆိုးကျိုးသက်ရောက်မှုများမရှိသည်ကို လေ့လာတွေ့ရှိခဲ့ပါသည်။ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အဖွဲ့အစည်းလေ့လာသုံးသပ်ချက်အရ စီမံကိန်းကြောင့် ဆောက်လုပ်ချိန်ကာလတွင် ပတ်ဝန်းကျင် အပေါ် ဆိုးကျိုးသက်ရောက်မှုများ မရှိသည်ကိုတွေ့ရှိရပြီး ဆောက်လုပ်ရေးလုပ်သားများ အလုပ်အကိုင် အခွင့် အလမ်းများရရှိသည်ကိုတွေ့ရှိခဲ့ရပါသည်။

စီမံကိန်းလည်ပတ်ချိန်နှင့် ဖျက်သိမ်းခြင်းလုပ်ငန်းများဆောင်ရွက်ချိန်တွင် ဖြစ်လာနိုင်သော ပတ်ဝန်းကျင် အကျိုးသက်ရောက်မှုများနှင့် လျော့ချခြင်း နည်းလမ်းများကို အောက်တွင်ဖော်ပြထားပါသည်။

စဉ်	သက်ရောက်မှု အမျိုးအစား	ဖြစ်နိုင်သောနေရာ	သက်ရောက်မှု အဆင့်သတ်မှတ်ချက်					သက်ရောက်မှု အဆင့်	လျော့ချရေးနည်းလမ်းများ
၁။	လေထုညစ်ညမ်းမှု	မီးစက်နှင့် မော်တော်ယာဉ်များမှ ထွက်လာနိုင်သော အခိုးအငွေ့၊ ဖုန့်မှုန့်များ	၂	၄	၂	၃	၂၄	နည်းပါး	စက်ရုံအဆောက်အဦးအတွင်း လေဝင်လေထွက်ကောင်းသော စနစ်များထားရှိခြင်း၊

									မီးစက်ခန်းတွင် မီးခိုးထွက်နိုင်သော အပေါက် (သို့) ခေါင်းတိုင်များထားရှိခြင်း။ စက်ပစ္စည်းများကို ပုံမှန်စစ်ဆေးပေးခြင်း။ မီးစက်များ နှင့်အခြားသောစက်ပစ္စ ည်းများကို အသုံးမပြုချိန်တွင် စနစ်တကျ ပိတ်ထားခြင်း။
၂။	ရေထုညစ်ည မ်းမှု	မီးစက်နှင့် မော်တော်ယာဉ်များမှထွက်ရှိ သော ချောဆီများကြောင့် ရေဆိုးညစ်ညမ်းမှုများဖြစ်ပေါ် ခြင်း နှင့် ရေအရည်အသွေးများပြောင်း လဲသွားခြင်း။	၂	၄	၁	၃	၂၁	နည်းပါး	စက်ဆီချောဆီများပါ သော ရေဆိုးများကို ရေဆိုးသန့်စင်စက်ဖြင့် သန့်စင်ပြီးမှ စွန့်ပစ်သင့်ပါသည်။ မိလ္လာရေဆိုးများကိုလည်း ရေဆိုးသန့်စင်စက်ဖြင့် သန့်စင်ပြီးမှ စွန့်ပစ်ရပါမည်။ ရေထဲတွင် Heavy Metal များပါဝင်လာပါက ထိုရေများကို ရေဆိုးသန့်စင်စက်ဖြင့် သန့်စင်ပြီးမှ စွန့်ပစ်သင့်ပါသည်။
၃။	အသံဆူညံမှု	မီးစက်အသုံးပြုလျှင် မီးစက်မှ အသံဆူညံမှုဖြစ်နိုင်ပါသည်။ ကုန်ကြမ်းကုန်ချော ပစ္စည်းများသယ်ယူသည့် မော်တော်ယာဉ်များမှ အသံဆူညံမှုထွက်ရှိနိုင်ခြင်း။	၂	၄	၁	၃	၂၁	နည်းပါး	ဆူညံမှု နည်းသောမီးစက်များနှင့် မော်တော်ယာဉ်များကို အသုံးပြုခြင်း။ မီးစက်များနှင့် မော်တော်ယာဉ်များကို ပုံမှန် ပြုပြင်ထိန်းသိမ်း၍

									စစ်ဆေးမှုများပြုလုပ်၍အသုံးပြုစေခြင်း။ အသံဆူညံမှုတိုင်းတာခြင်းကိုစီမံကိန်းဧရိယာအတွင်း နှင့် ပတ်ဝန်းကျင်တွင် ပုံမှန်တိုင်းတာ ပေးခြင်းဖြင့် သတ်မှတ်စံနှုန်းထက် ပို နေပါ က လျှော့ချမှုများပြုလုပ်ပေးခြင်း။
၄	မီးဘေးအန္တရာယ်	ကောင်းမွန်မှုမရှိသော လျှပ်စစ်ပစ္စည်းများသွယ်တန်းခြင်း။ စွန့်ပစ်မှိုက်များသိုလှောင်ထားရှိသည့်နေရာ စားဖိုချောင်နှင့် လုပ်သားများဆေးလိပ်သောက်သည့်နေရာ စက်သုံးဆီများသိုလှောင်သည့်နေရာ	၃	၄	၁	၃	၂၄	နည်းပါး	အရေးပေါ်ဖြစ်နိုင်သည့်နေရာများတွင်မီးသတ်ရေပိုက်ခေါင်းများအဆင့်သင့်ထားရှိခြင်း။ မီးသတ်ဆေးဘူးများနှင့် ပစ္စည်းများကို ပုံမှန်စစ်ဆေးပြုပြင်ပေးခြင်း၊ မီးငြိမ်းသတ်ရေးအတွက် လုံလောက်နိုင်သော မီးသတ်ရေကန် ဆောက်လုပ်ပေးခြင်း။ မီးဘေးအန္တရာယ်ဖြစ်လာလျှင်အများသိနိုင်ရန်အလိုအလျောက်အချက်ပေးစနစ်များ တပ်ဆင်ထားရှိခြင်း။ အရေးပေါ်ထွက်ပေါက်များ ပိတ်ဆို့မှုမရှိရန်ထားရှိခြင်း။

၅။	အမှိုက်စွန့်ပစ်မှု	ရုံးခန်းနှင့် မီးဖိုခန်းမှ စွန့်ပစ်ပစ္စည်းများထွက်ရှိခြင်း	၃	၄	၂	၃	၂၇	နည်းပါး	အဆောက်အဦးတိုင်းတွင် စွန့်ပစ်အမှိုက်ပုံးများထား ရှိခြင်း။ စွန့်ပစ်အမှိုက်များကို အမျိုးအစားခွဲ၍ စနစ်တကျစွန့်ပစ်စေခြင်း။ စွန့်ပစ်အမှိုက်များ စွန့်ပစ်ချိန်တွင် ရန်ကုန်မြို့တော်စည်ပင် သာယာရေးကော်မတီမှ ချမှတ်ထားသည့်နည်းလ မ်းများအတိုင်းစွန့်ပစ်ခြင်း။
၆။	အန္တရာယ်ရှိစွန့်ပစ်အမှိုက်	စက်ပစ္စည်းနှင့် မော်တော်ယာဉ်များ ပြုပြင်ရာမှ ထွက်ရှိသော စက်သုံးဆီများ	၂	၃	၁	၂	၁၆	နည်းပါး	အန္တရာယ်ရှိသောစွန့်ပစ်အ မှိုက်များထားရှိသောအခ နေ်းကို စစ်ဆေးပြုပြင်မှုများပြုလု ပ်ခြင်း။ အန္တရာယ်ရှိသော စွန့်ပစ်အမှိုက်များကို စွန့်ပစ်ချိန်တွင် ကျန်းမာရေးနှင့်ဘေးအန္တ ရာယ်ကင်းရှင်းရေး ပစ္စည်းများ စုံလင်စွာဖြင့် ကိုင်တွယ်စွန့်ပစ်စေခြင်း။ အန္တရာယ်ရှိစွန့်ပစ်အမှိုက် များစွန့်ပစ်ချိန်တွင် လိုင်စင်ရ အမှိုက်သိမ်းဆည်းရေးကု မ္ပဏီ ဖြင့် ချိတ်ဆက်၍ ဆောင်ရွက်သင့်ပါသည်။
၇။	ဘေးအန္တရာယ်ကင်းရှင်း	စက်ရုံအတွင်းရှိ လုပ်ငန်းလည်ပတ်သည့် စက်များမှ	၃	၄	၁	၂	၁၆	နည်းပါး	လျှပ်စစ်ပစ္စည်းများနှင့် မီးကြိုးများကို ပုံမှန်စစ်ဆေးပြုပြင်ပေးခြ

	ရေးနှင့် လုံခြုံရေး	မတော်တဆထိခိုက်မှုများ နှင့် လျှပ်စစ်ပစ္စည်း များ ရှောဖြစ်ခြင်းမှ အန္တရာယ်ဖြစ်ပေါ်ခြင်း။							ငင်း ဖြင့်စနစ်တကျ ထိန်းသိမ်းပေးခြင်း။
၈။	ယာဉ်သွား လာမှု	ကုန်ကြမ်းပစ္စည်းများနှင့် ကုန်ချော ပစ္စည်းများသယ်ယူချိန်တွင် ယာဉ်အဝင်အထွက်နှင့် မော်တော်ယာဉ်များတိုးပွါး လာခြင်း။	၃	၄	၂	၃	၂၇	နည်းပါး	စီမံကိန်းဇရိယာနှင့် စီမံကိန်း ပတ်ဝန်းကျင်တွင် ယာဉ်များ နှင့် သက်ဆိုင်သည့် သတိပေး ဆိုင်းဘုတ်များတပ်ဆင် ထားခြင်း။ ယာဉ်မောင်းများသည် ပတ်ဝန်းကျင်ကို အလေးအထား၍ ညင်သာစွာ မောင်းနှင်ရန်နှင့် မော်တော်ယာဉ်နည်းဥပ ဒေ အတိုင်းစနစ်တကျ မောင်းနှင်းရန်။
၉။	လူမှု စီးပွါးအခြေအ နေ	လုပ်သားများ အလုပ်အကိုင်အခွင့်အလမ်း များတိုးပွါးလာခြင်း။	-	-	-	-	-	ကောင်း ကျိုး	
လုပ်ငန်းခွင်ဖျက်သိမ်းခြင်း									
၁။	လေထုညစ်ည မ်းမှု	အဆောက်အဦဖျက်သိမ်းရာမှ ထွက်ရှိလာသော ဖုန်မှုန့်များ ဖျက်သိမ်းထားသော ပစ္စည်းများ ကို သယ်ယူသည့် ကားများကြောင့် ဖုန်မှုန့်များထွက်ရှိခြင်း မြေတူးစက်များ၊ ဘက်ဟိုးများ ကိုအဆောက်အဦးဖျက်ရာတွင်	၃	၁	၂	၄	၂၄	နည်းပါး	ဖုန်မှုန့်များထွက်ရှိနိုင် သော နေရာများတွင် ရေများပုံမှန် ဖြန်းပေးထားခြင်း။ လုပ်သားများအား နှာခေါင်းစည်းများ တပ်ဆင်ပေးထားခြင်း

		အသုံးပြုရာမှ ဖုန်မှုန့်များထွက်ရှိခြင်း							စီမံကိန်း ဧရိယာအတွင် မီးရှို့ဖျက်စီးခြင်းများကို တားမြစ်ခြင်း ယာဉ်သွားလာမှု အရှိန်များကို သတ်မှတ်ထားခြင်း
၂။	စွန့်ပစ်ရေထွက်ရှိမှု	ဆောက်လုပ်ရေးစက်ပစ္စည်းများ ဆေးကြောသန့်စင်ရာမှ ရေဆိုးထွက်ရှိခြင်း	၃	၁	၃	၃	၂၁	နည်းပါး	စီမံကိန်း ပိတ်သိမ်းသည့်နေရာများတွင်လုပ်သားများအတွက် မိလ္လာစနစ်များကို စနစ်တကျ ထားရှိခြင်း။ စီမံကိန်းဖျက်သိမ်းသည့် အချိန်တွင် ဆီသိုလှောင်ကန်များ ထားရှိသည့်နေရာများကို စနစ်တကျ ထားရှိခြင်း ဆောက်လုပ်ရေးလုပ်ငန်းသုံး စက်ပစ္စည်းများကို ကောင်းမွန်မှု ရှိစေရန် ပုံမှန်စစ်ဆေးပေးခြင်း။ စီမံကိန်းဆောက်လုပ်ချိန်နှင့် ဖျက်သိမ်းချိန်တို့တွင်ရေမြောင်းစနစ်များကို စနစ်တကျ ထားရှိခြင်း။
၃။	မြေဆီလွှာထိန်းသိမ်းမှု	စက်သုံးဆီများ စီမံကိန်းဖျက်သိမ်းချိန်တွင် ထွက်ရှိခြင်းကြောင့် မြေဆီလွှာပျက်ဆီးစေခြင်း။	၃	၁	၂	၃	၁၈	နည်းပါး	ဆီသိုလှောင်ကန်များကို စနစ်တကျထားရှိခြင်း။ ဆီသိုလှောင်ကန်များထားရှိသည့်နေရာများကို ပုံမှန်ပြုပြင်စစ်ဆေးပေးခြင်း။

									စွန့်ပစ်အမှိုက်များ ထားရှိသည့်နေရာများကို လည်း ပုံမှန်စစ်ဆေး၍ စနစ်တကျ ထားရှိခြင်း။
၄။	အသံဆူညံမှု	အရေးပေါ် ဒီဇယ်မီးစက် အသုံးပြုမှု၊ တည်ဆောက်ခြင်းဆိုင်ရာ ကိရိယာများ အသုံးပြုမှုနှင့် ဝန်ချီစက် မော်တော်ယာဉ်များ သုံးစွဲမှု	၄	၁	၃	၃	၂၄	နည်းပါး	ဆူညံမှုနည်းသော မီးစက်များနှင့်စက်ယန္တရားများကို အသုံးပြုစေခြင်း။ စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင် စစ်ဆေးပေးခြင်း။ ယာဉ်မောင်းသည့်အရှိန်ကိုညှင်သာစွာမောင်းနှင်ခြင်း ဖြင့်ဆူညံသံကို လျော့ချခြင်း ဆူညံသံထွက်ရှိနိုင်သည့် လုပ်ငန်းများကို ညအချိန်တွင် မဆောင်ရွက်ပဲနေ့အချိန် တွင်သာဆောင်ရွက်ခြင်း ဆူညံသံထွက်ရှိနိုင်သော နေရာတွင်လုပ်ရသည့်လုပ်သားများကို နားကြပ်များ ထောက်ပံ့ပေးထားခြင်း။
၅။	ဘေးအန္တရာယ်ကင်းရှင်းရေး	ဖုန်မှုန့်၊ မီးခိုးငွေ့နှင့် အသံဆူညံမှုများ ကြောင့် လုပ်သားများကို ကျန်းမာ ရေး ထိခိုက်စေနိုင်ပါသည်။ မီးစက်အသုံးပြုရာမှ ထွက်ရှိလာသော ဆူညံသည် စီမံကိန်း ဧရိယာအတွင်း အလုပ်လုပ် နေသူများ၏ ကျန်းမာရေးကိုလည်း ထိခိုက်စေနိုင်သည်။	၃	၂	၂	၂	၁၄	နည်းပါး	အရေးပေါ်ဖြစ်ပေါ်လာလျှင် ထိခိုက်မှု လျော့နည်းစေရန် ရှေးဦးပြုစုနည်းများ သင်ကြားပေးခြင်း၊ မီးသတ်ခြင်းများကို လေ့ကျင့်ပေးခြင်းနှင့် မီးသတ် ပစ္စည်း များကို ကိုင်တွယ်တတ်အောင် သင် ကြား ပေးခြင်း။

		မီးဘေးအန္တရာယ်များသည် အဓိက အားဖြင့် စက်သုံးဆီသိုလှောင်ထားသည့် နေ ရာနှင့် စွန့်ပစ်ပစ္စည်းများကို စနစ် တကျ စွန့်ပစ်ခြင်းနှင့် စီမံခန့်ခွဲမှု မရှိခြင်းတို့ကြောင့် ထိခိုက်စေနိုင် ပါသည်။							လုပ်သားများကို လိုအပ်သော တစ်ကိုယ်ရေကာကွယ်သုံး ပစ္စည်းများ ထောက်ပံ့ပေးထားခြင်း။ လျှပ်စစ် အန္တရာယ်များ ထိခိုက်မှု မရှိစေရန် လျှပ်စစ်ပစ္စည်းများကို စနစ်တကျ ကိုင်တွယ်ခြင်းနှင့် ပုံမှန် စစ်ဆေး ပြုပြင်ပေးခြင်း။ ချောလဲနိုင်သည့်နေရာ များတွင် အမှတ်အသား ဆိုင်းဘုတ်များထားရှိခြင်း ။
၆။	လူမှု စီးပွါးအခြေအ နေ	လုပ်သားများ အလုပ်အကိုင်အခွင့်အလမ်း များတိုးပွါးလာခြင်း။	-	-	-	-	-	ကောင်း ကျိုး	

ကြွင်းကျန်ရစ်သော ဆိုးကျိုးများ

ကြွင်းကျန်ရစ်သော သက်ရောက်မှု ဆိုသည်မှာမူလပထမရှိသော ပတ်ဝန်းကျင်သည် ပြောင်းလဲမှု (သို့) အကျိုးသက်ရောက်မှုရှိပြီးနောက် မူလအခြေအနေသို့ပြန်လည်ရောက်ရှိချိန်တွင် ကြွင်းကျန်ရစ်ခဲ့သော သက်ရောက်မှုကို ဆိုပါသည်။ ဤသက်ရောက်မှုသည် စီမံကိန်းတခုလုံး၏ အခြေခံအချက်အလက်များအတွက် စောင့်ကြပ်ကြည့်ရှုခြင်းအခြေအနေကို မလိုအပ်ကြောင်းတွေ့ရှိခဲ့ရပါသည်။

ထပ်တိုးဖြစ်ပေါ်လာနိုင်သော ဆိုးကျိုးများ

တဖြည်းဖြည်းတိုးလာသော ဆိုးကျိုးသက်ရောက်မှုများကို အကဲဖြတ်ရန်အတွက် စီမံကိန်း၏ ကျန်ရှိနေသော အကျိုးသက်ရောက်မှုများသည် နောင်တွင်ဖြစ်ပေါ်လာနိုင်သည့် စီမံကိန်း၏ သက်ရောက်မှုများနှင့် Receptors များ၏ အကျိုးသက်ရောက်နိုင်မှုများကို ဦးစွာ လေ့လာခြင်းဖြစ်ပါသည်။ အောက်ဖော်ပြပါ ဇယားသည် နောင်တွင် တိုးလာနိုင်သော သက်ရောက်မှုများနှင့် သက်ဆိုင်သော လျော့ပါးရေး အစီအစဉ်များကို ပြသထားသည်။

စဉ်	တိုးလာသောဆိုးကျိုးများ	သိသာထင်ရှားသော ဆိုးကျိုးများ	လျော့ချခြင်း
၁	မြေပေါ်ရေတွင် ညစ်ညမ်းမှုများတိုးပွါးလာခြင်း	လျစ်လျူရှု	ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် နှင့် စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်များပြုလုပ်ခြင်း

			စီမံကိန်းဖော်ဆောင်သူများမှာ ထိရောက်သော ပူးပေါင်းဆောင်ရွက်မှုများနှင့် ပေါင်းစပ်ညှိနှိုင်းမှုများ ဖြင့် ဆောင်ရွက်ခြင်း
၂	မြေအောက်ရေညစ်ညမ်းမှုများတိုးပွါးလာခြင်း	လျစ်လျူရှု	ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် နှင့် စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်များပြုလုပ်ခြင်း စီမံကိန်းဖော်ဆောင်သူများမှာ ထိရောက်သော ပူးပေါင်းဆောင်ရွက်မှုများနှင့် ပေါင်းစပ်ညှိနှိုင်းမှုများ ဖြင့် ဆောင်ရွက်ခြင်း
၃	လေထုညစ်ညမ်းမှုတိုးပွါးလာခြင်း	လျစ်လျူရှု	ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် နှင့် စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်များပြုလုပ်ခြင်း စီမံကိန်းဖော်ဆောင်သူများမှာ ထိရောက်သော ပူးပေါင်းဆောင်ရွက်မှုများနှင့် ပေါင်းစပ်ညှိနှိုင်းမှုများဖြင့် ဆောင်ရွက်ခြင်း အခြားသော ဒေသဆိုင်ရာ တိုးပွားလာသော သက်ရောက်မှု စီမံခန့်ခွဲမှု အစီအစဉ်များတွင် ပူးပေါင်းပါဝင်ဆောင်ရွက်ခြင်း ဒေသဆိုင်ရာ စောင့်ကြည့်လေ့လာရေး အစီအစဉ်များတွင်ပါဝင်ခြင်း
၄	ကျန်းမာရေးပြဿနာများ တိုးမြင့်လာနိုင်ခြင်း	လျစ်လျူရှု	ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် နှင့် စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်များပြုလုပ်ခြင်း စီမံကိန်းဖော်ဆောင်သူများမှာ ထိရောက်သော ပူးပေါင်းဆောင်ရွက်မှုများနှင့် ပေါင်းစပ်ညှိနှိုင်းမှုများဖြင့် ဆောင်ရွက်ခြင်း ရပ်ရွာလူထုနှင့် တိုင်ပင်ဆွေးနွေးပြီး ရပ်ရွာကျန်းမာရေးနှင့် ဘေးကင်းရေးဆိုင်ရာ ကိစ္စရပ်များနှင့် သက်ဆိုင်သည့် ပညာပေး အစီအစဉ်များ ဆောင်ရွက်ခြင်း

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်

အမျိုးအစား	စီမံခန့်ခွဲမှုအစီအစဉ်	တာဝန်ယူမည့်ပုဂ္ဂိုလ်	စစ်ဆေးမည့်ပုံစံ	အကြိမ်အရေအတွက်
လေအရည်အသွေး	စက်ရုံအဆောက်အဦ: အတွင်းတွင် လေဝင်လေထွက်ကောင်းမွန်အောင်ထားရှိခြင်း။ မီးစက်များကို ပုံမှန် ပြုပြင်ထိန်းသိမ်းပေးခြင်း	HR Supervisor	လစဉ်	တစ်နှစ်နှစ်ကြိမ်
စွန့်ပစ်ရေအရည်အသွေး	စက်သုံးဆီများရေမြောင်းအနီးတွင် စွန့်ပစ်မှုများကို လျော့ချခြင်း။ ရေအရည်အသွေးတိုင်းတာစစ်ဆေးမှုများကို ပုံမှန်ပြုလုပ်ပေးခြင်း။ ဓာတုပစ္စည်းသိုလှောင်သည့်နေရာကို ရေမြောင်းအနီးနားနှင့်	Production Engineer & HSE Officer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်

	ရေသိုလှောင်ကန်အနီးနားတွင် ထားရှိခြင်းကို ရှောင်ကြဉ်ခြင်း။			
အသံဆူညံမှု	အသံဆူညံသောနေရာတွင် လုပ်ကိုင်သော လုပ်သားများကို နားကြပ်များထောက်ပံ့ပေးထားခြင်းနှင့် အသံဆူညံမှုထွက်ရှိနိုင်သော စက်ကိရိယာများကို စနစ်တကျ ထိန်းချုပ်ခြင်း။	HR Supervisor & HSE Officer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
မီးဘေးအန္တရာယ်	လျှပ်စစ်မီးလိုင်းများကို ပြုပြင်မှုနှင့် ပုံမှန်စစ်ဆေးပေးခြင်း။ အရေးပေါ်မီးငြိမ်းသတ်ရေးအဖွဲ့ထားရှိခြင်း။	Production Engineer, HR Supervisor & HSE Officer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
စွန့်ပစ်အမှိုက်	ပြန်လည်အသုံးပြု၍ရသောအမှိုက်များကို ပြန်လည်အသုံးပြု၍စွန့်ပစ်ရမည့်အမှိုက်များကို ခွဲခြားစွန့်ပစ်ခြင်း။	All Department Head	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
အန္တရာယ်ရှိသောစွန့်ပစ်အမှိုက်များ	စနစ်တကျစွန့်ပစ်မှုနှင့် ကာကွယ်မှုများ ဆောင်ရွက်ခြင်း	Production Engineer & HSE Officer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ကာကွယ်ခြင်း	အန္တရာယ်ရှိသောနေရာများနှင့် အခြားသော စက်ပစ္စည်းများရှိမည့်နေရာများတွင် သတိပေးဆိုင်းဘုတ်များနှင့် လုပ်ငန်းခွင်သွားလာမှု စနစ်များ ထားရှိခြင်း	Production Engineer & HSE Officer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
ယာဉ်သွားလာမှု	စီမံကိန်းဧရိယာအတွင်းတွင် စနစ်ကျသော လမ်းများထားရှိခြင်း။ စက်ရုံ၏အရှေ့တွင် ယာဉ်သွားလာမှု စီမံခန့်ခွဲရန် ဝန်ထမ်း နှစ်ဦးခန့် ထားရှိခြင်း	HR Supervisor	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
စီမံကိန်းဖျက်သိမ်းခြင်း				
လေအရည်အသွေး	တစ်ရက်လျှင် ရေနှစ်ကြိမ်ဖျန်းပေးခြင်း။ စီမံကိန်းဖျက်သိမ်းသည့်ပတ်ပတ်လည်တွင် အကာအကွယ် အစများဖြင့် ကာထားခြင်း ဆောက်လုပ်ရေးပစ္စည်းများသယ်ယူချိန်တွင် လည်းအဖုံးအကာများဖြင့် သယ်ယူခြင်း။	Site Engineer	လစဉ်	တစ်နှစ်နှစ်ကြိမ်
ရေဆိုးထွက်ရှိမှု	မိလ္လာကန်များကို စနစ်တကျ ဖျက်သိမ်းခြင်း	Site Engineer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
မြေဆီလွှာထိန်းသိမ်းခြင်း	ဆီ၊ ဒီဇယ်နှင့် မိလ္လာစနစ်များ ယိုဖိတ်မှုမရှိစေရန်စနစ်တကျစီမံခြင်း	Site Engineer	ပုံမှန်စစ်ဆေးပေးခြင်း	တစ်နှစ်တစ်ကြိမ်
ဆူညံသံ	ဆောက်လုပ်ရေးလုပ်သားများ အားအသံဆူညံမှု	Site Supervisor	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်

	ကာကွယ်သည့်ပစ္စည်းများထောက်ပံ့ပေးထားခြင်း။ ဆောက်လုပ်ရေးဧရိယာတွင် အသံဆူညံမှုကာကွယ်ပေးသည့် barriersများကို ၂.၅ မီတာအထိ တပ်ဆင်ထားခြင်း အသံဆူညံမှု ထွက်နိုင်သော လုပ်ငန်းများကို နေ့အချိန်တွင်သာ ဆောင်ရွက်ခြင်း။			
စွန့်ပစ်အမှိုက်	ပြန်လည်အသုံးပြုနိုင်သောပစ္စည်းများကို သတ်မှတ်နေရာများတွင် စွန့်ပစ်ခြင်း။	Site Supervisor	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
အန္တရာယ်ရှိစွန့်ပစ်အမှိုက်	အန္တရာယ်ရှိသော အမှိုက်များကိုစွန့်ပစ်ချိန်တွင် စနစ်တကျစီမံခန့်ခွဲခြင်း	Site Supervisor	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ကာကွယ်ခြင်း	အန္တရာယ်ရှိသောနေရာဝန်းကျင်တွင် safety တိပ်ဖြင့် ကာရံခြင်း သင့်လျော်သောသတိပေးဆိုင်းဘုတ်များ၊ အမှတ်အသားများနှင့် ဘေးကင်းရေးဆိုင်းဘုတ်များ တပ်ဆင်ထားရှိခြင်းနှင့် အသိပေးကြော်ငြာဘုတ်တပ်ဆင်ထားရှိခြင်း။	Site Engineer	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်
ယာဉ်သွားလာမှု	ယာဉ်သွားလာမှု စောင့်ကြပ်ကြည့်ရှုခြင်း လုပ်ငန်းစဉ်အတွက် လူနှစ်ဦး သို့မဟုတ် သုံးဦးထားရှိခြင်း။	Site Supervisor	ပုံမှန်စစ်ဆေးပေးခြင်း	လစဉ်

ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုခြင်း

အမျိုးအစား	တိုင်းတာမည့်အမျိုးအစား	အကြိမ်အရေအတွက်	စစ်ဆေးမည့်ပုံစံ	တာဝန်ယူမည့်ပုဂ္ဂိုလ်
လေအရည်အသွေး	SO2, NO2, CO, CO2, PM2.5, PM10	တစ်နှစ်နှစ်ကြိမ်	စက်ရုံအဆောက်အဦးဧရိယာ	Management Team of Plus World Co., Ltd
ရေအရည်အသွေး	pH, Apparent Colour, Turbidity Conductivity, Total Hardness Calcium, Hardness Magnesium, Hardness Total Alkalinity, Phenolphthalein Alkalinity, Carbonate (CaCO3), Bicarbonate (HCO3), Iron, Chlorine (as CL), Sodium Chloride (as NaCL), Sulphate (as SO4), Total Solids	တစ်နှစ်နှစ်ကြိမ်	စက်ရုံအဆောက်အဦးဧရိယာ	Management Team of Plus World Co., Ltd

	Total Suspended Solids, Manganese Phosphate, Phenolphthalein Acidity, Methyl Orange Acidity, Salinity			
စွန့်ပစ်အမှိုက်	စွန့်ပစ်အစိုင်အခဲ၊ စွန့်ပစ်ရေအရည်အသွေး၊ နှင့် အန္တရာယ်ရှိစွန့်ပစ်အမှိုက်	အပတ်စဉ်	ပြန်လည်အသုံးပြုသည့်အမှိုက်၊ စွန့်ပစ်မည့်အမှိုက်နှင့် ရုံးသုံးအမှိုက်များစွန့်ပစ်သည့် နေရာ	Management Team of Plus World Co., Ltd
မီးဘေးအန္တရာယ်	မီးသတ်ပစ္စည်းများကို စစ်ဆေးပေးခြင်း	လစဉ်	စက်ရုံအတွင်း	Management Team of Plus World Co., Ltd
စီမံကိန်းဖျက်သိမ်းခြင်း				
လေအရည်သွေး	SO2, NO2, CO, CO2, PM2.5, PM10	စီမံကိန်းဖျက်သိမ်းချိန်တွင် တစ်ကြိမ်	စီမံကိန်းဧရိယာ	Land Owner & Constructor
အသံဆူညံမှု	Noise level in decibel (dBA)	စီမံကိန်းဖျက်သိမ်းချိန်တွင် တစ်ကြိမ်	စီမံကိန်းဧရိယာ	Land Owner & Constructor
ပြန်လည်ထူထောင်ရေး	သစ်ပင်ပန်းပင်များပြန်လည်စိုက်ပျိုးခြင်းနှင့် မြေအနေအထားပြန်လည်ပြုပြင်ခြင်း		စီမံကိန်းဧရိယာ	Land Owner & Constructor

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်ခွဲများ

၁။ လေထုညစ်ညမ်းမှု ထိန်းချုပ်ရေး စီမံခန့်ခွဲမှု အစီအစဉ်

၂။ အမှိုက်စီမံခန့်ခွဲမှု အစီအစဉ် (အန္တရာယ်ရှိသောစွန့်ပစ်အမှိုက် နှင့် အန္တရာယ်မရှိသော စွန့်ပစ်အမှိုက်များ)

၃။ ရေဆိုးစီမံခန့်ခွဲမှုအစီအစဉ်

၄။ ရေအရည်အသွေးစီမံခန့်ခွဲမှုအစီအစဉ်

၅။ စွမ်းအင်နှင့် ရေထိရောက်မှု အစီအစဉ်

၆။ မကျေနပ်ချက်ပြန်လည်ဖြေရှင်းရေးအစီအစဉ်

၇။ လူမှုစီးပွါးရေးအစီအစဉ်

အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးခြင်းနှင့် ထုတ်ဖော်ခြင်း

ဒေသခံပြည်သူများအား စီမံကိန်းအကြောင်း အသိပေးခြင်း၊ ပြည်သူများ၏ မေးခွန်းများကို ဖြေဆိုခြင်းသည် သတင်းအချက်အလက်များရရှိစေရန်၊ ပူးပေါင်းပါဝင်မှုရှိစေရန်နှင့် မိတ်ဖက်အခြေအနေများ ကောင်းမွန်စေရန် ရည်ရွယ်ပါသည်။ ၎င်းအစီအစဉ်သည် ထိရောက်သော လုပ်ငန်းစဉ် ဖြစ်သော်လည်း Covid-19 ရောဂါ ပြန့်ပွားခြင်းနှင့် နိုင်ငံရေးအခြေအနေများကြောင့် မပြုလုပ်နိုင်ခဲ့ပါ။

လတ်လလော ဖြစ်ပေါ်နေသော အခြေအနေများကြောင့် တတိယအဖွဲ့အစည်းဖြစ်သော Myanwei Environmental Solution Company Limited အနေနှင့် စီမံကိန်းဆိုင်ရာအကြောင်းအရာများကို မေလ ၃၁ရက်၊ ၂၀၂၀ပြည့်နှစ်တွင် ၎င်းတို့၏ လူမှုကွန်ယက်ပေါ်တွင် ကြေငြာခဲ့ပါသည်။ ကုမ္ပဏီအနေဖြင့် ပြည်သူလူ၊ အဖွဲ့အစည်းနှင့် သက်ဆိုင်သူများမှ ပေးအပ်လာသော အကြံပြုချက်များ၊ တိုင်ကြားချက်များ၊ မှတ်ချက်များကို အီးမေးလ်၊ ဖုန်း၊ လူမှုကွန်ယက်များမှတစ်ဆင့် ရယူသွားမည်ဖြစ်သည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီရင်ခံစာဆောင်ရွက်နေချိန်တွင် လူထုတွေ့ဆုံဆွေးနွေးပွဲအစည်းအဝေးကို ၂၀၂၂ ခုနှစ်၊ စက်တင်ဘာလ ၉ ရက်နေ့တွင် ပြုလုပ်ခဲ့ပါသည်။ ဤစီမံကိန်းအတွက် သက်ဆိုင်ရာ အဓိကရုံးများမှာ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD) ဖြစ်ပါသည်။ ထို့နောက်သက်ဆိုင်ရာတိုင်းဒေသကြီးအဆင့်တွင် အဓိကရုံးများမှာ ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ (YCDC)၊ အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာန၊ မီးသတ်ဦးစီးဌာန၊ အထွေထွေအလုပ်သမားဥပဒေစစ်ဆေးရေးဦးစီးဌာနနှင့် ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန တို့ဖြစ်သည်။

အချိန်နှင့်နေ့ရက်	သောကြာနေ့၊ ဇူရက် စက်တင်ဘာလ ၂၀၂၂ခုနှစ် ၁၀း၀၀ - ၁၂း၀၀ နာရီ
နေရာ	အမှတ် (၄၁၀-ဘီ/၇၅(က) ပုလဲအိမ်ရာ၊ စကားဝါလမ်း၊ မဂ်လာဒုံ မြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။
အခမ်းအနားအစီအစဉ်	• စီမံကိန်း၏ နောက်ခံအချက်အလက်များ ရှင်းလင်းတင်ပြခြင်း • စီမံကိန်းအကြောင်းအရာများရှင်းလင်းတင်ပြခြင်း • ပတ်ဝန်းကျင်ထိခိုက်မှုအကဲဖြတ်ခြင်း၊ လျော့ချခြင်း အစီအစဉ်များရှင်းလင်းတင်ပြခြင်း • ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် စောင့်ကြည့်လေ့လာရေးအစီအစဉ်များရှင်းလင်းတင်ပြခြင်း • Plus World Co.,Ltd အား ကွင်းဆင်းစစ်ဆေးမှုများ တင်ပြခြင်း • ဆွေးနွေးပွဲတက်သူများ၏ အကြံပြုချက်များနှင့်မေးခွန်းများအား ပြန်လည်ဖြေကြားခြင်း
စီစဉ်ဆောင်ရွက်သူ	Myanwei Environmental Solutions Company Limited

အနှစ်ချုပ်

ဤစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ဆိုင်ရာ ထိခိုက်မှုများကို အကဲဖြတ်ပြီး ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်ကို မှန်ကန်စွာ ရေးဆွဲထားကြောင်း အတည်ပြုပါသည်။ ပတ်ဝန်းကျင် ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်းစဉ်တွင် ပြည်သူများ၊ သက်ဆိုင်ရာဌာနများနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ တို့မှ ပေးသော အကြံဉာဏ်မှတ်ချက်များကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ထည့်သွင်းဖော်ပြထားပါသည်။ ထို့ကြောင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာ သည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အတိုင်း စီမံကိန်းဖော်ဆောင်သူမှ

လိုက်နာဆောင်ရွက်ရန် စနစ်တကျ ပြည့်စုံစွာ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ထည့်သွင်းရေးဆွဲထားပါသည်။

EXECUTIVE SUMMARY

Introduction

This Environmental Impact Assessment (EIA) report is presented for the proposed project manufacturing of purified drinking water by the Plus World Company Limited (WavePlus drinking water) hereinafter referred to initiate the required EIA processes under Myanmar's Environmental Impact Assessment Guidelines, 2015. As per the comments of Myanmar Investment Committee (MIC), the project requires an EIA to meet the environmental assessment requirements of Notification No. 001/ MIC (OSS)/01(13/2020) on 28 February, 2020. The proposed project is 30 years investment and the construction period is one year. The proposed project is the 100% local investment by Plus World Company Limited with an estimated authorized capital of 100,000 MMK. The proposed factory is located at Myay Taing (532/B), No.410-B/75 (Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar and the total land area is 3.968 acres. The scope of information to be provided in the report is mentioned here, in order to approve to the Environmental Conservation Department (ECD) in line with the Environmental Law, Environmental Rules and related guidelines enacted by the Ministry of Natural Resources and Environmental Conservation (MONREC). The approval date of scoping report is notification in No. YGN/EIA/5(2) (2062/2022) at 2 August 2022.

Type of Proposed Business	Manufacturing of Purified Drinking Water
DICA Registration	103296277(6/10/2016)
Type of investment	100% local investment
Type of Share	Ordinary Share
Total land area	3.968 acres
Contact Name	U Soe Moe Hlaing
Phone	0943033130
E mail	soemoehlaing.plusworld@gmail.com

Myanwei Environmental Solutions Company Limited (Myanwei) is responsible for overall EIA studies based on environmental quality assessment and data analysis. The team had conducted preliminary scoping process by determining the potential impacts during the Construction, Operation, and Decommissioning Phases of the project, with the ‘exclusion of Pre-Construction Phase (demolition phase), which involves dismantling of the existing buildings to be carried out by another party in due course. The significance and magnitude of impacts during the Construction Phase, Operation Phase, and Decommissioning Phase were thoroughly evaluated. For those impacts requiring mitigation, suitable measures have been proposed, in the EIA report.

Policy, Legal and Institutional Framework

This section provides a brief summary of relevant national environmental legislations established by the MONREC and overview of current local and international environmental and social policies including related international or regional convention for the proposed project. The section reviews the relevant policies, legislation, and institutional framework of Myanmar and International guidelines relevant in the context of an environmental and socio-economic aspect of the project. The activities carried out under the project are subject to these legal requirements and the proponent has to comply with the laws, rules, regulations and international guidelines

hereinafter mentioned. The Ministry of Environmental Conservation and Forestry (MOECAF) was reformed as the Ministry of Natural Resources and Environmental Conservation (MONREC) in April 2016 to be the focal point and coordinating agency for environmental management. The Environmental Conservation Department (ECD) was established in October 2012 based on Environmental Conservation Law (2012). ECD is responsible for managing the EIA process in Myanmar. Specifically, the Environmental Impact Assessment for this project will follow not only the national regulations such as the Environmental Conservation Law, Environmental Conservation Rules and relevant regulations of the Government of the Republic of the Union of Myanmar but also International Guidelines such as WHO standards, IFC Environmental Health and Safety Guidelines for environmental and social considerations.

Project Description

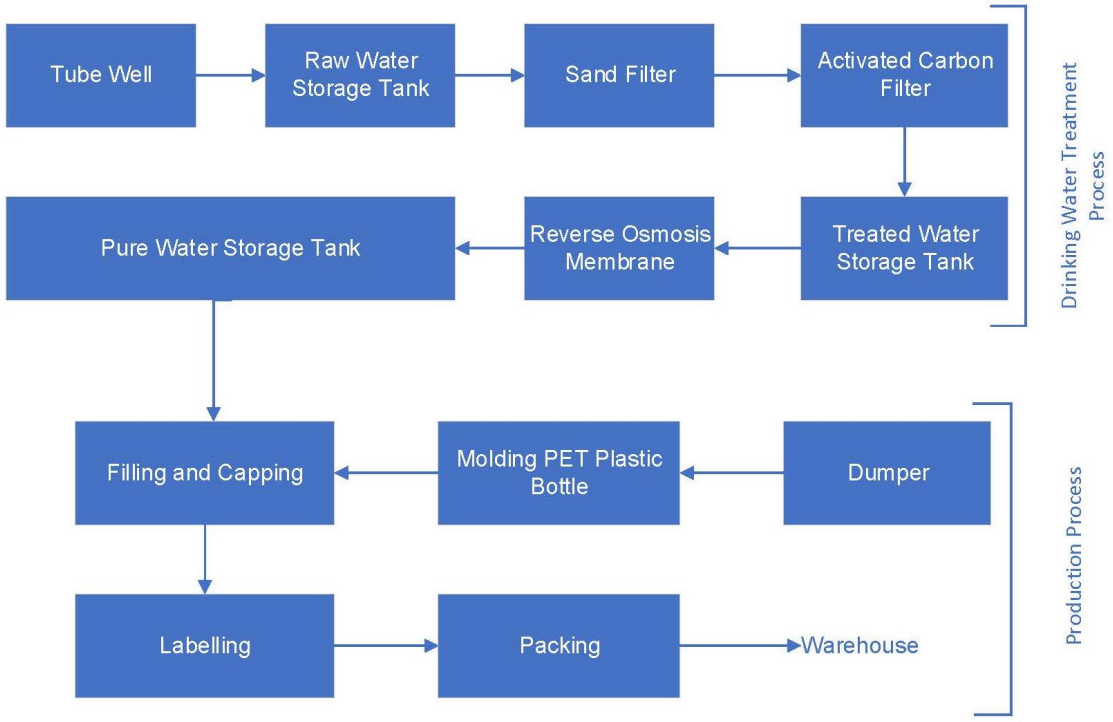
The proposed project is located at Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar that is located between 16°58'12.47"N and 96° 8'39.25"E. The total land area is 3.968 acres that is flat land and the land plot is square shape. The project aims to manufacture and distribution of purified drinking water. The project is under construction stage in which the construction is started in January 20th, 2020. The buildings are constructed in steel structure R/C buildings. The project compound may include main building, R/O and compressor building, warehouse and dormitory. The main building will be in 415' 8" x 134' 6" in area. The project was leased the project area from land owner about 30 years. During the site survey in March 4, 2020, the 4 storey factory building is almost finished. **The construction phase may last about eight months and already finished in February 2021.** The construction is run by using 87 workers.

Project Function Area

No.	Particulars	A/U	Qty	Remark
1	Main Factory Building	unit	1	1 Storey Building
2	Dormitory Building	unit	1	4 Storey Building
3	Warehouse Building	unit	1	1 Storey Building
4	R/O & Compressor Building	unit	1	1 Storey with Mezzanine (Area)

The project will use automated machines for production. The plastic bottles are molded by blowing machines into four different sizes bottles (1-liter, 0.6-liter, 0.3-liter, 20-liter). The filling machine combines washing, filling and capping three functions in a body in which the whole body is automatic that is operated by an operator. The water bottles are labeled by using automated labelling machines. The labeled products are packed by automated packing machines and stored in warehouse.

The project will use Reverse Osmosis (R/O) Water Treatment Process that can remove contaminants from unfiltered water, or feed water, when pressure forces it through a semipermeable membrane. Water flows from the more concentrated side (more contaminants) of the RO membrane to the less concentrated side (fewer contaminants) to provide clean drinking water.



Diagrammatic Representation of the Bottling Plant

Plus World Company Limited is the production of purified drinking water. The machine capacity is 24000 BPH and the running hour is 16 hours which is divided into two shifts. The factory runs 26 days per month and the production rate is 172800 bottles/ shift. The product is distributed as Wave Plus Purified Drinking Water and this will distribute within the local market.

Expected Annual Production Rate

No.	Item	Qty	1st Year Production	2nd Year Production	3rd Year Production
1	1 Liter	pcs	36,864,000	44,236,800	53,084,160
2	0.6 Liter	pcs	46,080,000	55,296,000	66,355,200
3	0.3 Liter	pcs	36,864,000	44,236,800	53,084,160

The electricity supply is used from Yangon Electrical Supply Corporation (YESC) by installing 1500 KVA and 315 KVA transformers. The estimated electrical usage is about 2800000 KW/hour per year. The low fuel consumption of 500 KVA generators which is 15000 PRPM and 50 Hz frequency will be installed to run the operation during the electricity cut off. The main source of water supply is from six tube wells and the estimated water usage may have 30000 liters per hour.

Facilities of the factory

The project will be hired 365 local employees to run the operation. These employees will be needed for 28 positions including ASM, engineers, supervisors, accountants, staff, admin, security. Therefore, the proposed project can create the job opportunities for local people.

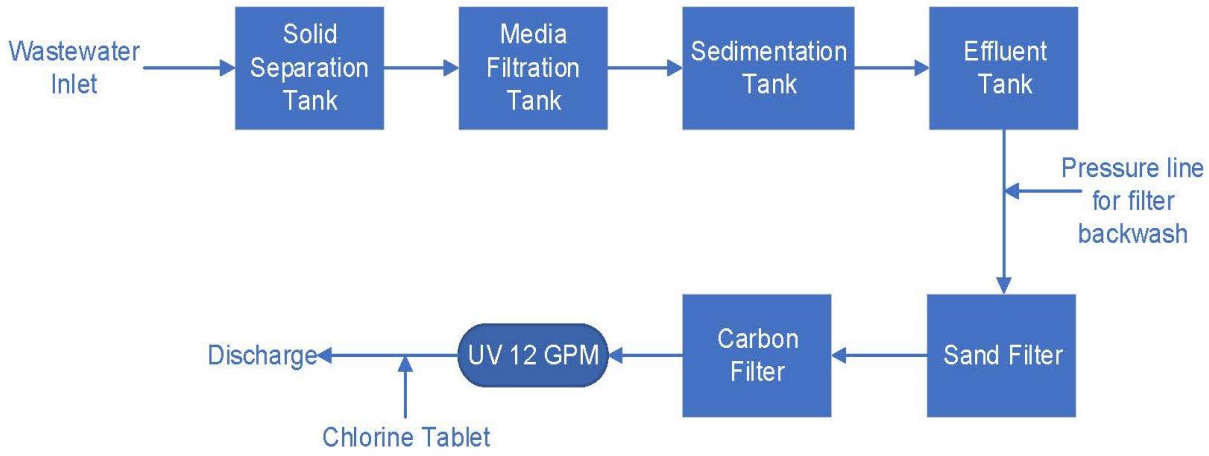
The project will use six tube wells and the water will be pumped out by using submersible pump which is 2" in diameter. The water will be stored in the overhead tank and underground

water tank that can store 30000 gallons and 50000 gallons respectively. The estimated water usage may have 30000 liters per hour.

The factory will install concrete drainage channels along the factory. The effluent from the wastewater treatment process will be discharged into the drain. Rain water or domestic wastewater will be discharged into the existing drainage channel of the surrounding project area from the sides of the building.

Wastewater Treatment System

Under operation stage, the wastewater from toilet is treated by Membrane Bioreactor (MBR) process which is an emerging advanced wastewater treatment technology. The effluent will be discharged into the drain. The detail wastewater treatment system is shown in following diagram.



Wastewater Treatment Process Diagram

Solid Waste Management System

During the construction phase, the construction wastes are disposed by connecting with Department of the Yangon City Development Committee (YCDC).

During the operation phase, less than one percent of daily usage such as paper roll, plastic bottles and caps will be produced as wastes. The project aims to recycle the paper roll and plastic and the remaining wastes will be disposed by connecting with Department of the xxxvii angon City Development Committee (YCDC).

Firefighting System

The smoke detectors, fire alarm systems, sprinklers and fire escape systems will be installed to alarm the workers to escape from the factory safely. The automatic sprinklers will be installed in factory buildings. The fire hose reels will be placed every corner of the factory buildings. The main breakers will install which can automatically break down the unwanted voltages to prevent the electric shocks. The electric lines will be checked by the specialist to

prevent fire and electric shocks. The water from underground water tanks and the overhead tanks will be connected to put out the fire. The fuel storage system training and the firefighting training will be arranged for the workers. The fire extinguishers will be placed according to the instructions of Myanmar Fire Force.

Description of the Surrounding Environment

Plus World Company Limited is located across Mingaladon Township in Yangon Region. In 2019, the population of Mingaladon Township is about 263,798 people. More than 90% of the people living in the township are Buddhists. Among regional towns, Mingaladon Township has a variety of businesses and services operating in the community with other businesses/services, based in the region. Most of the source of livelihood in the Township is employment of factory. The diseases of high prevalence reported in 2019 are Tuberculosis (TB), followed by hypertension, diarrhea, dysentery and hepatitis. With reference to the Township Health Profile 2019 of Mingaladon Township, no accidental work injuries reported to the township hospital in 2013. Mingaladon Township is growing into a busy and vibrant community. The population fluctuates; however, there has been steady growth over the last decade. It tends to be a stopover on a journey rather than a destination. It has a number of sites that are interesting; however, there is no main attraction. Visitors to the town are generally visiting for work, investment or family reasons.

Environmental Baseline Survey

In EIA study, it is necessary to establish baseline information on the environmental and socio-economic settings of an area which could receive direct and indirect impacts from the project construction and operation. Environmental baseline surveys were conducted both in scoping stage (2020) and EIA study stage (2022) covering the information on the ambient environment quality, natural environment and socio-economic characteristics. There have not been any notable changes in the Study Area including the Project Site in terms of both natural and social environment items which are examined by the survey in scoping stage (2020) and EIA stage (2022), therefore, all data collected through these surveys can be considered consistent data for assessment impacts.

No	Item	Monitoring Date	Coordinates	Parameter
Summary of Field Survey in 2020				
1.	Air Quality	15, December 2020	16°58'14.51"N 96° 8'40.63"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen dioxide (NO2), (4) TSP, PM10 and PM2.5
2	Noise Level	15, December 2020	16°58'13.37"N 96° 8'39.63"E	dBA
3	Water Quality	15, December 2020	16°58'11.45"N 96° 8'41.35"E	(1) Temperature, (2) Odor, (3) Color, (4) pH, (5) Turbidity, (6) SS, (7) DO, (8) COD, (9) TOC, 10) BOD5, 11) Oil and Grease, (12) Total Coliforms,
Summary of Field Survey in 2022				
4	Air Quality (AQM - 1)	6, September 2022	16°58'13.02"N 96° 8'39.90"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen

No	Item	Monitoring Date	Coordinates	Parameter
				dioxide (NO2), (4) TSP, PM10 and PM2.5
5	Air Quality (AQM – 2)	7, September 2022	16°58'4.77"N 96° 8'43.16"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen dioxide (NO2), (4) TSP, PM10 and PM2.5
6	Noise Level (NL -1)	6, September 2022	16°58'13.02"N 96° 8'39.90"E	dBA
7	Noise Level (NL -2)	7, September 2022	16°58'4.77"N 96° 8'43.16"E	dBA
8	Traffic Counting (TC -1)	6, September 2022	16°58'15.54"N 96° 8'39.42"E	Road Condition
9	Traffic Counting (TC – 2)	7, September 2022	16°58'5.01"N 96° 8'52.27"E	Road Condition

Impact Assessment and Mitigation Measure

For the physical, biological and social environmental impacts of the project activities, the project phases: pre-construction, construction, operation and decommissioning phases are considered.

There are no negative impacts on physical, biological and social environment for the preconstruction (planning) phase of the project. According to the assessment made by EIA team and discussion with the community (public engagement events), it was noted that the community made no objection on the project and they welcomed the project and hoped to get job in the project.

For the operation phase and decommissioning phase, the summary of following key impacts are identified and relevant mitigation measures will be applied.

No	Impact	Possible Sources	Impact assessment scale					Impact Significance	Mitigation Measure
			M	D	E	P	SP		
Operation Phase									
1	Air pollution	Dust and GHGs emission from using of generators and vehicles	2	4	2	3	24	Low	Good ventilation system should be inside the factory building. Install the stack for generators. Vehicles and operation equipment should be checked and repaired regularly. Generators and other equipment that generate gases must be turned off when not in use.
2	Water pollution	The accidental spillage of oil and	2	4	1	3	21	Low	Wastewater that includes oil and grease should be treated using

No	Impact	Possible Sources	Impact assessment scale					Impact Significance	Mitigation Measure
			M	D	E	P	SP		
		diesel from vehicles, generators. Improper chlorination dosage may alter water quality Contamination of water due to spills and propagation of chemical elements (e.g. PCB, oil, etc.)							a floating equipment. Sewage should be treated using a septic tank or similar facilities that allow its proper decomposition. Heavy metals containing wastewater should be treated using one of the conventional techniques such as membrane filtration, ion exchange, chemical precipitation, electrochemical treatment, etc.
4	Noise Pollution	Noise from the generating of the emergency generators Use of vehicles for transportation of raw materials and products	2	4	1	3	21	Low	Use equipment, generators and machines which generate low noise levels. Regular maintenance and inspection of all vehicles and equipment should be carried out to minimize the generation of noise and vibration. Monitoring of noise level will be conducted to carefully check the actual noise level since the area affected by noise can be large. Then, the project proponent plans to discuss the additional measures with residents and take the measures.
5	Fire Hazard	Poor electrical installations Waste disposal area Poor installation of production lines Cooking and smoking of labours Risk of leakage from fuel storage tanks	3	4	1	3	24	Low	To provide fire extinguishers, fire hose reels and fire hydrants on the walls of the company for fire emergency cases. Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening. The emergency fire alarms are installed at the company for alerting the workers in case of fire. The main entrances and route for emergency cases of

No	Impact	Possible Sources	Impact assessment scale					Impact Significance	Mitigation Measure
			M	D	E	P	SP		
									the company must not be blocked with materials or machines for fire emergency cases.
6	Solid waste	Waste from kitchen, dormitory and office. Chemical coagulation, settled water from pre-sedimentation	3	4	2	3	27	Low	Provides separate garbage bins at each building. All of the solid wastes will be collected separately in garbage based stored in relevant separated waste storage area Final wastes should be disposed by using YCDC's service.
7	Hazardous waste	Used oil and lubricant discharged from the maintenance of vehicles and machines.	2	3	1	2	16	Low	Proper inspection and maintenance in storage of hazardous waste. Dispose of hazardous chemicals and containers in accordance with occupational health, safety and environmental requirements. The hazardous wastes are transported by specially licensed carriers.
9	Occupational Health and Safety	Accidental cases cause by operating machines. Electrical shocks	3	4	1	2	16	Low	To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.
10	Local traffic pattern	Increase traffic of vehicles required to deliver materials and supply for the treatment processes	3	4	2	3	27	Low	If necessary, place traffic warning signs along accessible route and company compound yards. Attention to the driving environment. Operate the vehicle according to the requirements of Motor Vehicle Law.
11	Social-economic Condition	Job opportunities for local people	-	-	-	-	-	Positive Impact	
Decommissioning Phase									

No	Impact	Possible Sources	Impact assessment scale					Impact Significance	Mitigation Measure
			M	D	E	P	SP		
1	Air pollution	Decommissioning of buildings and related materials Transportation of demolished materials Fugitive dust from site preparation, excavation and movement of vehicle.	3	1	2	4	24	Low	Dust suppressant should be used where necessary by spraying water to affected area. Dust filter mask should be provided to workers. Open burning should be prohibited. Purchase vehicles and equipment that emit lowest CO2. Banning of old diesel or gasoline powered vehicles for construction and decommission activities by defining specific types and ages of vehicle. Vehicle speed limit should be restricted around the project site.
2	Water pollution	The run-off of cleaning of heavy machines and tools to surface water. Decommission of sewage and septic tank, domestic wastewater can affect surface water and ground water quality	3	1	3	3	21	Low	Provide proper sanitation facilities for the construction workers. Prepare proper fuel storage area such as putting fuel tank on the concrete slab instead of natural ground within the construction and decommission site. Regular inspection of the construction machines and maintaining the good condition. Provide proper temporary drainage system for construction and decommission site.
3	Soil Contamination	The spillage of oil and diesel and the decommission of buildings and the related buildings can cause soil erosion	3	1	2	3	18	Low	Store the fuel and oil properly. Regular check and maintain the fuel and oil storage tanks and sewer pipeline. Regular check the temporary solid waste disposal site in order to prevent leakage of leachate.
4	Noise Pollution	The demolition process such as excavation, removal of buildings, etc	4	1	3	3	24	Low	Use equipment, generators and machines which generate low noise levels.

No	Impact	Possible Sources	Impact assessment scale					Impact Significance	Mitigation Measure
			M	D	E	P	SP		
		Transportation of demolished materials							Regular maintenance and inspection of all vehicles and equipment should be carried out to minimize the generation of noise. Change vehicle types and driving habits can affect the intensity of exposure to noise. Uneven driving such as frequent acceleration or deceleration of speed can result in increase in noise emissions. Provide adequate ear protection (ear plugs or muffs) to workers who work in the excessive noise areas
5	Occupational Health and Safety (Accidents, Injuries)	Decommissioning activities such as use of heavy equipment fall down of buildings and transportation of demolished materials Health risk to construction laborers during demolition period (Like water bone/ air bone diseases, infected diseases such as HIV, AIDS)	3	2	2	2	14	Low	Warning signs should be set around spills or wet floors and avoid walking on slippery floors as much as possible. Use non-slip footwear. Illegal drugs or alcohol must be prohibited at any time on working hours. Provide First Aid Kits sufficiently at the hotel area. Restricted to use mobile phone while driving a motor vehicle or equipment. Health impact training for workers about waste handling. Practice about good personal hygiene for workers.
6	Social-economic Condition	Temporary job opportunities for local people	-	-	-	-	-	Positive Impact	

Residual Impacts

The environmental receptor of these residual impacts can be reestablished to the original condition after a change or being impacted. The additional research, monitoring, and/or recovery initiatives are not necessary to consider and these impacts are negligible to the overall baseline status of the resource.

Cumulative Impact Assessment

In order to assess the cumulative impacts, it was first assessed that how the residual impacts of the project could combine with the potential impacts of the anticipated future projects and impact common resources and receptors. And, the table below shows the expected cumulative impacts and corresponding mitigation measures.

No	Cumulative Impacts	Significance Impacts	Mitigation Measures
1	Increase in pollutant concentrations in surface water	Negligible	Following EMP and monitoring plan Engaging developers of other developments/ projects for effective collaboration or coordination
2	Increase in pollutant concentrations in ground water	Negligible	Following EMP and monitoring plan Engaging developers of other developments/ projects for effective collaboration or coordination
3	Incremental contribution of air pollutants	Negligible	Following EMP and monitoring plan Engaging developers of other developments/ projects for effective collaboration or coordination Collaborative engagement in other regional cumulative impact management strategies Participation in regional monitoring programs to assess the realized cumulative impacts and efficacy of management efforts (The last two points involve collaborative engagement with other stakeholders, including project proponents, government agencies, affected communities, conservation groups and expert groups.)
	Increased community safety and health issues	Low	Following EMP and monitoring plan Engaging developers of other developments/ projects for effective collaboration or coordination Consultation with community and providing education programs related to community health and safety issues Providing additional community safety and health measures based on discussion with the community

Environmental Management (Action) Plan

Categories	Management Action	Responsible Person	Inspection Type	Frequency
Operation phase				
Air Quality	Good ventilation system should be inside the factory building. Install the stack for generators. Maintain the generators.	HR Supervisor	Monthly Check	Two times per year
Water pollution	Minimise the spillage of diesel and oil. Regular monitoring of water content and of chlorination performance Store chemicals in a contained location with no drainage connection to the water network	Production Engineer & HSE Officer	Regular Check	Monthly

Categories	Management Action	Responsible Person	Inspection Type	Frequency
Operation phase				
	Ensure that transformers are located on impermeable and contained surfaces			
Noise Pollution	Provide the noise-controlled equipment for the factory workers to avoid hearing loss.	HR Supervisor & HSE Officer	Regular Check	Monthly
Fire Hazard	Maintain and check the electric lines and machines. Prohibit the fire usages. Install the firefighting system. Cover area where fuel storage tank is located with impervious material to limit leakage to groundwater	Production Engineer, HR Supervisor & HSE Officer	Regular Check	Monthly
Solid Waste	Recycle bin and allocated dumping location will be provided in factory Empty sedimentation pond more frequently and dispose solid waste at specified landfills	All Department Head	Regular Check	Monthly
Hazardous Waste	Manage and prevent the spillage of oil and diesel.	Production Engineer & HSE Officer	Regular Check	Monthly
Occupational Health and Safety	Work permit will be issued for any work to be carried out within the hazardous /dangerous area and other equipment.	Production Engineer & HSE Officer	Regular Check	Monthly
Local Traffic Pattern	Improve footway surface along the boundary of the site. Provide one or two persons for traffic management in front of the factory	HR Supervisor	Regular Check	Monthly
Decommissioning phase				
Air Quality	Spray water twice a day Cover mesh trap around the decommission area Install shading net about 2 meters above temporary fence of decommission area Carry broken material with cover by canvas.	Site Engineer	Monthly Check	Two times per year
Water pollution	Systematically demolish the septic tanks.	Site Engineer	Regular Check	Monthly
Soil Contamination	Manage the spillage of oil and diesel and sewage.	Site Engineer	Regular Check	Once per year
Noise Pollution	Provide noise protection equipment for construction workers Install temporary barriers of 2.5 m height and made by steel at construction area Carry out construction activities of high noise level doing day time.	Site Supervisor	Regular Check	Monthly

Categories	Management Action	Responsible Person	Inspection Type	Frequency
Operation phase				
Waste disposal	Recyclable materials and dispose to the define areas.	Site Supervisor	Regular Check	Monthly
Hazardous waste	Manage the disposal way of hazardous waste.	Site Supervisor	Regular Check	Monthly
Occupational Health and Safety (Accidents, Injuries)	Protective fencing or demarcation with tape will be provided at the boundaries of dangerous / hazardous zone and the appropriate warning signs, marking and safety signs and installation of the lost time injury notice board. Cleaning up excessive waste debris and liquid spills regularly Use the third-party expert assisted by trained personnel to identify and remove hazardous materials.	Site Engineer	Regular Check	Monthly
Local traffic pattern	Decommission vehicle in and out going process should have two or three persons for traffic management	Site Supervisor	Regular Check	Monthly

Environmental Monitoring Plan

Issues	Parameter	Frequency	Area to be monitored	Responsible Person
Operation Phase				
Common	Monitoring of mitigation measures	Yearly (3 years after operation)	The project	Management Team of Plus World Co., Ltd
Air quality	SO_2, NO_2, CO, CO_2, $PM_{2.5}$, PM_{10}	Biannually monitoring and reporting to ECD (first 3 years after operation)	One point in the factory	Management Team of Plus World Co., Ltd
Water quality	pH, Apparent Colour, Turbidity Conductivity, Total Hardness Calcium, Hardness Magnesium, Hardness Total Alkalinity, Phenolphthalein Alkalinity, Carbonate (CaCO3), Bicarbonate (HCO3), Iron, Chlorine (as CL), Sodium Chloride (as NaCL),	Biannually monitoring and reporting to ECD (first 3 years after operation)	One point in the factory	Management Team of Plus World Co., Ltd

Issues	Parameter	Frequency	Area to be monitored	Responsible Person
	Sulphate (as SO4), Total Solids Total Suspended Solids, Manganese Phosphate, Phenolphthalein Acidity, Methyl Orange Acidity, Salinity			
Waste Generation	Solid waste, Liquid waste and Hazardous waste	Weekly	Recycle house and waste house and at the factory office	Management Team of Plus World Co., Ltd
Fire Hazardous	Visual inspection, firefighting equipment	Monthly	At the factory	Management Team of Plus World Co., Ltd
Decommissioning Phase				
Air quality	SO_2, NO_2, CO, CO_2, PM2.5, PM10	One time during this phase	One point in the production area	Land Owner & Constructor
Noise	Noise level in decibel (dBA)	One time during this phase	One points in demolishing area	Land Owner & Constructor
Rehabilitation	Recovering and Revegetation		All decommissioning area	Land Owner & Constructor

Environmental Management Sub-Plans

1. Air pollution control management plan
2. Waste management plan (Hazardous and Non-hazardous wastes)
3. Wastewater management plan
4. Water quality management plan
5. Energy and water efficiency plan
6. Grievance Redness Mechanism (GRM)
7. Corporate social responsibility (CSR) program

Public Disclose and Consultation Meeting

Informing the local public about project and answering public concerns is the effective way to achieve the information purpose, to seek views of the participation and partnership purpose. Although this is the effective way, the public consultation cannot be held depending on Covid-19 cases and the political situation in country. During the preparation of this report, the second wave of Covid-19 disease becomes serious in Yangon. The Ministry of Health and

Support declared to avoid gathering more than 5 people to avoid close contact and to prevent spreading of disease. Moreover, the government declared the “Stay Home” announcement and limited the travelling one township to another township to control the spreading of diseases. Moreover, the pollical situation changes are affecting to carry out this process. Therefore, Myanwei Environmental Solution Company Limited; third party, declared the information of the project on their social media page in 31st May, 2020. The company warmly welcomes the suggestion, complain and comments from the public, organization and stakeholder through via mailing, comment, telephoning and messengers.

Public consultation meeting during preparation of EIA report was conducted on 9, September 2022. The project’s stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EIA process for environmental and social clearance and issuing operation permits for proposed development projects. For this company, relevant key offices at the national level are Environmental Conservation Department (ECD). Relevant key office at the regional level is Yangon City Development Committee (YCDC), General Administrative Department, Fire Department, General Labor Law Inspection Department and, Public Health Department.

Time and Date	Friday, 9 September 2022 10:00-12:00
Venue	No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region
Agenda	• Presentation on the Background Information of Project, • Project Description, • Impact Assessment, Environmental Mitigation • Environmental Management Plan and Monitoring Plan • Site survey and performances of Plus World Co.,Ltd • Received and Answer from feedback of participants
Organized by	Myanwei Environmental Solutions Company Limited

Conclusions

It is confirmed that the environmental impacts of the Project were assessed, and the Environmental Management Plan was formulated properly. In the process of EIA, opportunity of public involvement was ensured and comments from the public and MONREC were reflected into the EIA Report. Thus, the EIA was completed in accordance with the requirements of the EIA Procedure properly for the project proponent to follow the EMP accordingly.

CHAPTER 1
INTRODUCTION

1.1. INTRODUCTION

This Environmental Impact Assessment (EIA) report is presented for the proposed project manufacturing of purified drinking water by the Plus World Company Limited (WavePlus drinking water) hereinafter referred to initiate the required EIA processes 2015 under Myanmar's Environmental Conservation Department (ECD). This EIA report has been prepared by Myanwei Environmental Solutions Company Limited (Myanwei) on behalf of Plus World Company Limited (Plus World). The project is the development of a drinking water factory to be built on the land of approximately 3.9 acres in Mingalardon Township.

The scope of information to be provided in the report is mentioned here, in order to approve to the ECD in line with the Environmental Law, Environmental Rules and related guidelines enacted by the Ministry of Natural Resources and Environmental Conservation (MONREC). The approval date of scoping report is notification in No. YGN/EIA/5(2) (2062/2022) at 2 August 2022.

1.2. PROJECT PROPONENT

Our Water goes through a rigorous Quality Process. That’s how we can make sure it meets our high safety standards, and it tastes great too. At Plus World surface water is stored in a reservoir for days, in order to improve clarity and taste by allowing more oxygen from the air to dissolve in it and allowing suspended matter to settle out. The water then is pumped to a purification plant through pipelines, where it is treated, so that it will meet the FDA treatment standards. Then the water runs through micron carbon filters first and then through micron sand filters, before it is disinfected.

WavePlus water is again passed through micron filters for further removing and disinfecting any bacteria, chemicals or biological contaminants. Our strict quality control ensures the pH (Hydrogen) and TDS (Total Dissolved Solid) levels are within the permissible limits and ensures consistency in every WavePlus bottle. WavePlus water is granted licenses by FDA (Food and Drug Administration) by the Government of the Union of Myanmar.

The investment amount of the proposed project is 100,000 MMK. The project is 100% local investment. The proposed factory is located at Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar and the total land area is 3.968 acres. The project will benefit the job opportunities. Table 1-1 shows the contact of the project proponent of proposed project and the list of shareholder is presented in Table 1-1.

Table 1-1 Project Proponent Information

Company Name	Plus World Company Limited (Wave Plus Drinking water)
DICA Registration	103296277(6/10/2016)
Company Adress	No.(410-B/75(Ka), Myay Taing (532/B), Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar
Contact person	U Soe Moe Hlaing
Phone	09-43033130, 01-9551844

E mail	soemoehlaing.plusworld@gmail.com contact@wavepluswater.com

Table 1-2 List of Shareholders

No	Name of Shareholders	Citizenship	Share Percentage
1	U Nyi Nyi Lwin@ Nyi Nyi Thein Myint	Myanmar	50%
2	Daw Soe Nan Thi	Myanmar	25%
3	U Than Soe	Myanmar	25%

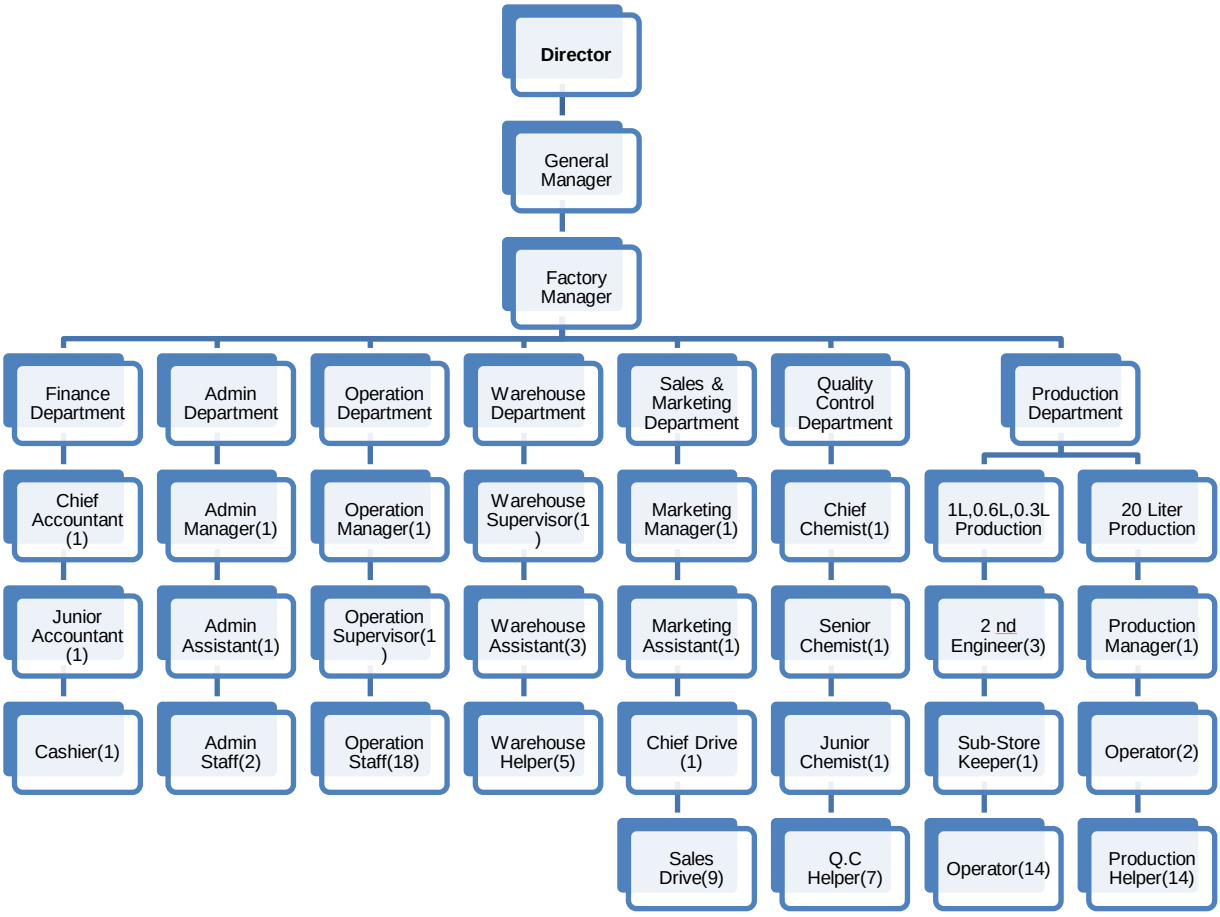


Figure 1-1 Organization Chart of Plus World Company Limited

1.3. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT EXPERT TEAM

Myanwei Environmental Solutions Company Limited (Myanwei) is responsible for overall EIA studies based on environmental quality assessment and data analysis. The team had conducted preliminary scoping process by determining the potential impacts during the Construction, Operation, and Decommissioning Phases of the project, with the 'exclusion of Pre-Construction Phase (demolition phase), which involves dismantling of the existing buildings to be carried out by another party in due course. The significance and magnitude of impacts during the Construction Phase, Operation Phase, and Decommissioning Phase were thoroughly evaluated. For those impacts requiring mitigation, suitable measures have been proposed, in the EIA report. The team coordinator assists the team leader in coordination among members of the EIA team, project proponent, ECD and other concerned government office. The core study and planning group of the EIA study team consists of qualified and experienced professionals in various

technical areas relevant to major environmental and social impacts of the project identified is illustrated in Table 1-3.

Table 1-3 General Information of Myanwei

Company Name	Myanwei Environmental Solutions Company Limited
Company Address	No. 49 (B), Innyar Yeik Thar Street, Mayangone Township, Yangon.
Transition Consultant Registration Certificate Number	TCR-0068
Phone	09421137569
Email	env@myanweiconsulting.com

The Myanwei's EIA assessment team has been formed for conducting the study and assessment for this Plus World factory with the following members.

Table 1-4 Member of EIA study team

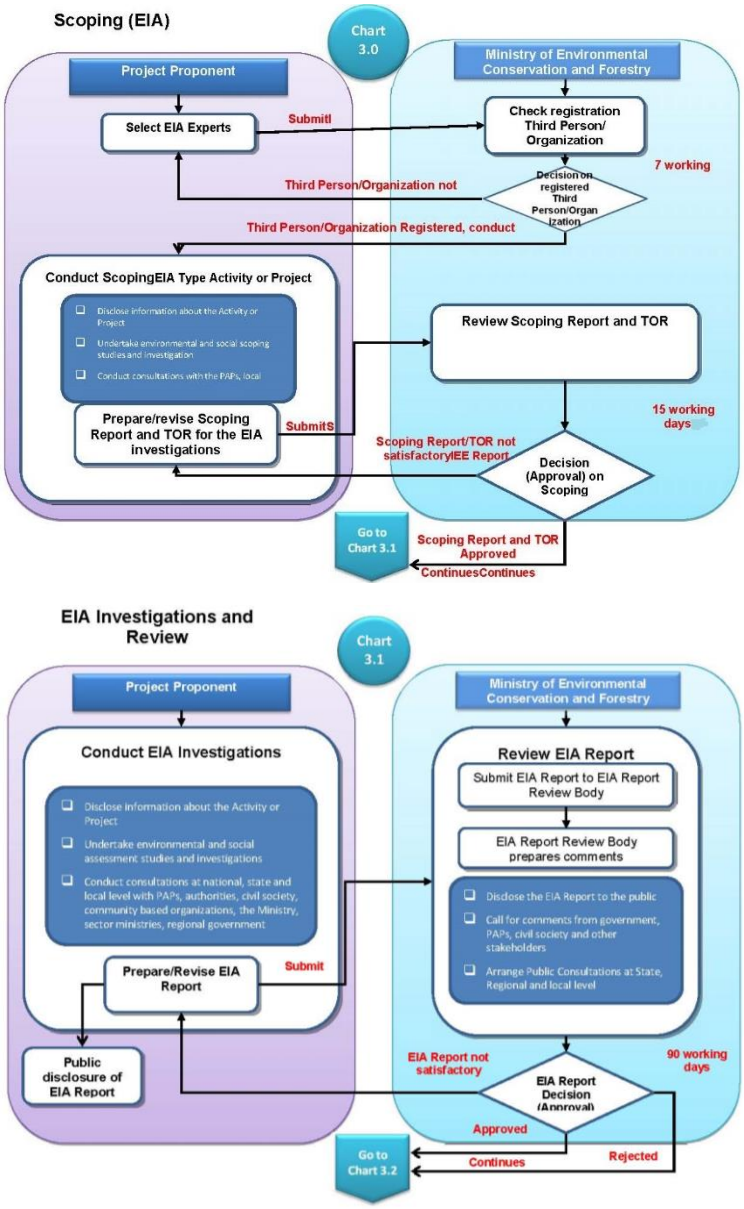
Name	Qualification	Position	Responsibility
Mr. Lin Htet Sein (Director) TCR No. 0048	MSc (Regional Geology) BSc (Hons) Geology Diploma in Environmental Quality Monitoring & Analysis Certificate in EMS ISO-14001:2015 Certificate in ESIA practical training	Leader	Project Management, Impact assessment, management plan and overall seeing/writing the EIA assessment report
Dr. Hein Lynn Aung (Director)	M.B, B.S (Yangon), Business Management (International Collage of Management Sydney, Australia)	Co-Leader	Public Health Consultant, Project Management
Ms. Wah Wah Zaw (Environmental Management specialist)	B.E Material and Metallurgy Engineering Diploma in Environmental Planning and Management M.S Environmental Planning and Management	Member	Social and Environmental Research, Quality control, Environmental Planning and Management
Ms. Khin Thu Zar Myint (Environmental Management and Social specialist)	B.E(Materials and Metallurgy) Dip in Environmental Planning and Management	Member	Social Research, Public consultation, Social Economic Investigation
Mr. Htun Lin Kyaw (Senior Environmental Consultant), Physical Specialist	B. Sc (Hons) Geology M.Sc. Geology (Structural)	Member	Baseline Study Preparation, Site Visit and Environmental Quality Monitoring, Participating and Presentation of Public Consultation Meeting,
Ms. Su Myat Hlaing (Environmental Engineer) Social	B.E. Civil Engineering B. Tech Civil Engineering	Member	Baseline Study Preparation, Site Visit and Environmental Quality Monitoring, Participating and Presentation of Public Consultation Meeting,

Name	Qualification	Position	Responsibility
and physical specialist			Social Surveying and Data Analysis
Ms. Haymar Htet Naing (Social Expert)	B.A (Eng)	Member	Social Surveying and Data Analysis
Mr. Saw Yan Naung (Chemical Engineer)	B.E. Chemical Engineering B. Tech Chemical Engineering	Member	Communication with the Government and related stakeholders, Site Visit, Baseline data Monitoring and Analysis
Mr. Kaung Sett Lwin (Environmental Consultant)	B.Sc (Hons) Geology Certificate of Geotechnical Engineering (Myanmar Geoscience Society)	Member	Baseline Study Preparation, Site Visit and Environmental Quality Monitoring, Participating and Presentation of Public Consultation Meeting, Social Surveying and Data Analysis, Drawing the Maps (GIS)
Mr. Si Yan Hein (Environmental Consultant)	B.Sc (Hons) Geology Certificate of Geotechnical Engineering (Myanmar Geoscience Society)	Member	Site Surveying and Environmental Quality Monitoring, Collect and Analysis the monitoring data, Drawing the Maps (GIS)
Mr. Aung Kyaw Htet (Junior Environmentalist)	B.Sc (Geology)	Member	Site Surveying and Environmental Quality Monitoring, Drawing the Maps
Mr. Naing Htay Lin (Junior Environmentalist)	B.Sc (Forestry)	Member	Site Surveying and Environmental Quality Monitoring
Mr. Lynn Than Thaung (Environmental Consultant)	B.Sc (Forestry)	Member	Site Surveying and Environmental Quality Monitoring, Writing Report
Ms. Pyae Phyo Win (Ecological Consultant)	M. Sc (Botany)	Member	Site Surveying and Environmental Quality Monitoring,
Ms. May Soe Kyi (Junior Environmentalist)	B.Agr.Sc (Qualified) PGDCSM- 6 Post Graduate Diploma in Civil Service Management	Member	Participating and Presentation in Public Consultation Meeting, Social Surveying and Data Analysis

The objectives of the EIA study according to EIA Procedure (2015) are as follows: The EIA process is explained in the diagram below. (Figure 1-2)

- To determine the potential impacts between the proposed project and key environmental receptors
- To identify the baseline environmental data in order to monitor the changes that have taken place during the project life cycle
- To identify and evaluate the potential environmental impacts

- To recommend mitigation measures in order to reduce or remove potential adverse impacts
- To prepare an Environmental Management Plan (EMP) for the proper implementation of the project



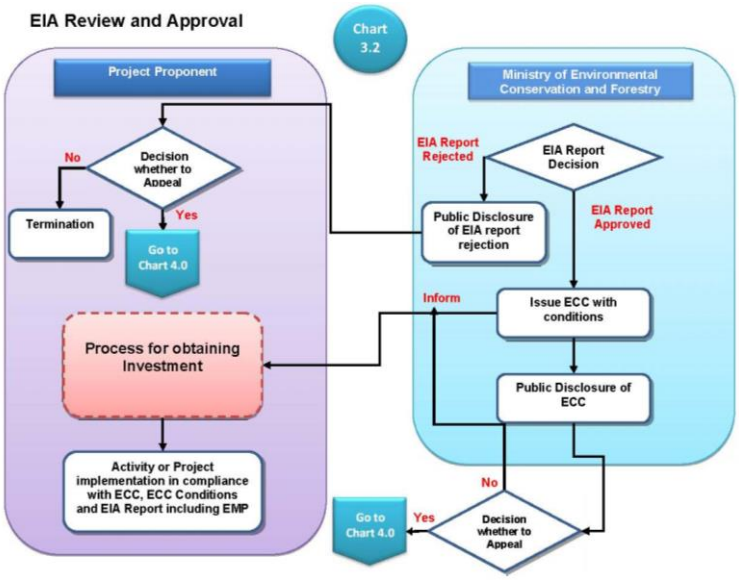


Figure 1-2 EIA Investigation process

CHAPTER 2
POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This section provides a brief summary of relevant national environmental legislations established by the MONREC and overview of current local and international environmental and social policies including related international or regional convention for the proposed project.

2.1. ENVIRONMENTAL POLICY OF PLUS WORLD CO., LTD.

Plus World shall be responsible for the preservation of the environment at and around the area of project site. In addition to this, it shall carry out as per instructions made by Ministry of Natural Resources and Environmental Conservation (MONREC) in which to conduct an EIA which describe the measure to be taken for preventing, mitigation and monitoring significant environment impacts resulting from the implementation and operation of proposed project or business or activity has to be prepared and submitted and to perform activities in accordance with this EIA and be abided by the environment policy, Environmental Conservation Law and other environmental related rules and procedures. Project proponent shall be responsible for the environmental assessment of factory development as follows:

- ✓ To set up welfare plan such as staff medical checkup, training program and public talk for getting knowledge, risk prevention, bonus and social security services.
- ✓ To promote Corporate Social Responsibility- (CSR) with 2% of the net profit for development of safe, economic and social environment
- ✓ To carry out fire safety assessment and ensure adequate and appropriate fire safety measures for employees
- ✓ To carry out disposing wastes according to Yangon City Development Committee regulations, protect, and preserve the project environment from pollution of air, water and land by following laws and guidelines lay down by MONREC.

2.2. MYANMAR REGULATORY FRAMWORK

The Ministry of Environmental Conservation and Forestry (MOECAF) was reformed as the Ministry of Natural Resources and Environmental Conservation (MONREC) in April 2016 to be the focal point and coordinating agency for environmental management.

The Environmental Conservation Department (ECD) was established in October 2012 based on Environmental Conservation Law. ECD is responsible for managing the EIA process in Myanmar.

2.2.1. Fundamental Laws and Regulations Related to Environmental and Social Considerations

The fundamental laws and regulations related to the environmental and social considerations and health in Myanmar and major international agreements and treaties that the Myanmar government has ratified related to the environmental and social considerations are shown in below:

2.2.2. National Environmental Policy of Myanmar, (Notification No. 26/94 dated 5 December 1994)

Purpose: To achieve harmony and balance between socioeconomic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all its citizens.

2.2.3. Environmental Conservation Law, 30 March 2012

Objectives	to contract a healthy and clean environmental and to conserve natural and cultural heritage for the benefit of present and future generations; to maintain the sustainable development through effective management of natural resources and to enable to promote international, regional and bilateral cooperation in the matters of environmental conversation.
Chapter IV Provisions of Duties and Powers relating to the Environmental Conservation of the Ministry: Section 7	(d) prescribing environmental quality standards including standards on emissions, effluents, solid wastes, production procedures, processes and products for conservation and enhancement of environmental quality;
Chapter VI 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.
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.
Chapter X Prior Permission Section 24	The Ministry may, in issuing the prior permission, stipulate terms and conditions relating to environmental conservation. It may conduct inspection whether or not it is performed in conformity with such terms and conditions or inform the relevant Government departments, Government organizations to carry out inspections.
Chapter XIII Offences and Penalties Section 32	Whoever violates any prohibition contained in the rules, notifications, orders, directives and procedures issued under this Law shall, on conviction, be punished with imprisonment for a term not exceeding one year, or with fine, or with both.

2.2.4. **Environmental Conservation Rules, 2014**

Chapter XIII Prohibitions Section 69	(a) Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants to environment and the hazardous waste or hazardous material stipulated by notification under the Law and any of these rules at any place which may affect the public directly or indirectly. (b) Any person shall not carry out the actions which can be damaged to natural environment which is changing due to ecosystem and such system, except the permission of the relevant Ministry in order to the interest of the public.

2.2.5. **Environmental Impact Assessment Procedure, December 2015**

CHAPTER VIII. Responsibility for all Adverse Impacts Section 102	The Project Proponent shall bear full legal and financial responsibility for: a) all of the Project Proponent's actions and omissions and those of its contractors, subcontractors, officers, employees, agents, representatives, and consultants employed, hired, or authorized by the Project acting for or on behalf of the Project, in carrying out work on the Project; and b) PAPs until they have achieved socio-economic stability at a level not lower than that in effect prior to the commencement of the Project, and shall support programs for livelihood restoration and resettlement in consultation with the PAPs, related government agencies, and organizations and other concerned persons for all Adverse Impacts.
Section 103	The Project Proponent shall fully implement the EMP, all Project commitments, and conditions, and is liable to ensure that all contractors and subcontractors of the Project comply fully with all applicable Laws, the Rules, this Procedure, the EMP Project commitments and conditions when providing services to the Project.
Section 104	The Project Proponent shall be responsible for, and shall fully and effectively implement, all requirements set forth in the ECC, applicable Laws, the Rules, this Procedure and standards.
Section 105	The Project Proponent shall timely notify and identify in writing to the Ministry, providing detailed information as to the proposed Project's potential Adverse Impacts.
CHAPTER IX. Monitoring Section 106	The Project Proponent shall, during all phases of the Project (pre-construction, construction, operation, decommissioning, closure and post-closure), engage in continuous, proactive and comprehensive self-monitoring of the Project and activities related thereto, all Adverse Impacts, and compliance with applicable laws, the Rules, this Procedure, standards, the ECC, and the EMP.
Section 107	The Project Proponent shall notify and identify in writing to the Ministry any breaches of its obligations or other performance failures or violations of the ECC and the EMP as soon as reasonably possible and in any event, in respect of any breach which would have a serious impact or where the urgent attention of the Ministry is or maybe required, within not later than twenty-four (24) hours, and in all other cases within seven (7) days of the Project Proponent becoming aware of such incident.
Section 108	The Project Proponent shall submit monitoring reports to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP, or periodically as prescribed by the Ministry.
Section 109	The monitoring reports shall include: a) documentation of compliance with all conditions; b) progress made to date on implementation of the EMP against the submitted implementation schedule;

	c) difficulties encountered in implementing the EMP and recommendations for remedying those difficulties and steps proposed to prevent or avoid similar future difficulties; d) number and type of non-compliance with the EMP and proposed remedial measures and timelines for completion of remediation; e) accidents or incidents relating to the occupational and community health and safety, and the environment; and f) Monitoring data of environmental parameters and conditions as committed in the EMP or otherwise required.
Section 110	Within ten (10) days of completing a monitoring report as contemplated in Article 108and Article 109 in accordance with the EMP schedule, the Project Proponent shall make such report (except as may relate to National Security concerns) publicly available on the Project's website, at public meeting places (e.g. libraries, community halls) and at the Project offices. Any organization or person may request a digital copy of a monitoring report and the Project shall, within ten (10) days of receiving such request, submit a digital copy via email or as may otherwise be agreed upon with the requestor.
Section 113	For purposes of monitoring and inspection, the Project Proponent: a) shall grant to the Ministry and/or its representatives, at any time during normal working hours, access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed; and b) from time to time as and when the Ministry may reasonably require, shall grant the Ministry access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed.
Section 115	In the event of an emergency, or where, in the opinion of the Ministry, there is or may exist a violation or risk of violation of the compliance by the Project with all applicable environmental and social requirements, the Project shall grant full and immediate access to the Ministry at any time as may be required by the Ministry.
Section 117	The Project Proponent shall further ensure that the Ministry's rights of access hereunder shall extend to access by the Ministry to the Project's contractors and sub-contractors.

2.2.6. **The Ethnic Rights Protection Law (24th February, 2015)**

Chapter II Objectives	The objectives of this Law are as follows: (a) to obtain equal citizen's rights for all ethnic groups; (b) to live eternally together with amicable relations among ethnic groups on the basic of genuine Union Spirit; (c) to preserve and develop language, literature, fine art, culture, custom, national character, and historical heritage of ethnic groups; (d) to promote solidarity, mutual rarity and respect, and mutual assistance among ethnic groups; (e) to promote socioeconomic development including education, health, economy, transport and communication, so forth, of less-developed ethnic groups; (f) to fully obtain the rights prescribed in the Constitution by ethnic groups.
Chapter IV Formation of the Ministry and Appointment of the Union Minister	5. The matters of projects shall completely be informed, coordinated and performed with the relevant local ethnic groups in the case of development works, major projects, businesses and extraction of natural resources will be implemented within the area of ethnic groups.

2.2.7. **Myanmar Investment Law, 2016**

Chapter XII Rights to be used land Section 50	(d)The investor shall register the land lease contract at the Office of Registry of Deeds in accordance with the Registration Act.
Chapter XIII Employment of Staff and Workers Section 51	The investor: (a) may appoint of any citizen who is a qualified person as senior manager, technical and operational expert, and advisor in his investment within the Union in accordance with the Laws; (b) shall appoint them to replace, after providing for capacity building programs in order to be able to appoint citizens to different level positions of management, technical and operational experts, and advisors; (c) shall appoint only citizens for works which does not require skill; (d) shall appoint skilled citizen and foreign workers, technicians, and staff by signing an employment contract between employer and employee in accordance with the labor laws and rules; (e) shall ensure to obtain the entitlements and rights in the labor laws and rules, including minimum wages and salary, leave, holiday, overtime fee, damages, compensation of the workman, social welfare, and other insurance relating to workers in stipulating the rights and duties of employers and employees and occupational terms and conditions in the employment contract; (f) shall settle disputes arising among employers, among workers, between employers and workers, and technicians or staff in the investment in accordance with the applicable laws.
Chapter XVI Responsibilities of Investors Section 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 to use, without the approval of the Commission; (g) shall abide by applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage; (i) shall close and discontinue the investment only after payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce; (j) shall pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directives and so forth during the period of suspension of investment for a credible reason; (k) shall pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease and death due to the work; (l) shall supervise foreign experts, supervisors and their families, who employ in their investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar;
Chapter XVII Insurance Section 73	The investor shall ensure the types of insurance stipulated in the provision of the rules at any insurance enterprise which is entitled to carry out insurance businesses within the Union.

2.2.8. **Myanmar Insurance Law (1993)**

Chapter II Establishment and Aim	The Myanmar Insurance is established with the following aims: -

Section 4	social and economic losses which the people may encounter, due to common perils; (b) to promote the habit of savings individually by effecting life assurance, thus contributing to the accumulation of resource, of the State; (c) to win the trust and confidence of the people in the insurance system by providing effective insurance safeguards which may become necessary in view of the social and economic developments.
Chapter VI Effecting Insurance and Granting of Benefits Section 15	Owners of motor vehicles shall effect compulsory Third Party Liability Insurance with the Myanmar Insurance.
Section 16	An entrepreneur or an organization operating an enterprise which may cause loss to State-owned property or which may cause damage to the life and property of the public or which may cause pollution to the environment shall affect compulsory General Liability Insurance with the Myanmar Insurance.

2.2.9. **The Myanmar Fire Force Law (2015)**

Purpose	To ensure to prevent the fire, to provide the precautionary material and apparatuses, if the fire caused in the project area to be defeated because the project is business in which electricity and any inflammable materials such as petroleum are used. So, the project owner has to institute the specific fire service in line with the above law.
Section 25	The project proponent has to institute the specific fire services. The project owner has to provide materials and apparatuses for fire precaution and prevention.

2.2.10. **Myanmar Investment Rules, 2017**

Rule 202	The project proponent has to comply with the conditions of the permit issued by the MIC and applicable laws when making the investment
Rule 206.	The project proponent has to submit the passport, expert evidence or document of degree and profile to the MIC office for approval if decide to appoint a foreigner as senior management, technician expert or consultant according to subsection (a) of section 51 of Myanmar Investment Law
Rule 212	The investor obtained the permit or tax exemption or relief shall insure the relevant insurance out of the following types of the insurance at any insurance business entitled to carry out insurance business within the Union based on the nature of the business: (a) Property and Business Interruption Insurance; (b) Engineering Insurance; (c) Professional Liability Insurance; (d) Bodily Injury Insurance; (e) Marine Insurance; or (f) Workmen Compensation Insurance.

2.2.11. **The Private Industrial Enterprise Law, 1990**

Chapter III Registration of Private Industrial Enterprises Section 4	(a) Any person desirous of conducting any private industrial enterprise; (b) Any person conducting any private industrial enterprise on the day this Law is enacted; by using any type of power which is three horsepower and above or manpower of ten wage-earning workers and above shall register under this Law.
Chapter VI	The duties of the entrepreneur are as follows: -

Duties and Rights of the Entrepreneur Section 13	(b) shall abide by the terms and conditions of the registration certificate; (I) shall shift the place of enterprise, change the nature of enterprise, amalgamate enterprises and split up enterprises only with the approval of the Directorate; (g) shall abide by the orders and directives issued from time to time by the Ministry and the Directorate;
Section 15	The entrepreneur has the right to carry out the followings:- (a) appointing foreign exports and technicians with the approval of the Ministry; (b) Carrying out change of the name of enterprise, transfer of ownership, temporary suspension or permanent closing down of the enterprise in the manner prescribed and with the approval of the Directorate.

2.2.12. **Public Health Law (1972)**

အခန္း(၂) ျပည္သူ႔တို႔၏က်န္းမာေရးကို ကာကြယ္ျခင္း ဥပေဒပုဒ္မ (၃)	အျခားတည္ေဆာက္ရာဥပေဒမ်ားတြင္မည္သို႔ပင္ပါရွိေစကာမူအစိုးရသည္လည္းျပည္သူတို႔၏က်န္းမာေရးကိုပိုမိုတိုးတက္ေကာင္းမြန္လာေစရန္လည္းေကာင္း၊လုပ္သားျပည္သူတို႔၏က်န္းမာေရးကိုထိခိုက္ျခင္းမွကာကြယ္ရန္လည္းေကာင္းေအာက္တြင္ေဖာ္ျပေသာက်န္းမာေရးဆုိင္ရာကိစၥရပ္မ်ားကို အၾကံေပးျခင္း၊စစ္ေဆးျခင္း၊ၾကီးၾကပ္ျခင္း၊ျပဳျပင္ျခင္း၊တားျမစ္ျခင္းစသည့္လုပ္ငန္းတို႔ကိုလုပ္ေဆာင္ရမည္။ (၁) ပတ္ဝန္းက်င္ဆိုင္ရာလုပ္ငန္းမ်ား (က) လူအမ်ား ေနထိုင္ရာ ပတ္ဝန္းက်င္တြင္ အမွိုက္သရိုက္၊ အညစ္အေၾကးမ်ားကို သိမ္းဆည္းစြန္႔ပစ္ျခင္း (ခ) လူအမ်ားအတြက္ ေသာက္သံုးေသာေရမ်ားကို အျပည့္ျပည့္ဝရွာစံခ်ိန္မီသတ္မွတ္ျခင္းႏွင့္ ကာကြယ္ ေစာင့္ေရွာက္ျခင္း (ဂ) လူအမ်ားေနထိုင္ရာ ပတ္ဝန္းက်င္ေလထုတြင္ လူတို႔ကို ေဘးအႏၱရာယ္ျဖစ္ေစမည့္အခိုးအေငြ႕၊ အနံ႕အသက္၊ အမႈန္႕အမႊားမ်ား၊ အသံပလံုးႏွင့္ ဓါတ္ေရာင္ျခည္မ်ားေၾကာင့္ ညစ္ညမ္းျခင္းမွ ကာကြယ္ျခင္း။ (ဃ) ျမိဳ့ရြာစည္ပင္သာယာေရး၊ အိမ္ယာေဆာက္လုပ္ေရးႏွင့္ လုပ္သားျပည္သူတို႔သြားလာေနထိုင္အသံုးျပဳသည့္ အေဆာက္အဦး၊ သို႔မဟုတ္ ေနရာမ်ား၏က်န္းမာသန္႔ရွင္းေရးအတြက္ ေဆာင္ရြက္ျခင္း။ (၂) လုပ္သားျပည္သူတို႔ထုတ္လုပ္ေရာင္းခ်ေသာအစားအေသာက္ႏွင့္ပတ္သက္သည့္ကိစၥမ်ား (က) အစားအေသာက္ထုတ္လုပ္ေရာင္းခ်သည့္ အလုပ္ရံု၊ စက္ရံုလုပ္ငန္းဌာနမ်ားကို မွတ္ပံုတင္ျခင္း၊ မွတ္ပံုတင္ျခင္းမွ ပယ္ဖ်က္ျခင္းႏွင့္ ျပန္လည္မွတ္ပံုတင္ျခင္း။ (ခ) လုပ္သားျပည္သူသို႔ေရာင္းခ်ေသာအစားအေသာက္တို႔ကိုက်န္းမာသန္႔ရွင္းေစျခင္း (ဂ) လုပ္သားျပည္သူသို႔ ေရာင္းခ်ေသာ အစားအေသာက္မ်ားကို အတုအယျပဳလုပ္ျခင္း၊ အျခားယုတ္ညံ့ေသာပစၥည္းမ်ားႏွင့္ ေရာစပ္ျခင္း၊ အစားအေသာက္ထဲတြင္ ရွိယင္းစြဲဝတၳဳပစၥည္းမ်ား အားထုတ္ႏွိုးတ္ျခင္းတို႔မွ ကာကြယ္ျခင္း

	(ဃ) အစားအေသာကထုတ္လုပ္ေရာင္းခ်ေသာ အလုပ္ရံု၊ စကၠဴလုပ္ငန္းဌာနတို႔ကို က်န္းမာသန္႔ရွင္းေစျခင္း (င) အစားအေသာက္ေရာင္းခ်ေသာ ဥပစာအေဆာက္အဦးမ်ားကို က်န္းမာသန္႔ရွင္းေစျခင္း။ (စ) လုပ္သားျပည္သူသို႔ ေရာင္းခ်ေသာ အစားအေသာက္မ်ား ထုတ္လုပ္ေရာင္းခ်သည့္ေနရာမ်ားတြင္ ကူးစက္ေရာဂါရွိသူမ်ား ဝင္ေရာက္အမႈထမ္းျခင္းမွ ကာကြယ္ျခင္း (ဆ) ေဘးအႏၱရာယ္ျဖစ္ေစေသာ အစားအေသာက္မ်ားကို သိမ္းဆည္းဖ်က္ဆီးျခင္း၊ (ဇ) အစားအေသာက္ႏွင့္ ပတ္သက္သည့္ကိစၥရပ္မ်ားကို စစ္ေဆးၾကည့္ရႈ လုိအပ္လွ်င္ အစုိးရဓာတ္ခြဲခန္းမ်ားသို႔ ပို႔၍စစ္ေဆးျခင္း (စ်) အစားအေသာက္မ်ားကို အစိုးရကအခါအားေလ်ာ္စြာ သတ္မွတ္ေပးေသာစံခ်ိန္စံႏွဳန္းမ်ားႏွင့္ ကိုက္ညီေစရန္ေဆာင္ရြက္ျခင္း (၃) လုပ္သားျပည္သူမ်ားအတြက္ အသံုးျပဳရန္ ျဖစ္ေသာ ေနအိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားႏွင့္ ပတ္သက္သည့္ကိစၥမ်ား (က) ေနအိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ား ထုတ္လုပ္ေသာ အလုပ္ရံု ၊စကၠဴမ်ားမွတ္ပံုတင္ျခင္း၊ မွတ္ပံုတင္မပယ္ဖ်က္ျခင္းႏွင့္ ျပန္လည္မွတ္ပံုတင္ျခင္း (ခ) ထုတ္လုပ္ေသာေန အိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားသည္ လုပ္သားျပည္သူတို႔အတြက္ ေဘးအႏၱရာယ္ ျဖစ္စြားႏုိင္လွ်င္ေသာ္လည္းေကာင္း ၊အဆိပ္အေတာက္ ျဖစ္ေစႏုိင္လွ်င္ေသာ္လည္းေကာင္း၊ ေဘးအႏၱရာယ္ ျဖစ္ေစတတ္ေသာ ဓါတုေရာင္ျခည္ပါဝင္လွ်င္ေသာ္လည္းေကာင္း ၄င္းကုန္ပစၥည္းမ်ားကို ထုတ္လုပ္ျခင္းကိုတားျမစ္ျခင္း။ (ဂ) ေဘးအႏၱရာယ္ရွိေသာ ထုတ္လုပ္ျပီးသည့္ ေနအိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားကုိ လုပ္သားျပည္သူမ်ားအား ေဘးအႏၱရာယ္မရွိေစေသာ နည္းဖ်က္ဆီးျခင္း (ဃ) ကုန္ေရာင္းဆုိင္မ်ားမွ ေဘးအႏၱရာယ္ရွိေစေသာ ေနအိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားကို သိမ္းဆည္း ဖ်က္ဆီးျခင္း (င) ေနအိမ္သံုးပစၥည္းမ်ားႏွင့္ အလွကုန္ပစၥည္းမ်ားကို အစိုးရက အခါအားေလ်ာ္စြာ သတ္မွတ္ေပးေသာစံခ်ိန္စံႏွဳန္းမ်ားႏွင့္ ကိုက္ညီေစရန္ေဆာင္ရြက္ျခင္း။
ဥပေဒပုဒ္မ (၅)	ကိုယ္ပိုင္ေဆးကုေဂဟာမ်ားႏွင့္ပတ္သက္သည့္ကိစၥမ်ား (က) ကိုယ္ပိုင္ေဆးကုေဂဟာမ်ားႏွင့္ပတ္သက္၍လုိအပ္သည့္စည္းကမ္းခ်က္မ်ားကိုသတ္မွတ္ျခင္း (ခ) ကိုယ္ပိုင္ေဆးကု ေဂဟာအားလံုးကို မွတ္ပံုတင္ျခင္း၊ မွတ္ပံုတင္မ ပယ္ဖ်က္ျခင္းႏွင့္ ျပန္လည္မွတ္ပံုတင္ျခင္း။

2.2.13. **Prevention and Control of Communicable Disease Law 1995 (Amendment in 2011)**

Chapter 2 Prevention and Response Section 3	(a) In order to prevent the outbreak of communicable diseases, the Department of Health shall implement the following activities systematically under the guidance of the Ministry of Health: (i) immunization of children by injection or orally; (ii) immunization of those who have attained eligible target group including adult by injection or orally, when necessary; (iii) carrying out health education activities relating to communicable disease; (iv) carrying out the activities of surveillance, prevention and control concerning communicable disease; (v) carrying out the activities of medical examination for prevention of communicable disease in cross-border entrance and exit of the country, international airport, seaport, other necessary airport, seaport and bus terminal; (vi) prohibition or restriction of movements at home, hotel, motel and guest house; (vii) isolation of infected person of communicable disease or suspect of being infected there with; (viii) carrying out the activities of spraying, immunization by injection or orally and environmental sanitation necessary for prevention and control according to communicable diseases; (ix) giving advice to and coordinating with relevant Government departments, organizations and non-governmental organizations for construction of healthy housing, obtaining safe drinking water and fresh water for use, proper waste disposal in order to prevent occurrence of communicable disease for workers who are carrying out activities of social and economic development; (x) carrying out other functions prescribed by the Ministry of Health, from time to time.
Section 4	The public shall comply with the measures undertaken by the Ministry of Health and the Department of Health under section 3 in respect of prevention of the occurrence and spread of communicable disease and control thereof."
Section 9	Sub-sections (d) and (e) contained in section 11 of the Prevention and Control of Communicable Diseases Law shall be substituted as follows: "(d) other necessary investigation; (e) prohibition of the right of movement of the vehicle carrying animal or animal product suspected of having epidemic disease."
Section 11	After sub-section (e) of section 14 of the Prevention and Control of Communicable Diseases Law, sub-section (f) shall be inserted as follows: "(f) right of movement of the vehicle carrying animal or animal product suspected of having epidemic disease."

2.2.14. **The Control of Smoking and Consumption of Tobacco Product Law (2006)**

Chapter VI Functions and Duties of Person-in-charge Section (9)	The person-in-charge shall: (a) keep the caption and mark referring that it is a non-smoking area at the place mentioned in section 6 in accordance with the stipulations. (b) arrange the specific place where smoking is allowed as mentioned in section 7, and keep the caption and mark also referring that it is a specific place where smoking is allowed, in accordance with the stipulations.

	(c) supervise and carry out measures so that no one shall smoke at the non-smoking area. (d) accept the inspection when the supervisory body comes to the place for which he is responsible.

2.2.15. **The Labor Organization Law (2011)**

Chapter V Rights and Responsibilities of the Labour Organization Section 17	The labour organizations shall have the right to carry out freely in drawing up their constitution and rules, in electing their representatives, in organizing their administration and activities or in formulating their programmes. The Labour Organizations have the right to negotiate and settle with the employer if the workers are unable to obtain and enjoy the rights of the workers contained in the labour laws and to submit demands to the employer and claim in accord with the relevant law if the agreement cannot be reached.
Section 18	The labour organization has the right to demand the relevant employer to re-appoint a worker if such worker is dismissed by the employer and if there is cause to believe that the reasons of such dismissal were based on labour organization membership or activities, or were not in conformity with the labour laws.
Section 19	The labour organizations have the right to send representatives to the Conciliation Body in settling a dispute between the employer and the worker. Similarly, they have the right to send representatives to the Conciliation Tribunals formed with the representatives from the various levels of labour organizations.
Section 20	In discussing with the Government, the employer and the complaining workers in respect of worker's rights or interests contained in the labour laws, the representatives of the labour organization also have the right to participate and discuss.
Section 21	The labour organizations have the right to participate in solving the collective bargains of the workers in accord with the labour laws.
Section 22	The labour organizations shall carry out peacefully in carrying out holding of meetings, going on strike and carrying out other collective activities in accord with their procedures, regulations, by-laws and any directives prescribed by the relevant Labour Federation.

2.2.16. **Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)**

This law was enacted 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. It stipulates that employer in which more than 30 workers are employed shall form the workplace coordinating committee consisting of the representatives of workers and the representatives of employer.	
Section 38	No employer shall fail to negotiate and coordinate in respect of the complaint within the prescribed period without sufficient cause.
Section 39	No employer shall alter the conditions of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under investigation of the dispute before the Arbitration Body or Tribunal, to affect the interest of such workers immediately.
Section 40	The project proponent has to not close the work without negotiation, discussion on dispute in accord with this law, decision by Tribunal
Section 51	The project proponent has to pay the compensation decided by Tribunal f violates any act or any emission to omission to damage the interest of labour by reducing of product without efficient cause.

2.2.17. **The Employment and Skills Development Law (2013)**

This law was enacted for safeguarding the right of workers or having skillful of workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. Employer shall conduct occupational training to enhance the skills of workers.	
Chapter (3) Making Contract of Employment Section 5	(a)(1) After the employer has employed a worker for any job, he shall within 30 days of so doing, sign a Contract of Employment with the worker. This clause however shall not apply to permanent workers of government departments and organizations. (2) If prior to employment, the worker is required to attend any per-employment training for a period or appointed on probation for a period, sub-section (1) shall not apply for that period. (c) The workplace rules in the Employment Contract shall conform to the rules made under existing laws and the rights of the workers in the Contract shall not be less than those in existing laws.
Chapter (5) Implementing Training Programs and Skills Development of Workers Section 14	Employer shall conduct occupational training to enhance the skills of workers who are to be employed as well as workers who are presently employed in accordance with the requirements of the enterprise and the policy of the Skills Development Agency.
Chapter (8) Establishing and Utilizing Workers' Skills Development Fund Section 30	(a) The employers of Industrial and Service Enterprises shall pay contribution to the fund every month without fail amounting to not less than below 0.5% of the payroll of his workers up to the level of supervisors of the workers. (b) The employer shall not deduct the contribution paid under sub-section (a) to the fund from the wages of the workers.

2.2.18. **The Minimum Wage Law (2013)**

The minimum wage law, passed in March 2013, was replaced the 1949 Minimum Wage Act. The law provides a framework for minimum wage determination: the presidential office establishing a tripartite minimum wage committee shall decide minimum wage with industrial variation based on a survey on living costs of workers possibly every two years. This also stipulates equal payment.	
Chapter VII The Duties of the Employee Section 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 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 customer desire of the majority of workers or collective agreement. Such payment shall be for any personal use and benefit to the worker and his family and the value shall also be considerable and fair.
Section 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 (b) 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.
Chapter I X Assigning Duty to the Inspection Officer, Inspection and Taking Action Section 18	The inspection officer: (a) has the right to enter and inspect the relevant commercial, production and service work places, agricultural and livestock breeding workplaces and inspect whether or not they comply with and carryout 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 car disused 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.

2.2.19. **Payment of Wages Law (2016)**

The Payment of Wage Act defines the payment obligation to the workers employed in the factories or railway administration. It stipulates the method of payment stating that the payment should be made in cash on a regular payday, and allows legal action against delayed payment or un-agreeable deduction.	
Chapter II Methods and Time of Payment of Wages Section 3	The employer: (a) shall pay wages to the workers employing in his business in local currency or foreign currencies stipulated by the Central Bank of Myanmar. Such payment may be paid in cash or cheque or deposit into the bank account of the worker with the agreement between the employer and the worker. (b) In paying such wages: (i) if it is necessary to pay particular benefit, profits and opportunities for workers working in commerce, production and service businesses, it may be paid in cash or some in cash and some in things set up by local price on own volition of workers in accordance with the stipulations. (ii) For workers employing in agriculture and livestock breeding business, it may be paid some wage in cash and something set up by local price according to custom, or on the volition of majority of worker or by collective agreement. In paying so, it shall be for personal use and the interest of his family, and shall be appropriate and equitable. (c) If any worker is conscripted under the Public Military Service Law, the (60) days of wages shall be paid as a special right
Section 4	The employer:

	(a) shall pay wages at the end of the work or at the time agreed to pay to the worker for hourly, daily, weekly or other part time work, or temporary or piece work; (b) shall not exceed one month than the period agreed with the worker under sub-section (a) to pay wages; (c) shall pay the wages for the permanent work monthly. In making such payment: (i) if workers are not more than 100, wages shall be paid at the end of the period for payment of wage; (ii) If workers are more than 100, it shall be paid no later than five days after the end of the period for payment of wage; (d) shall pay the due wages within two working days from the date of termination, if a worker is terminated; (e) shall pay the wages at the end of the period for payment of wages, if a worker resigns on his own volition by sending prior written notice of resignation; (f) shall pay the due wages to a legal heir within two working days after the decease, if a worker is deceased; (g) shall pay all wages on a working day
Section 5	If an employer encounters difficulty to make payment under sub-section(c) of the Section 4 due to any unexpected condition, including natural disaster, the employer shall submit that which date has been altered for the payment of wages with the consent of the workers to the Department on reasonable ground.
Chapter III Deduction from Wages Section 13	The employer: (a) may deduct from wages, except leaves which are entitled wages under the relevant law and public holidays, for the absent period from work; (b) may detect expenses which are allowance accommodation and ferry service are arranged by the employer, meal allowance, electricity charges, water service charges and income taxes liable to be paid by worker and cash paid in excess under a mistake, which are not included in the expression of wages under this Law; (c) may deduct advance payment or reimburse or savings for the worker or any contribution under any law demanded by a worker from wages; (d) may deduct from the wages of the worker under a decision of a Court or Arbitration Council or Arbitration Body.
Chapter IV Overtime Wages Section 14	The worker has the right to enjoy overtime wages stipulated by the law if he works over time.

2.2.20. **The Leave and Holidays Rules (1951, partially revised in 2018)**

This act has been used as the basic framework for leaves and holidays for workers with minor amendment in 2006 and 2014. This defines the public holidays that every employee shall be granted with full payment. It also defines the rules of leaves for workers including medical leave, earned leave and maternity leave.	
Chapter (3) Leave Section 23	A worker has the right to take leave with respective wages or with respective salary according to the type of leave and designated period set-up by the law. However, workers are entitled to take earned leave with respective average wages or average salary.
Section 24	Workers have the right to take casual leave, medical leave or maternity leave within the probation period.
Section 25	For days in which a worker is not in the workplace after the end of a period of leave, such days shall not be counted as leave.
Section 26	If there are holidays just before or right after one's leave commences, these days cannot be counted as part of the leave period.

Section 27	Subjecting a worker to relocation, suspension of duty, reduction of salary or termination within their leave period is not allowed.
Chapter (4) Duties and Responsibilities of Worker Section 49	The worker (a) must ask for leave from the employer or the manager or from an authorized person with Form (1) within the normal working hours. (b) must report to the employer or to the manager or to an authorized person when the worker is back in the workplace after taking leave. (c) must inform employer or manager or authorized person, by phone or any other method, if the worker is unable to return to the workplace from their current location by the end of leave due to natural disaster or unforeseen happenings or accident occurring within the leave period.
Chapter (5) Duties and Responsibilities of an Employer Section 50	The employer (a) must provide the worker casual leave, medical leave and maternity leave with respective wages or salary. Moreover, must allow the worker earned leave with respective average wages or average salary. If the employer normally pays the cost of living, then the cost of living must also be included. (b) must provide the worker with earned leave starting from the day of entitlement within 12 months, with respective average wages or with average salary, and also must advance the entitled wage prior to the worker taking leave. (c) must announce the number of entitled earned leave calculations within three months starting from the last day of the 12-month period or entitled earned leave. In this way, workers can take leave by turns (alternatively). Moreover, to fix the eligibility period within which workers can take earned leave. (d) if the worker resigns or is terminated or in case of death, has to pay the respective wages/salary within two business/working days starting from the date of incidence. (e) has to pay the eligible wage/salary for earned leave to his/her official representative (if the worker is deceased). (f) has to pay for the respective earned leave period if there is a temporary or permanent shutdown. has to allow eligible earned leave if the nature of work is less than twelve months. (g) is not allowed to suspend, to reduce the salary, to relocate or to terminate a worker due to the worker taking maternity leave or medical leave. (h) has to fill up Form (1), (2), (3), (4), (5) and (6) according to the law. These forms shall be easily accessible from the Inspector. The employer must maintain these documents for up to twelve months' period. (i) has to record the leave taken in Form (7) and submit to the Inspector not later than every seventh day of each month. (j) wants the worker to work on a gazette holiday, the employer must receive consent from the worker. The employer must submit Form (8) to the Inspector for approval.

2.2.21. **The Amended Law for Factories Act, 1951 (Amended in 2016)**

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.

2.2.22. **The Workmen's Compensation Act, 1923**

It stipulates that employer is required to make payments to employees who become injured or who die in any accidents arising during and in consequence of their employment. Such compensation also must be made for diseases which arise as a direct consequence of employment, such as carpal tunnel syndrome.	
Chapter IV Determining the Categories of Work Section 6	The National Committee shall determine, by notification, commercial, production and service, agricultural and livestock breeding business which shall be applied by the provisions relating to minimum wage contained in this Law, in the whole country or relevant Union, Region or State. Moreover, it may amend the said businesses in accord with the changing situation from time to time.
Chapter VII The Duties of the Employer Section 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.
Section 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 (b) 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.
Chapter IX	The inspection officer:

Assigning Duty to the Inspection Officer, Inspection and Taking Action Section 18	(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.

2.2.23. **The Export and Import Law (2012)**

Section 7	A person who obtained any license shall not violate the conditions contained in the license.

2.2.24. **The Law on Standardization (2014)**

Chapter (IX) Offences and Penalties Section 25	Any person who commits any of the following acts shall, on conviction, be punished with imprisonment for a term not exceeding three years or with fine not more than three million Kyats or with both: (c) advertising, selling or possessing in order to sell any product or advertising or carrying out any service that is not in conformity with mandatory standard prescribed by the Council knowingly or likely to know
Chapter (IX) Offences and Penalties Section 26	If any person who obtained certificate of certification uses standardization mark on the product which is not in conformity with the relevant standard or relating to service shall be punished with imprisonment for a term not exceeding one year or with fine not more than one million Kyats or with both.

2.2.25. **Underground Water Act (21st June, 1930)**

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.	
Section 3	No person shall sink a tube for the purpose of obtaining underground water except under and in accordance with the terms of a licence granted by the water officer. Every person owning a tube which was in existence before the extension of this Act to the local area concerned shall apply to the water officer for a licence for the said tube, and such licence shall be granted free of charge.
Section 6	The President of the Union may make rules 1-

	(a) prescribing the conditions subject to which licences may be granted by the water officer under section 3; (b) prescribing the form of and the procedure for granting such licences and the fees payable for the issue thereof; (c) Prescribing the information to be supplied to the water officer under section 5.

2.2.26. **Myanmar Engineering Council Law, 2013**

Chapter 2 Objectives Section 3	The Objectives of this law are as follows: (a) to develop the dignity, ethical principles and ability of Myanmar citizen engineers, graduate technologists and technicians who are working in the engineering services (b) to explore beneficial, useful and good methods to research and develop the State's natural resources and human resources with the least environmental impact by a combination of engineering technology and information technology; (c) to guide, control, maintain and take necessary action with regard to specified standards and norms relating to specified subjects, systematic methods, safety and ethical principles and duties in teaching engineering subjects and in technological research and services; (d) to perform engineering and technological activities of the State and tasks assigned by the relevant ministry or organization from time to time;
Chapter 13 Prohibitions and Penalties Section 37	No one shall perform any engineering work and technological work which are specified as being dangerous to the public by a rule enacted under this law without having received a registration certificate issued by the council, except for engineers appointed in a government department or an organization in the performance of their duties.
Section 37	No engineer, graduate technologist and technician shall use, together with his name, a title which is not compatible with his status.
Section 38	No registered engineer, graduate technologist and technician- (a) shall transfer his registration certificate to anyone or allow it to be used by anyone; (b) shall fail to return his registration certificate to the council within 30 days from the day on which a decision is passed, or an administrative action is taken, under this law to cancel the registration certificate.
Section 39	Anyone convicted of having violated the prohibition contained in section 37 shall be punished with imprisonment for not more than 2 years or with a fine or with both.
Section 40	any registered engineer, graduate technologist or technician convicted of having violated the prohibition contained in section 38 shall be punished with imprisonment of not more than 1 year or with a fine or with both.
Section 41	Any registered engineer, graduate technologist or technician convicted of having violated the prohibition contained in 39 shall be punished with imprisonment of not more than 1 year or with a fine or with both.
Section 42	Any registered engineer, graduate technologist or technician convicted of having violated any prohibition under this law shall be punished with imprisonment of not more than 6 months or with a fine or with both.

2.2.27. **The Conservation of Water Resources and Rivers Law, 2016**

Chapter II Aims Section 3	The aims of this Law are as follows: (a) to conserve and protect the water resources and rivers system 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 river system; (d) to protect environmental impact.
Chapter V Prohibitions Section 8	No person shall: (a) carry out any act or channel shifting with the aim to ruin the water resources and rivers and creeks. (b) cause the wastage of water resources wilfully.
Section 11	No person shall: (a) dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk.
Section 19	No one shall dispose of any substance into the river-creek that may cause damage to waterway or change of watercourse from the bank or vessel which is plying, vessel which has berthed, anchored, stranded or sunk.
Section 22	No one shall, without the permission of the directorate, pile sand, shingle and other heavy materials for business purposes in the bank area and waterfront area.
Chapter VI Penalties Section 29	Whoever attempts or conspires or abets in the commission of an offence under this Law shall be punished with the punishment provided for such offence in this Law.
Chapter VII Miscellaneous Section 30	Any government department and organization or any person desirous of constructing drainage, utilizing river water intake, constructing bridges spanning rivers, connecting underground pipe, connecting underground electric power cable, connecting underground telecom cable or digging in rivers and creeks, bank boundary and waterfront boundary, under the requirement of work, shall in order not to adversely affect the water resources and rivers and creeks, carry out only after obtaining the approval of the Ministry of Transport.

2.2.28. **Protection and Preservation of Cultural Heritage, 1998**

Chapter II Objectives Section 3	The objectives of this Law are as follows: (a) to implement the protection and preservation policy with respect to perpetuation of cultural heritage that has existed for many years; (b) to protect and preserve the cultural heritage regions and the cultural heritage therein so as not to deteriorate due to natural disaster or man-made destruction; (c) to uplift hereditary pride and to cause dynamism of patriotic spirit of citizens by protecting and preserving the cultural heritage regions. (d) to promote public awareness and will as to the high value of the protection and preservation of the cultural heritage regions; (e) to protect the cultural heritage regions from destruction; (f) to carry out protection and preservation of the cultural heritage regions in conformity with the International Convention approved by the State.
Chapter VI Applying for Prior Permission, Scrutinizing and Issuing Section 13	A person desirous of carrying out one of the following shall abide by the provisions of other existing laws and also apply to the Department in accordance with stipulations to obtain prior permission under this Law : (a) within the ancient monumental zone or the ancient site zone: constructing or extending a building; renovating the ancient monument or extending the boundary of its enclosure;

	(b) within the protected and preserved zone, constructing, extending, renovating a hotel, motel, guesthouse, lodging house or industrial building or extending the boundary of its enclosure; (c) within the cultural heritage region (1) carrying out the renovation and maintenance work of the ancient monument without altering the original ancient form and structure or original ancient workmanship; (2) carrying out archaeologica4 excavations; (3) building road, constructing bridge, irrigation canal and embankment or extending the same.
Chapter VII Prohibitions Section 22	No person shall construct a building which is not in conformity with the conditions prescribed region wise by the Ministry of Culture in the cultural heritage region.

2.2.29. **The Protection and Preservation of Ancient Monument Law (2015)**

Purpose	To ensure the protection of the ancient monument and information about it if it was in the project area. This law focuses as follows;
Section 12	The project proponent has to report to the village-tract or ward administrators if the project proponent will find any ancient monument under the ground or on the ground or under the water.

2.2.30. **The Commercial Tax Law (1990) Amended 2014**

Chapter 5 Registration and Intimation of Commencement of Enterprise Article 11 (b)	Any Person who commences operation of a goods production enterprise or service enterprise shall furnish letter of intimidation on the commencement of the operation as such to the relevant Township Revenue Officer as stipulated by regulations.
Chapter 6 Monthly Payment of Tax and Sending of Three-Monthly Return Article 12 (a)	Any person who has taxable proceed of sale or receipt from service within a year, shall pay due monthly tax within ten days after the end of the relevant month. Moreover, a three-monthly return shall be furnished to the relevant Township Revenue Officer within one month after the end of relevant three-month.
Article 12 (b)	The Township Revenue Officer may intimate any person to pay due monthly tax and send three-monthly return if there is cause to consider that he has taxable proceed of sale or receipt from service within a year.
Article 12 (c)	If it is failed to pay tax under sub-section (a) or (b), or if there is cause to consider that the tax paid is less than the tax payable, the Township Revenue Officer may, based on the information received, estimate and claim the tax payable or the additional tax payable.
Article 12 (d)	The tax paid under sub-section (a), (b) or (c) shall be set-off from the tax due in the assessment.
Article 12 (e)	The tax payable on goods imported under sub-section (c) of section 4 of the Law shall be collected together with the customs duties by the Customs Department in accord with the manner of collecting customs duties.

2.2.31. **The Prevention of Hazard from Chemical and Related Substances Law, 2013**

Chapter II Aims	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;

Section 3	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.
Section 15	A person who has obtained a licence, before starting the respective chemical and related substances business: - (a) shall be inspected for the safety and the power of resistance of the machinery and equipment by the respective Supervisory Board and Board of Inspection; (b) shall be attended the person who serve in the work to the respective foreign trainings or the trainings and the expert trainings on prevention of hazard from the chemical and related substances opened by the government department and the government organizations.
Section 16	A person who has obtained a licence: - (a) shall abide the licence regulations; (b) shall perform to abide strictly the instructions for being safety in using the chemical and related substances by himself and also the persons who serve the work; (c) shall keep the required safety equipment enough in the chemical and related substances businesses, furthermore shall grant the personal protection equipment and dresses free of charge to the working persons; (d) shall make the course of training and study and instruction if necessary to the working persons for using the occupational safety equipment, the personal protection equipment and the dresses systematically in the chemical and related substances business; (e) shall be inspected by the respective Supervisory Board and Boards of Inspection in respect of whether or not the hazard may impact on the Human Being and Animals' health and the environment; (f) shall make medical checkup the working persons who will work in the chemical and related substances business and shall permit to serve in that work after obtaining the recommendation that his health is suitable for that work. This medical checkup records shall be kept systematically; (g) shall send the copy of informative letter of the permission to the respective Department of Township Administration, if the hazardous chemical or related substances are permitted to store; (h) shall acquire in advance the guidance and agreement of the respective Department of Fire Brigade, if the business that is worried to fire hazard is operated by using the fire hazard substances or the explosive substances; (i) shall transport only the permitted amount of the chemical and related substances in accordance with the prescriptive stipulations, if they are transported in local; (j) shall take the permission from the Central Supervisory Board if the chemical and related substance is altered and transferred from one place to any other place which contained in the license; (k) shall abide and perform in accordance with the related environmental laws not to impact and damage to the environment in operating the chemical and related substances business.
Section 17	A person who has obtained a licence, shall put the insurance in accordance with the prescriptive stipulations to be able to pay the compensation, if the impact and damage is occurred on the Human Being and Animals or the environment in respect of the chemical and related substances businesses.

Section 22	A person who has obtained the registration certificate shall abide the regulations consisted in the registration certificate furthermore shall also abide the order and instructions issued occasionally by the Central Supervisory Board.
Chapter IX Hazard Control and Decrease Section 27	A person who has obtained the licence to be complied the following matters to control and decrease the hazard of the chemical and related substances: - (a) classifying the hazard level to protect in advance the hazard according to the properties of the chemical and related substances; (b) expressing the Material Safety Data Sheet and Pictogram; (c) providing the safety equipment, the personal protection equipment to protect and decrease the accident and attending to the training to be used systematically; (d) performing in accordance with the stipulations in respect of transporting, possessing, storing, using, discharging the chemical and related substances;

2.2.32. **Industrial Use Explosive Substances Law, 2018**

Objective:	The objectives of Industrial Use Explosive Substances Law (2018) are as follow: (a) to make, import, transport, store and use of exploiting materials that explode in the workplace must be carefully handle and use. (b) to take care of safety in the workplace which use yarns and accessories (c) to properly supervise the use of explosive materials in the workplace.
Chapter 7 Prohibitions Article 18	Any license holder shall not be refused to perform the inspection of the inspector or the inspector general.
Article 19 (b)	Under Section 8, any explosive materials shall not be destroyed materials without the approval of the Defense Ministry's Executive Board.
Article 19 (c)	Rules and Regulations, orders, disciplines, instructions issued under this law must not fail to act.

2.2.33. **The Social Security Law (2012)**

The Social Security Law, enacted in 2012, was amended the Social Security Act in 1954. It stipulates the formation and implementation of social security systems.	
Chapter II Objectives Section 3	The objectives of this Law are as follows: (a) to support the development of the State's economy through the development of production by causing to enjoy more security in social life and health care by the workers who are major productive force of the State by the collective guaranty of the employer, worker and the State; (b) to enjoy more security in social life and medical care by the public by effecting their insurance voluntarily; (c) to raise public confidence upon the social security scheme by providing benefits which are commensurate with the realities; (d) to have the right to draw back some of the contributions paid by the employers and the workers as savings, in accord with the stipulations; (e) to obtain the right to continued medical treatment, family assistance benefit, invalidity benefit, superannuation benefit, survivors' benefit, unemployment benefit, the right to residency and ownership of housing after retirement in addition to health care and pecuniary benefit for sickness, maternity, death, employment injury of the workers.
Chapter V Social Security System and Benefits Section 11	(a) The following establishments shall be applied with the provisions for compulsory registration for social security system and benefits contained in this Law if they employ minimum number of workers and above determined by the Ministry of Labour in co-ordination with the Social Security Board:

	(i) production industries doing business whether or not they utilize mechanical power or a certain kind of power, works of production, repairing or services, or engineering works, mills, warehouses, establishments; (ix) works carried out with foreign investment or citizen investment or joint ventured businesses; (b) Any establishment which is applied with the provisions of compulsory registration under sub-section (a) shall continue to be applied by this Law even though any of the following situations occurs if it continues to carry out such work: (i) carrying out work by employing under stipulated minimum number of workers but more than one worker; (ii) changing the employer or changing the type of business.
Social Security System Section 13	The Social Security Board shall manage and keep the following social security systems in accord with the stipulations that insured persons may enjoy social security benefits: (b) Family Assistance Insurance System: i) education allowance benefit for the children of insured persons who earn below the specified amount of income; ii) health care and aid benefit in time of natural disaster; iii) suitable benefit for dependent family members.
Section 15	(a) The following funds are included in the Social Security Fund: (i) health and social care fund; (ii) family assistance fund; (iii) invalidity benefit, superannuation pension benefit, and survivors' benefit fund; (iv) unemployment benefit fund; (v) other social security fund for social security system of compulsory registration and contribution specified by the Ministry of Labour, in co-ordination with the Social Security Board, according to clause (2) of subsection (e) of section 13; (vi) other social security fund specified as to which contribution may be paid after voluntary according to clause (2) of sub-section (e) of section 13; (vii) fund for Social Security Housing Plan;
Section 18	(b) The employer shall deduct contributions to be paid by worker from his remuneration and pay to the social security fund together with contribution to be paid by him. The employer shall also bear the expenses for such contribution.
Chapter VI Application to Employment Injury Benefit Insurance System, Employment Injury Benefit Fund and Benefits Section 45	The provisions contained in this Law relating to the employment injury benefit insurance system shall apply to the following workers: (a) workers at establishments which are applied to social security system who have registered compulsorily in accord with sub-section (a)of section 16 and contributed to the social security funds contained in clauses (1), (3), (4) and (5) of sub-section (a) of section 15; (b) workers specified as being applied to provisions of compulsory registration for employment injury benefit insurance system by notification of the Ministry of Labour, in co-ordination with the Social Security Board with the approval of the Union Government.
Section 48	(a) The employer shall affect insurance by registering for employment injury benefit insurance system contained in section 45 at the relevant township social security office and pay contribution to employment injury benefit fund in accord with stipulations in order that workers applied to provisions of compulsory registration may obtain the employment injury benefits;

	(b) The employers may affect insurance by registering voluntarily for insurance of the workers who are not applied to provisions of compulsory registration for employment injury benefit insurance system, by paying stipulated contribution to employment injury benefit insurance fund; (c) When registering to effect insurance for employment injury benefit in accord with sub-sections (a) and (b), the worker shall submit medical certificate.
Section 49	Non-application to the Workmen's Compensation Act (a) The employers and insured persons of establishments where the employer had registered compulsorily in accordance with sub-section (a) of section 48 or where the employer had registered voluntarily in accord with sub-section (b) of section 48 who have paid contribution to employment injury benefit fund shall not apply to the provisions contained in the Workmen's Compensation Act as regards the employment injury benefit; (b) The insured persons who has affected insurance for employment injury benefit in accord with sub-sections (a) and (b) of section 48 shall be entitled only to the employment injury insurance benefits contained in this Law.
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;
Section 75	The employer of establishments applied by this Law: (a) shall prepare and keep the following records and lists correctly and submit to the relevant township social security office in accord with the stipulations: i) records and lists of workers' daily attendance; ii) records of appointing new worker, employing worker by changing of work, suspension from work, dismissal from work and resignation from work; iii) records of promotion and paying remuneration; iv) records and lists of employers, managers, and administrators; and records of changes of them; (b) shall inform the relevant township social security office if the following matters arise: i) change in number of workers and address of establishment; ii) change of employer, change of business, suspension from work, and termination of work; iii) employment injury, employment death, and occupational diseases; (c) shall produce work records and lists on requirement of inspection team or official assigned duty under this Law by the Social Security Head Office and various Regional Social Security Offices.

2.2.34. **Occupational Safety and Health Law (2019)**

Purpose:	To effectively implement measures related to safety and health in every industry and to set occupational safety and health standards;
Section-26 Sub-section (e)	The project proponent has to provide adequate and relevant personal protective equipment to workers free of charge and make them wear it during work so as not to expose workers to any serious occupational diseases or hazards.
Section-26 Sub-section (1)	The project proponent has to arrange and display occupational safety and health instructions, warning signs, notices, posters, and signboards.
Section-30 Sub-section (a)	The worker shall wear or use at all times any protective clothes, equipment and tools provided by the employer for the purpose of safety and health.

Section-30 Sub-section (d)	The worker shall proper and systematic use any equipment and tools, machines, any parts of the machines, vehicles, electricity and other substances being used at the workplace.
Section-30 Sub-section (e)	The worker shall take reasonable care for the safety and health of himself/ herself and of other persons who may be affected by his/ her acts or omissions at work.

2.2.35. **Natural Disaster Management Law (2013)**

Chapter II Objectives Section 3	The objectives of this Law are as follows: (a) to implement natural disaster management programmes systematically and expeditiously in order to reduce disaster risks; (b) to form the National Committee and Local Bodies in order to implement natural disaster management programmes systematically and expeditiously; (c) to coordinate with national and international government departments and organizations, social organizations, other non-government organizations or international organizations and regional organizations in carrying out natural disaster management activities; (d) to conserve and restore the environment affected by natural disasters; (e) to provide health, education, social and livelihood programmes in order to bring about better living conditions for victims.
Chapter VI Natural Disaster Management Section 13	The department, organization or person that has been assigned responsibility under this Law: (a) shall undertake the following functions after laying down the plan in accord with the natural disaster management plans in order to reduce damage and losses that are likely to be caused by natural disaster; (i) preparatory and preventive measures for natural disaster risk reduction in pre-disaster period; (ii) emergency responses including search and rescue during natural disaster; (iii) rehabilitation and reconstruction activities for improving better living standard in post disaster period and conservation of the environment that has been affected by natural disaster; (b) shall give priority and protect infants, the elderly, the disabled and women (especially pregnant women or mothers and suckling mother) in carrying out the functions contained in sub-section (a); (c) shall refrain from the act that causes injuring human dignity in supporting the victims.
Chapter VIII Offence and Penalties Section 25	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.
Section 26	Whoever interferes, prevents, prohibits, assaults or coerces any natural disaster management to the department, organization or person assigned by this Law shall, on conviction, be punished with imprisonment for a term not exceeding two years or with fine or with both.
Section 27	Whoever misinforms about the natural disaster for the purpose of dread to the public shall, on conviction, be punished with imprisonment for a term not exceeding one year or with fine or with both.
Section 28	Any department, organization or person assigned by this Law commits any of the following acts or omissions shall, on conviction, be punished with imprisonment for a term not exceeding one year or with fine or with both: (a) falsification of data on damage and losses caused by natural disasters dishonestly; (b) willful failure to perform assigned responsibility.

Section 29	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.
Section 30	Whoever commits any of the following acts or omissions shall, on conviction, be punished with imprisonment for a term not exceeding one year or with fine or with both: (a) willful failure to comply with any of the directives of the department, organization or person assigned by this Law to perform any of the natural disaster management; (b) entering into the area or building affected by natural disaster without permission; (c) utilizing, trading, preventing or destroying food, relief items and rehabilitation materials provided for victims dishonestly; (d) making a false application for food, relief items and rehabilitation materials or cash assistance to the department, organization or person assigned by this Law as it is affected by natural disaster.
Section 31	Whoever fails willfully to comply with the direction of remove or evacuation from an area or building at risk natural disaster to the public in such place for the purpose of reduction of damage and losses when the natural disaster strikes or it will be a natural disaster and for the purpose of no obstruction to the prevention and reduction activities of the natural disaster shall, on conviction, be punished with imprisonment for a term not exceeding one month or with fine or with both.

2.2.36. **Myanmar Fire Brigade Law, 2015**

Chapter II Objectives Section 3	The objectives of this Law are as follows: (a) to prevent destruction of State-owned property, private property, cultural heritage and the lives and property of the public by fire and other natural disaster; (b) to organize the Fire brigade systematically and to train members of the fire brigade; (c) to carry out extinguishing fire, prevention and search and rescue when fire, other natural disaster, epidemic disease or any kind of sudden disaster occurs; (d) to educate, organize and incite extensively so as to achieve public cooperation when any disaster occurs; (e) to participate and help, if necessary, for the State safety, peace of the public and the rule of law
Chapter VIII Activities for Fire Safety Section 15	The different levels of Fire Safety Body shall: (a) perform the activities for fire safety in accord with the procedures laid down by the Central Body; (b) organize and educate to obtain the cooperation of the public in the activities for fire safety; (c) supervise as may be necessary the participation of all the relevant members of fire brigade in accord with the work programmes laid down by the Central Body when fire hazard, other natural disaster, epidemic disease or sudden disaster occurs; (d) appoint fire safety warning groups in coordination with the relevant administrative organizations.
Section 16	The person-in-charge of the Township Fire Services Department shall: (a) issue, from time to time, the directives on fire safety to be abided by the residents in the city, ward or village - tract; (b) inspect or cause to inspect in accord with the stipulations whether the residents in the city, ward or village - tract abide by the directives issued under

	sub-section (a) and arrange to enable warning or taking action, as may be necessary, against those who do not abide by.
Chapter XI Prohibitions Section 24	No person shall fail to abide by the directives of fire safety issued under section 16 by the head of the relevant Township Department of Fire Services.
Section 25	The owner or manager of the factory, workshop, bus terminal, airport, port, hotel, motel, lodgings, condominium, market, department, organization or business exposed to fire hazard shall, in accord with the directive of the Department of Fire Services: (a) not fail to form the Reserve Fire Brigade; (b) not fail to provide fire safety equipment.
Section 26	No person shall, knowing that there is no outbreak of fire, report fraudulently the outbreak of fire to the Fire brigade.
Section 25	No person shall, without cause, obstruct, block, disturb, or attack the members of the fire brigade and vehicles which departed to extinguish the fire and direct by any means to the place which is not related to the outbreak of fire.

2.2.37. **The Electricity Law (2014)**

In 2014, the new Electricity Law, a comprehensive piece of legislation covering licensing, a new regulatory commission, standards, inspection, tariff, and restrictions, replaced the Electricity Law of 1984. The Electricity Law divides projects into “small” (up to 10 MW), “medium” (between 10 MW to 30 MW) and large (upwards of 30 MW); the states and regions can issue permits for small and medium power plants. In case these plants are not connected to the national grid, the Union Government Ministry is not the primary authority involved. The authorities have a legal right to use land for the purpose of power plants under the Electricity Law, and have the right to expand and maintain their facilities. The law also provides that the authorities can build transmission lines in accordance with existing laws.	
Purpose	To ensure compliance with the conditions of permission for productions of in line with the above law.
Section 10 (b)	The project proponent will implement the project with the best practices to reduce the damages on the environment, health and socio-economy also will pay compensation for the damages and will pay the fund for environmental conservation.
Section 18	The project proponent has to take the certificate of electric safety, issued by the chief-inspector, before the commencement of power generation.
Section 21 (a)	The project proponent has to be liable for damages to any person or enterprise by failure to abide by the quality standards or rules, regulation, by-law, order, and a directive issued
Section 22 (a)	The project proponent has to be liable for damages to any person or enterprise by the negligence of project owner.
Section 26 (a, b)	The project owner has to comply with the permission for electric searching and generation.
Section 27	The project proponent will inform promptly to chief-inspector and head officer of related office while occurring of accident in electricity generation.
Section 40	The project proponent will comply with the standards, rules, and procedure. Moreover, will allow the inspection by respected governmental department and organization if it is necessary.
Section 68	The project proponent will pay the compensation to anyone who is injured or caused to death in electric shock or fire caused by the negligence or omitting of the project owner or representative of the project owner.

2.2.38. **The Motor Vehicles Law, 2015**

Chapter 2 Objectives Section 3	The main objectives of this law are as follows: (a) For the safe driving of motor vehicles in public areas through registration according to official rules and regulations. (b) To provide driving licenses for driving particular types of motorized vehicles after qualification checks. (c) For the easy flow of road users and for the protection against road risks and vehicle perils. (d) To avoid traffic congestion and to use high technology transportation systems efficiently in order to implement protection against road risks and vehicle perils. (e) To reduce environmental pollution caused by motor vehicles.
Chapter (3) Motor vehicle registration Section 4	Every owner of a motor vehicle must register the vehicle with the registration officer.
Section 5	The owner of a motor vehicle must maintain the vehicle in a safe condition equal to the standard condition.
Section 6	The registration officer may not register the motor vehicle if the vehicle is disqualified for failing to comply with safety standards or the engine is broken or if the applicant has failed to disclose previous facts about former registrations of the vehicle.
Section 8	(a) The owner of the vehicle can request the registration officer to issue a temporary registration according to the regulations. (b) The temporary registration according to this section cannot be valid for more than three months. And this law does not allow temporary registration more than one time.
Section 10	The owner of a vehicle must notify the registration officer if the main parts of his/her vehicle needs to be changed or repaired.
Chapter (9) Prohibitions Section 45	No one is allowed to drive, request someone to drive, or park, motor vehicles in public places under the following conditions: (a) The motor vehicle is not registered. (b) The registration has been suspended, revoked or expired; the registration card is not displayed. (c) The registration card has been revoked or is expired.
Section 46	No one is allowed to drive, or allow to drive, motor vehicles in public places without risk insurance for others. This prohibition does not extend to passengers.
Section 47	(a) No one is allowed to drive a motor vehicle in public places without carrying the driving license with him/her. (b) No one is allowed to drive a motor vehicle in public places without a driving license. (c) The owner of, and the person responsible for, a motor vehicle are not allowed to give permission to someone without a driving license to drive in public places.
Section 50	No one is allowed to do the following in public places: (a) Driving above the speed limit or below the minimum speed. (b) Driving a motor vehicle which endangers others. (c) Driving a motor vehicle after the consumption of narcotic drugs or alcohol.
Section 50	No one is allowed:

	(a) To operate a business of manufacturing, selling or equipping motor vehicles without a business license. (b) To operate a business of maintaining or repairing motor vehicles without a business license.

2.2.39. **National Land Use Policy, 2014 October**

Chapter I Basic Principles of the National Land Use Policy Section 8	In terms of the National Land Use Policy: (a) It shall use the land resources of the State sustainably and systematically by conserving and protecting them for the interest of all peoples of the State; (b)It shall enact the National Land Law which harmonize the existing laws relating to use of land resources and land tenures in the whole country including rural and urban areas and which may be implemented systematically; (c) It shall cause to decide the matters relating to land disputes arisen between the land users and the stakeholders transparently and truly in accord with the National Land Law;
Section 8	In implementing the continued entry of the foreign direct investments, sustainable economic development, effectiveness of the environmental conservation and protection, social harmonization, firmness of land tenures, immoveable property right and settlement of land dispute: (a) It shall increase responsible undertaking and respect the rule of law; (b)It shall strengthen the clean governance system by carrying out land use management, land tenure management in accord with law systematically and truly; (c) It shall establish modernized systems to enable to have access to correct information relating to land use management and land tenure management; (d)It shall establish the land dispute settlement mechanism which is easily implementable and impartial; (e) It shall arrange and carry out coordination process with the Stakeholder's transparently.
Chapter II The Situation of the Existing Land Management Mechanism Section 12	The State has arranged and carried out to expand agricultural land use by the State-owned organizations, cooperative societies, associate on, joint ventures, other organizations which acquire agricultural land for businesses and individual agriculturalists after forming the Vacant, Fallow and Virgin Lands Management Central Committee under the Notification 44/91 dated 13th November, 1991.

2.2.40. **The Protection of Wildlife and Conservation of Natural Areas Law ,1994 (Amended in 2018)**

Chapter II Objectives Section 3	The objectives of this Law are as follows: - (a) to implement the Government policy for wildlife protection; (b) to implement the Government policy for natural areas conservation; (c) to carry out in accordance with the International Conventions acceded by the State in respect of the protection and conservation of wildlife, ecosystems and migratory birds; (d) to protect endangered species of wildlife and their natural habitats; (e) to contribute for the development of research on natural science;

	(f) to protect wildlife by the establishment of zoological gardens and botanical gardens.
Chapter V Protected Wildlife Section 15	The Director General shall, with the approval of the Minister: (a) determine and declare endangered species of wild animal which are to be protected according to the following categories: (i) completely protected species of wild animals; (ii) normally protected species of wild animals; (iii) seasonally protected species of wild animals; (b) determine and declare the endangered species of wild plants and their nature habitats thereof; (c) lay down and carry out measures for the preservation of protected wildlife species; (d) co-ordinate with the relevant department or organization if the wildlife which are to be determined for protection are under the administration of another Government department or Government organization.
Chapter X Appeal Section 33	A person dissatisfied with an administrative order passed by a Forest Officer may file an appeal to the Director General within 30 days from the date of such order.
Chapter XI Offences Arid Penalties Section 35	Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 3 years or with fine which may extend to kyats 10,000 or with both: - hunting without a licence; violation of any condition of the hunting licence; raising without permission, for commercial purpose normally protected wild animals and seasonally protected wild animals; causing water and air pollution, causing damage to a water-course or putting poison in the water in a natural area; possessing or disposing of pollutants or mineral pollutants in a natural area; stablishing and operating a zoological garden or a botanical garden without a licence.
Section 36	Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 5 years or with fine which may extend to kyats 30,000 or with both: - (a) killing, hunting or wounding a normally protected wild animal or seasonally protected wild animal without permission, possessing, selling, transporting or transferring such wild animal or any part thereof without permission; (b) extracting, collecting or destroying in any manner any kind of protected wild plants within the prescribed area without permission; (c) destroying ecosystem or any natural state in the natural area; (d) altering, removing, destroying or obliterating without permission. any boundary mark of a natural area or any boundary mark of a zoological garden or botanical garden administered by the Government or in which the Government has subscribed share capital.
Section 37	Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 7 years or with fine which may extend to kyats 50,000 or with both: - (a) killing, hunting or wounding a completely protected wild animal without permission, possessing, selling, transporting or transferring such wild animal or any part thereof without permission;

	(b) exporting without the recommendation of the Director General a completely protected wild animal or a protected wild plant or any part thereof.
Section 38	The provisions of section 36 sub-section (a) or section 37 sub-section (a) shall not apply to: - the possessing as a souvenir or wearing as a traditional custom of any part of normally protected wild animal or a seasonally protected wild animal; the possessing or wearing with a certificate of registration issued under section 27 subsection (b) of any pad of a completely protected wild animal; the possessing, use, sale, transport or transfer of a drug prepared from a part of a protected wild animal.

2.3. NATIONAL ENVIRONMENTAL QUALITY (EMISSION) GUIDELINES (NEQG) (DECEMBER 2015)

2.3.1. 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.

2.3.2. Scope of Application

Provisions of the general and applicable industry-specific Guidelines shall be reflected in project environmental management plan (EMP) and environmental compliance certificate (ECC) and together constitute a project's commitment to take necessary measures to avoid, minimize and control adverse impacts to human health and safety, and the environment through reducing the total amount of emissions generation; to adopting process modifications, including waste minimization to lower the load of pollutants requiring treatment; and as necessary, to apply treatment techniques to further reduce the load of contaminants prior to release or discharge.

2.3.3. CHAPTER II, Implementation Procedures

As specified in the EIA Procedure, all projects are obliged to use, comply with and refer to applicable national guidelines or standards or international standards adopted by the Ministry. These Guidelines will henceforth be applied by the Ministry in satisfying this requirement until otherwise modified or succeeded by other guidelines or standards

Section 10 As specified in the EIA Procedure, following project approval a project shall commence implementation strictly in accordance with the project EMP and any additional requirements set out in the project ECC, which will encompass conditions relating to 3 emissions. In this regard, the Ministry will require that project sad here to general and applicable industry guidelines asset out in Annex 1.

Section 11 While these Guidelines generally apply to all projects subject to the EIA Procedure, it is the prerogative of the Ministry to decide how the Guidelines should be applied to existing projects as referred to in the EIA Procedure, as distinguished from new projects. At the Ministry's discretion less stringent levels or measures than provided for in these Guidelines may be specified as appropriate, and a timeframe agreed for a project to fully comply with these Guidelines.

Section 12 As specified in the EIA Procedure, projects shall engage in continuous, proactive and comprehensive self-monitoring of the project and comply with applicable guidelines and standards. For purposes of these Guidelines, projects shall be responsible for the monitoring of their compliance with general and applicable industry-specific Guidelines as specified in the project EMP and ECC.

Section 13 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.

2.4. APPLICATION OF INTERNATIONAL GUIDELINES

Based on the Myanmar Environmental Guidelines and International Best Practices, the ultimate Scoping Report for Plus World was developed and got approval from ECD. Specifically, the Environmental Impact Assessment for this project will follow not only the national regulations such as the Environmental Conservation Law, Environmental Conservation Rules and relevant regulations of the Government of the Republic of the Union of Myanmar but also International Guidelines such as WHO standards, IFC Environmental Health and Safety Guidelines for environmental and social considerations.

2.4.1. IFC Environmental, Health and Safety (EHS) Guidelines (2007)

The World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines) are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC and that are generally considered to be achievable in new facilities at reasonable costs by existing technology. The General EHS Guideline contains information on crosscutting Environmental, Health, and Safety issues potentially applicable to all industry sectors. It should be used together with the relevant industry sector guideline(s). When the host country (Myanmar) regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent.

2.4.2. IFC Guidelines on Water and Sanitation, (2007)

The EHS Guidelines for Water and Sanitation include information relevant to the operation and maintenance of potable water treatment and distribution systems, and collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities.

2.4.3. IFC Guidelines on Waste Management Facilities (2007)

The EHS Guidelines for Waste Management cover facilities or projects dedicated to the management of municipal solid waste and industrial waste, including waste collection and transport; waste receipt, unloading, processing, and storage; landfill disposal; physicochemical and biological treatment; and incineration projects. Industry-specific waste management activities applicable, for example, to medical waste, municipal sewage, cement kilns, and others are covered in the relevant industry-sector EHS Guidelines, as is the minimization and reuse of waste at the source.

2.4.4. **WHO Guidelines for Drinking Water Quality (2011)**

The WHO guideline on drinking water quality includes:

- Drinking-water safety, including minimum procedures and specific guideline values and how these are intended to be used;
- Approaches used in deriving the guidelines, including guideline values;
- Microbial hazards, which continue to be the primary concern in both developing and developed countries. Experience has shown the value of a systematic approach to securing microbial safety. It also builds on the preventive principles on ensuring the microbial safety of drinking water through a multiple-barrier approach, highlighting the importance of source water protection;
- Climate change, which results in changing the water temperature and rainfall patterns, severe and prolonged drought or increased flooding, and its implications for water quality and water scarcity, recognizing the importance of managing these impacts as part of water management strategies;
- Chemical contaminants in drinking water, including information on chemicals not considered previously, such as pesticides used for vector control in drinking water; revisions of existing chemical fact sheets, taking account of new scientific information; and, in some cases, reduced coverage in the Guidelines where new information suggests a lesser priority;
- Those key chemicals responsible for large-scale health effects through drinking water exposure, including arsenic, fluoride, lead, nitrate, selenium, and uranium, providing guidance on identifying local priorities and management;
- The important roles of many different stakeholders are essential in ensuring drinking-water safety. This edition furthers the discussion introduced in the third edition of the roles and responsibilities of key stakeholders in ensuring drinking-water safety;
- Guidance in situations other than traditional community supplies or managed utilities, such as rainwater harvesting and other non-piped supplies or dual piped systems.

2.4.5. **WHO Protecting Groundwater for Health (2006)**

Groundwater is the water contained beneath the surface in rocks and soil and is the water that accumulates underground in aquifers. Groundwater constitutes 97 percent of global freshwater and is an important source of drinking water in many regions of the world. In many parts of the world, groundwater sources are the single most important supply for the production of drinking water, particularly in areas with limited or polluted surface water sources. For many communities, it may be the only economically viable option. This is in part because groundwater is typical of more stable quality and better microbial quality than surface waters. Groundwater often requires little or no treatment to be suitable for drinking whereas surface waters generally need to be treated, often extensively. There are many examples of groundwater being distributed without treatment. It is vital therefore that the quality of groundwater is protected if public health is not to be compromised.

2.5. MYANMAR GOVERNMENT INSTITUTIONAL FRAMEWORK

2.5.1. Arrangement at National and Sector Level

At national Level, Environmental Conservation Committee (EnCC) serves as a mechanism for inter-ministerial coordination. Authorities and functions of EnCC are prescribed in Articles 7 to 13 of the EC Rules of the Republic of the Union of Myanmar.

One of ENCC's main functions related to this project is to oversee the management of the EIA process by MOECAF through ECD. ECD will serve as a coordinator among various departments in relevant sectors to ensure that the EIA and implementation of EMP will address environment and social issues of concerns by departments in relevant sectors.

The EIA process for this project will be administered by the central ECD in coordination with the regional ECD and varies governmental organizations at the regional, township, and district levels.

2.6. CORPORATE ENVIRONMENTAL AND SOCIAL POLICIES

The National Environment Policy was drafted in 1994. The excerpts are stated below:

To establish sound environment policies, utilization of water, land, forests, mineral, marine resources and other natural resources in order to conserve the environment and prevent its degradation, the Government of the Union of Myanmar adopts the following policy:

"The wealth of the nation is its people, its cultural heritage, its environment and its natural resources."

The objective of Myanmar's environmental policy is to achieve harmony and balance between its people, its cultural heritage, its environment and its natural resources through the integration of environmental considerations into the development process to enhance the quality of the life of all its citizens. Every nation has the sovereign right to utilize its natural resources in accordance with its environmental policies; but great care must be taken not to exceed its jurisdiction or infringe upon the interests of other nations. It is the responsibility of the State and every citizen to preserve its natural resources in the interests of present and future generations.

The development of the environmental policy was followed by the drafting of 'Myanmar Agenda 21' in 1997, which follows a UN framework for a multipronged approach to sustainable development. Agenda 21 is a non-binding, voluntarily implemented action plan of the United Nations with regard to sustainable development. It is a product of the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in 1992. Agenda 21 – a global programme of action for achieving sustainable development to which countries are 'politically committed' rather than legally obligated.

The Myanmar Agenda 21 recognizes the need for Environmental Impact Assessments. Myanmar, in its Agenda 21, calls for integrated management of natural resources and provides a blueprint for achieving sustainable development.

2.7. INTERNATIONAL CONVENTIONS, TREATIES AND AGREEMENTS, AND INTERNATIONAL STANDARDS, GUIDELINES

International Conventions, Treaties and Agreements Myanmar has signed a number of international treaties related to the environment which may have implications for the Project. These include:

a) Plant Protection Agreement for the Asia and Pacific Region; Vienna Convention for the Protection of the Ozone Layer; Montreal Protocol on Substances that Deplete the Ozone Layer;

b) London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer;

c) United Nations Framework Convention on Climate Change (UNFCCC); United Nations Convention to Combat Desertification;

d) International Civil Aviation Organization: ANNEX 16 Annex to the Convention on International Civil Aviation Environmental Protection Vol. I, II, Aircraft Noise;

e) Vienna Convention for the Protection of Ozone Layer;

f) Montreal Protocol on Substances that Deplete the Ozone Layer;

g) Convention Concerning the Protection of the World Cultural and Natural Heritage;

h) Convention on Biological Diversity (CBD); International Tropical Timber Agreement (ITTA);

i) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);

j) ASEAN Agreement on the Conservation of Nature and Natural Resources; Catagena Protocol on Bio-safety

k) Kyoto Protocol to the United Nations Framework Convention on Climate Change; Ramsar Convention on Wetlands; and

l) Copenhagen Amendment to Montreal Protocol on Substances that deplete the Ozone Layer.

m) United Nations Declaration on the Rights of Indigenous People

2.7.1. International Standards and Guidelines

The following international standards, guidelines, policies and procedures are referred to, in preparation of this Report:

a) UNEP Environmental Impact Assessment Training Resource Manual

b) European Bank for Reconstruction and Development (Sub-sectoral Environmental and Social Guidelines)

c) International Finance Corporation, World Bank Group (Environmental, Health, and Safety Guidelines)

d) NHS, Health, Scotland (Health Impact Assessment in Practice)

e) BS 14001:2004 Environmental management systems - Requirements with guidance for use

f) Principles of Environmental Impact Assessment Best Practice International Association for Impact Assessment

g) OHSAS 18001, Occupational Health and Safety Assessment

2.8. NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY

The National Sustainable Development Strategy (NSDS) is part of a broader programme of the UN Sustainable Development Commission set up after the World Summit on Sustainable Development in 2002.Every country, including Myanmar, that signed Agenda 21 at the Earth Summit in Rio de Janeiro in 1992, agreed to develop an NSDS by 2010 in line with the Millennium Development Goals (MDGs). UNEP provided funding for Myanmar to develop an NSDS. The main aim of the process was to develop an NSDS in line with international standards by meeting the MDGs and ensure that environmental and social impacts are mitigated when implementing development projects. Myanmar's NSDS was published in August 2009. The three goals described in Myanmar's NSDS are sustainable management of natural resources, integrated economic development and sustainable social development. Specific strategies are outlined under each goal. For example, the goal for Sustainable Management of Natural Resources suggests strategies for forest resource management, sustainable energy production and consumption, biodiversity conservation, sustainable freshwater resources management, sustainable management of land resources, sustainable management for mineral resources utilization, and so on.

2.9. MYANMAR AGENDA 21 (1997)

Myanmar agenda 21 is a blueprint for all-natural resource management and environment and environmental conservation work and the pursuit of the activities contribute to biodiversity conservation throughout the country.

2.10. PROJECT'S ENVIRONMENTAL AND SOCIAL STANDARD

Principle 17 of the Rio Declaration on Environment and Development stated; 'Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of competent national authority.'

2.11. THE EVOLVING SCOPE OF EIA PROCESS AND PRACTICE

In the early stages of EIA, only the biophysical impacts of proposals were considered (such as effects on air and water quality, flora and fauna, noise levels, climate and hydrological

systems). Increasingly EIA processes are used to analyses a range of impact types within a single framework, include social, health, and economic aspects, e.g. social impact assessment (SIA), health impact assessment (HIA) and risk assessment. However, this trend toward integrated assessment for decision-making is by no means universal or uniform. Even in EIA systems where this trend is well established, the degree and extent of integration varies with legal requirements and accepted practice. Despite a lack of internationally consistent practice, integrated impact assessment, linking biophysical and socio-economic effects, is identified as an important priority in Agenda 21.

2.12. UNITED NATIONS DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLES

Myanmar has endorsed the United Nations Declaration on the Rights of Indigenous Peoples in September 2007 as one of 144 states. Article 32 describes indigenous peoples' right to free and prior informed consent (FPIC): "States shall consult and co-operate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain FPIC prior to approval of any project affecting their land or territories". Article 10 and Article 26 elaborate on forcible relocation of indigenous people, the need for FPIC and land rights. It is required to ensure conformance to all relevant international environmental and social conventions in relation to this project.

2.13. WORLD BANK CLASSIFICATION

World Bank Operational Directive on EIA, which is illustrative and provides a framework for screening.

Category A: for projects likely to have significant adverse environmental impacts that are serious (i.e., irreversible, affect vulnerable ethnic minorities, involve involuntary resettlement, or affect cultural heritage sites), diverse, or unprecedented, or that affect an area broader than the sites of facilities subject to physical works. A full EIA is required.

Category B: for projects likely to have adverse environmental impacts that are less significant than those of Category A projects, meaning that few if any of the impacts are likely to be irreversible, that they are site-specific, and that mitigation measures can be designed more readily than for Category A projects. Normally, a limited EIA will be undertaken to identify suitable mitigation and management measures, and incorporate them into the project.

Category C: for projects that are likely to have minimal or no adverse environmental impacts. No EIA is required.

2.14. DIRECTIVE 2011/92/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 13 DECEMBER 2011 ON THE ASSESSMENT OF THE EFFECTS OF CERTAIN PUBLIC AND PRIVATE PROJECTS ON THE ENVIRONMENT

The EIA Directive (85/337/EEC) has been in force since 1985 and applies to a wide range of defined public and private projects, which also respectively list projects subject to mandatory EIA and non-mandatory EIA.

Usually this kind of major projects, will warrant a full EIA, because they are known or considered to have potentially significant adverse impacts on the environment; for example, on human health and safety, rare or endangered species, protected areas, fragile or valued

ecosystems, biological diversity, air and water quality, or the lifestyle and livelihood of local communities.

2.14.1. IFC Environmental, Health and Safety (EHS) Guidelines (2007)

The World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines) are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC and that are generally considered to be achievable in new facilities at reasonable costs by existing technology. The General EHS Guideline contains information on crosscutting Environmental, Health, and Safety issues potentially applicable to all industry sectors. It should be used together with the relevant industry sector guideline(s). When the host country (Myanmar) regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent.

2.14.2. IFC Guidelines on Water and Sanitation, (2007)

The EHS Guidelines for Water and Sanitation include information relevant to the operation and maintenance of potable water treatment and distribution systems, and collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities.

2.14.3. IFC Guidelines on Waste Management Facilities (2007)

The EHS Guidelines for Waste Management cover facilities or projects dedicated to the management of municipal solid waste and industrial waste, including waste collection and transport; waste receipt, unloading, processing, and storage; landfill disposal; physicochemical and biological treatment; and incineration projects. Industry-specific waste management activities applicable, for example, to medical waste, municipal sewage, cement kilns, and others are covered in the relevant industry-sector EHS Guidelines, as is the minimization and reuse of waste at the source.

2.14.4. WHO Guidelines for Drinking Water Quality (2011)

The WHO guideline on drinking water quality includes:

- Drinking-water safety, including minimum procedures and specific guideline values and how these are intended to be used;
- Approaches used in deriving the guidelines, including guideline values;
- Microbial hazards, which continue to be the primary concern in both developing and developed countries. Experience has shown the value of a systematic approach to securing microbial safety. It also builds on the preventive principles on ensuring the microbial safety of drinking water through a multiple-barrier approach, highlighting the importance of source water protection;
- Climate change, which results in changing the water temperature and rainfall patterns, severe and prolonged drought or increased flooding, and its implications for water quality and water scarcity, recognizing the importance of managing these impacts as part of water management strategies;

- Chemical contaminants in drinking water, including information on chemicals not considered previously, such as pesticides used for vector control in drinking water; revisions of existing chemical fact sheets, taking account of new scientific information; and, in some cases, reduced coverage in the Guidelines where new information suggests a lesser priority;
- Those key chemicals responsible for large-scale health effects through drinking water exposure, including arsenic, fluoride, lead, nitrate, selenium, and uranium, providing guidance on identifying local priorities and management;
- The important roles of many different stakeholders are essential in ensuring drinking-water safety. This edition furthers the discussion introduced in the third edition of the roles and responsibilities of key stakeholders in ensuring drinking-water safety;
- Guidance in situations other than traditional community supplies or managed utilities, such as rainwater harvesting and other non-piped supplies or dual piped systems.

2.14.5. WHO Protecting Groundwater for Health (2006)

Groundwater is the water contained beneath the surface in rocks and soil and is the water that accumulates underground in aquifers. Groundwater constitutes 97 percent of global freshwater and is an important source of drinking water in many regions of the world. In many parts of the world, groundwater sources are the single most important supply for the production of drinking water, particularly in areas with limited or polluted surface water sources. For many communities, it may be the only economically viable option. This is in part because groundwater is typical of more stable quality and better microbial quality than surface waters. Groundwater often requires little or no treatment to be suitable for drinking whereas surface waters generally need to be treated, often extensively. There are many examples of groundwater being distributed without treatment. It is vital therefore that the quality of groundwater is protected if public health is not to be compromised.

2.15. SOCIAL AND HEALTH STANDARDS FOR THE PROJECT

2.15.1. IFC EHS Guidelines

The EHS Guidelines1 by IFC are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), as defined in IFC's Performance Standard 3: Resource Efficiency and Pollution Prevention. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

There are two kinds of guidelines, General EHS Guidelines and Industry Sector Guidelines. The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors in the following section: (1) Environment, (2) Occupational Health and Safety, (3) Community Health and Safety, and (4) Construction and Decommissioning. Table 2-1 shows the contents of the section of Community Health and Safety.

Table 2-1 Community health and safety in IFC EHS guidelines

Contents Brief Description	Contents Brief Description
Water Quality and Availability	Drinking water sources should at all times be protected so that they meet or exceed applicable national acceptability standards or in their absence the current edition of WHO Guidelines for Drinking-Water Quality. Project activities should not compromise the availability of water for personal hygiene needs and should take account of potential future increases in demand. The overall target should be the availability of 100 liters per person per day.
Structural Safety of Project Infrastructure	Reduction of potential hazards is best accomplished during the design phase when the structural design, layout and site modifications can be adapted more easily. The following issues should be considered and incorporated as appropriate into the planning, siting, and design phases of a project: 1) inclusion of buffer strips or other methods of physical separation around project sites to protect the public from major hazards associated with hazardous materials incidents or process failure, 2) incorporation of siting and safety engineering criteria to prevent failures due to natural risks posed by earthquakes, tsunamis, wind, flooding, landslides and fire, and 3) application of locally regulated or internationally recognized building codes.
Life and Fire Safety (L&FS)	All new buildings accessible to the public should be designed, constructed, and operated in full compliance with local building codes, local fire department regulations, local legal/insurance requirements, and in accordance with an internationally accepted life and fire safety (L&FS) standard. Sponsors should prepare a Life and Fire Safety Master Plan identifying major fire risks, applicable codes, standards and regulations, and mitigation measures.
Traffic Safety	Traffic safety should be promoted by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads. Prevention and control of traffic related injuries and fatalities should include the adoption of safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents.
Transport of Hazardous Materials	Projects should have procedures in place that ensure compliance with local laws and international requirements applicable to the transport of hazardous materials.
Disease Prevention	Recommended interventions against the communicable diseases at the project level include 1) providing surveillance and active screening and treatment of workers, 2) preventing illness among workers in local communities by undertaking health awareness and education initiatives, training health workers in disease treatment and conducting immunization programs for workers, and 3) providing treatment through standard case management in on-site or community health care facilities
Emergency Preparedness and Response	All projects should have an Emergency Preparedness and Response Plan that is commensurate with the risks of the facility and that includes the following basic elements: 1) Administration (policy, purpose, distribution, definitions, etc), 2) Organization of emergency areas (command centers, medical stations, etc), 3) Roles and responsibilities, 4) Communication systems, 5) Emergency response procedures, 6) Emergency resources, 7) Training and updating, 8) Checklists (role and action list and equipment checklist), and 9) Business Continuity and Contingency.

2.15.2. Occupational Safety and Health Framework in manufacturing sector

The Social Security Law (2012) provides a general obligation for employers and workers to comply with the directions of the Social Security Board and insurance agencies in respect of maintaining plans to ensure safety and health in the workplace so as to prevent employee injuries, the contraction of diseases, and to ensure relevant communication of safety guidelines to employees regarding the prevention of accidents in the workplace.

Most health and safety provisions relating to the manufacturing sector are to be found in the Factories Act (1951). A breach by the owner or manager of a factory of such provisions is liable to a fine and, depending on the offense, to imprisonment for a term up to 6 months.

Table 2-2 Community health and safety in IFC EHS guidelines

Contents Brief Description	Contents Brief Description
Health measure	• a first aid box must be available and an additional first aid box must be provided if there are more than 150 workers; • factories with more than 250 workers shall have a dispensary run by a certified nurse; • a qualified medical doctor recognized by the Social Security Board shall be appointed. Such doctor is responsible for performing medical check-ups of young workers (under 18[a]) or workers engaged in dangerous occupations and/or processes and issuing medical certificates of health and fitness for young workers and taking measures in a factory where the following events are reported: a) cases of illness believed to be caused by the nature of the manufacturing process carried on or other conditions of work prevailing therein, or b) there is a likelihood of damaging workers" health by reason of any change in the manufacturing process carried on, or in the substances used therein, or by reason of the adoption of any new manufacturing process, or of any new substance for use in a manufacturing process, or c) young persons are, or about to be, employed in any work likely to cause injury to their health.
Welfare facilities	In addition to the above health and safety measures, the Factories Act also requires employers to provide the following facilities to its workers: adequate and suitable rest sheds and rest rooms, sitting facilities, crèches (if there are more than 50 female workers) for children under the age of 6, a dining room (if there are more than 100 workers) and a canteen (where there are more than 250 workers). Employers adhering to the Garment Industry Code of Conduct[b] and providing dormitories to their workers shall apply to those facilities the same health and safety obligations than those required at the workplace.

[a] According to the Myanmar Factories Act (1951), children between 13 and 15 are permitted to work up to four hours in a factory subject to certain conditions (certificate of fitness, working hours comprised between 6am and 6pm, etc.).

[b] The Myanmar Garment Association („MGMA') released on 1 February 2015 a code of conduct developed with the assistance of the European Union and designed to be followed on a voluntary basis by the MGMA member companies.

2.16. ENVIRONMENTAL MANAGEMENT FRAMEWORK IN PROJECT

The Plus World factory is required to submit scoping report, draft EIA report, and final EIA report, and conduct public consultation meetings and disclosures at scoping stage and draft EIA report stages. For the appraisal of the EIA study for their operation team, a mobile review

team, top leader management team which is composed of staff from MONREC and relevant ministries, is established to review the draft ESIA report.

After approval of the Final EIA Report, the project proponent will be requested to conduct environmental monitoring during construction, operation, closing phases based on Environmental Management Plan (EMP) developed based on the results of environmental impact assessment.

CHAPTER 3
PROJECT DESCRIPTION AND ALTERNATIVE

3.1. LOCATION OF THE PROJECT

The proposed project is located at Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar. The total land area is 3.968 acres that is flat land and the land plot is square shape. The proposed project is located between 16°58'12.47"N and 96° 8'39.25"E. The location of the project is shown in Figure 3-1.

3.2. PROJECT IMPLEMENTATION

The proposed factory is the 100% local investment by Plus World Company Limited with an estimated authorized capital of 15195.8 US Dollar. The proposed factory is located at Myay Taing (532/B), No. 410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region Myanmar. The project aims to manufacture of purified drinking water. The project is under construction stage which is initiated in June 20th, 2020 and the construction time may be last 8 months. **The trial running operation stage started in February, 2021 and the commercial running operation stage started in March, 2021**.

The electricity supply is used from Yangon Electrical Supply Corporation (YESC) by installing 1500 KVA and 315 KVA transformers. The estimated electrical usage is about 2800000 KW/hour per year. The low fuel consumption of 500 KVA generators which is 15000 PRPM and 50 Hz frequency will be installed to run the operation during the electricity cut off. The main source of water supply is from six tube wells and the estimated water usage may have 30000 liters per hour. The term of the Lease shall be initial 30 years commencing from the date of signing of the Lease Agreement between Daw Aye Aye Yu and Plus World Company Limited for proposed project site for 3.968 acres of land recommended by the Yangon Region Government.

3.3. ALTERNATIVE PROJECT SITE

No alternative site has been proposed aside from this area since the project, which is under operation and distribution of drinking water (wave plus) stage during EIA studying.

3.4. CONSTRUCTION PHASE

The project is under construction stage in which the construction is started in January 20th, 2020. The buildings are constructed in steel structure R/C buildings. The project compound may include main building, R/O and compressor building, warehouse and dormitory. The main building will be in 415' 8" x 134' 6" in area. During the site survey in March 4, 2020, the 4 storey factory building is almost finished. **The construction phase may last about eight months and already finished in February 2021.** The construction is run by using 87 workers.

Table 3-1 Project Function Area

No.	Particulars	A/U	Qty	Remark
1	Main Factory Building	unit	1	1 Storey Building
2	Dormitory Building	unit	1	4 Storey Building
3	Warehouse Building	unit	1	1 Storey Building
4	R/O & Compressor Building	unit	1	1 Storey with Mezzanine (Area)

3.4.1. **Explanation of Factory and Machinery Layout Plan**

The factory building is 415' 8" x 134' 6" in area and the production processes will be carried out in there. The dormitory building is beside the factory building and the office building is beside the office. The generator room is beside the office building. The water storage tanks are back of the generator room. The warehouse building is at the back yard of the office area. The dormitory building is two stored and the factory building is 1 Storey with Mezzanine. Detail factory layout plan is expressed in Figure 3-2, Figure 3-3, Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7 and Figure 3-8.

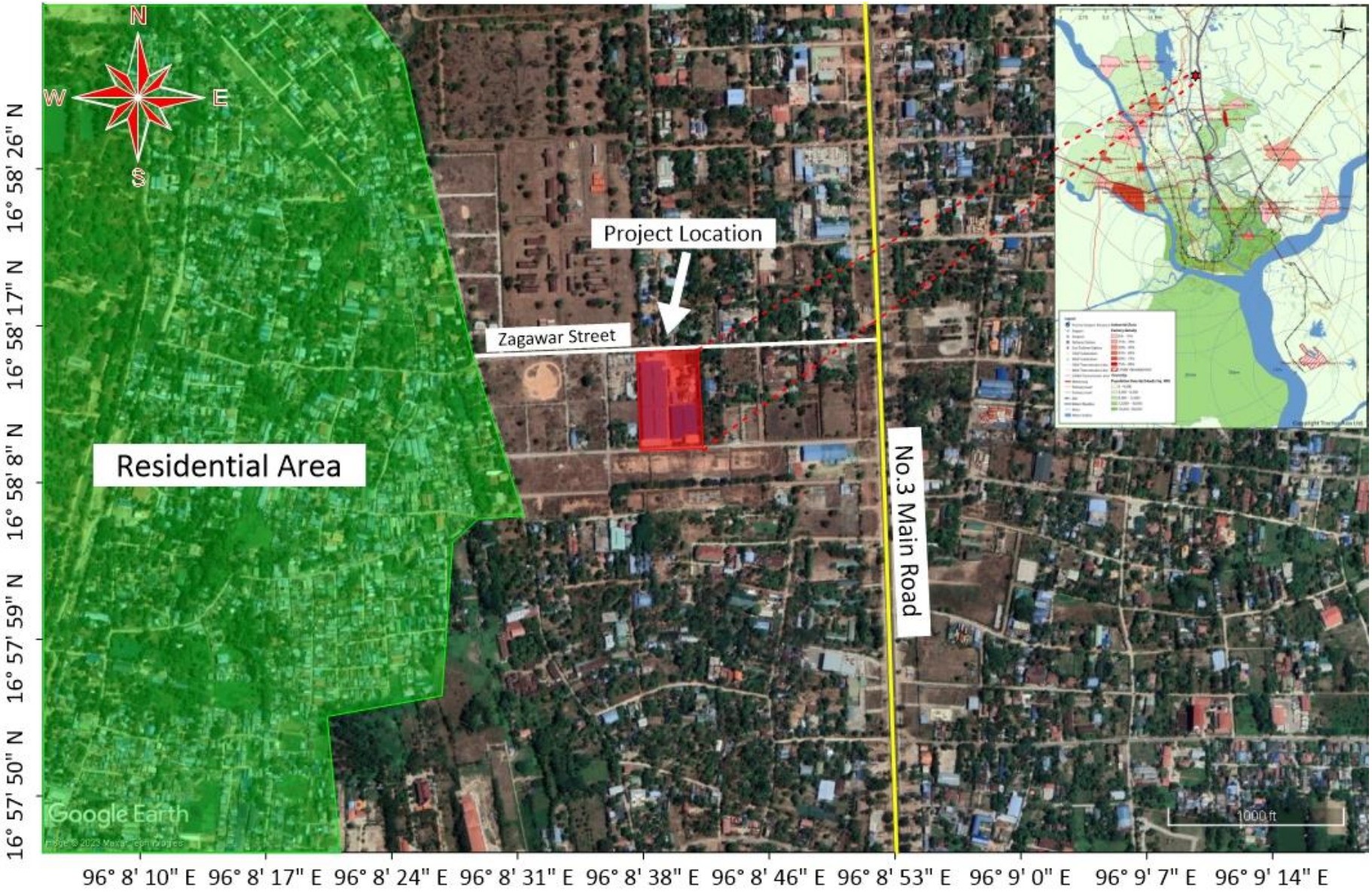


Figure 3-1 Location Map of Proposed Project

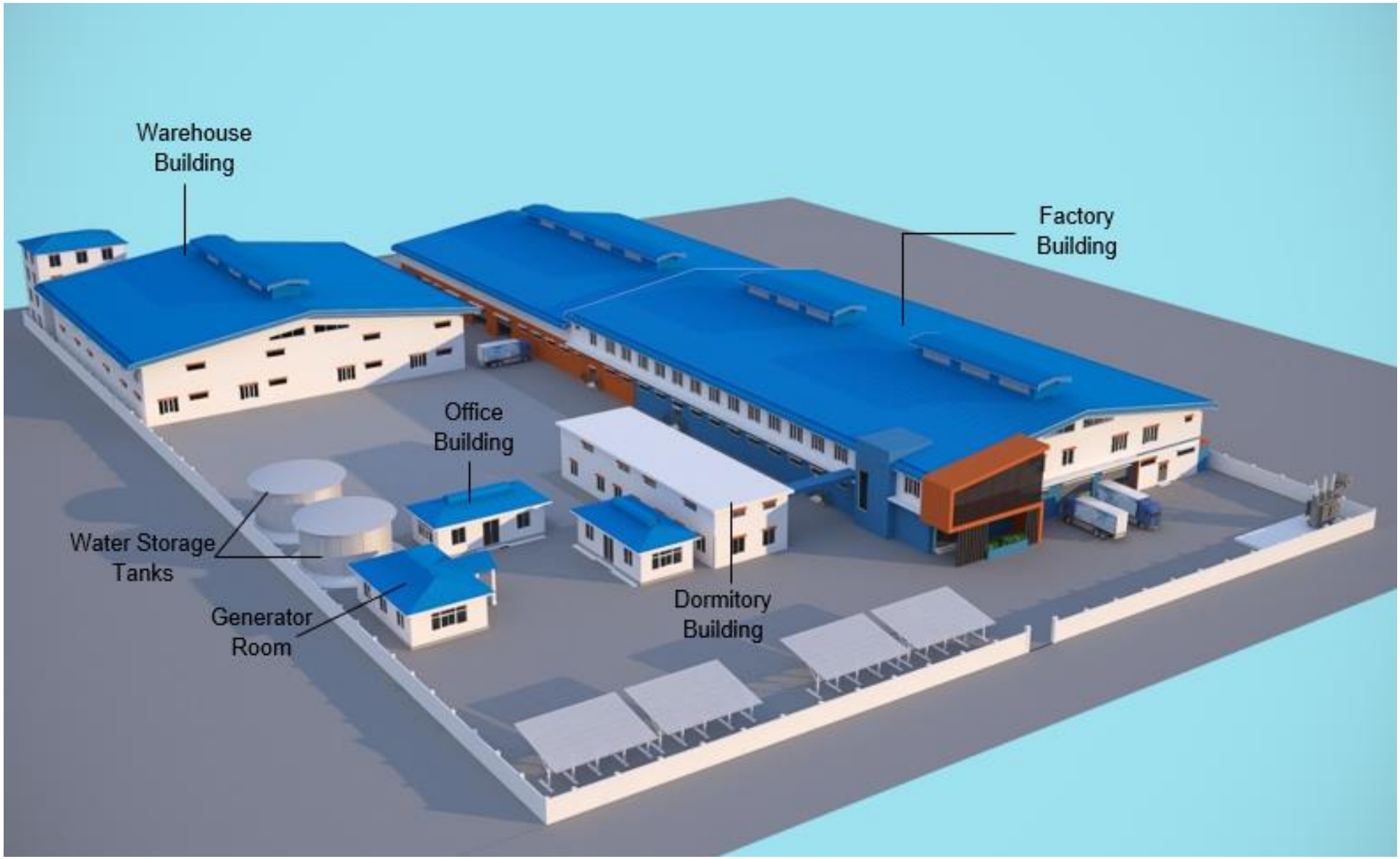


Figure 3-2 Proposed Building Layout Drawing

Figure 3-3 Front View of Factory Building

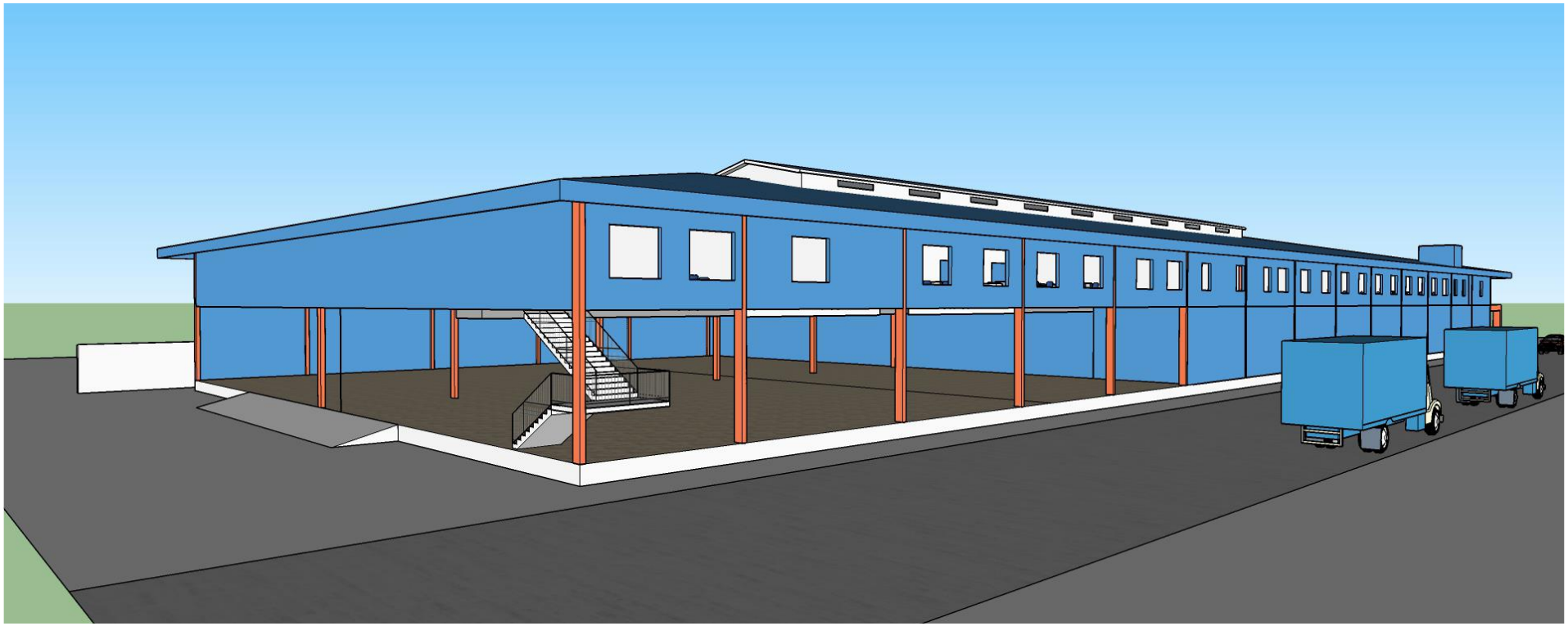


Figure 3-4 Side View of Factory Building

Figure 3-5 Top View of Factory Building

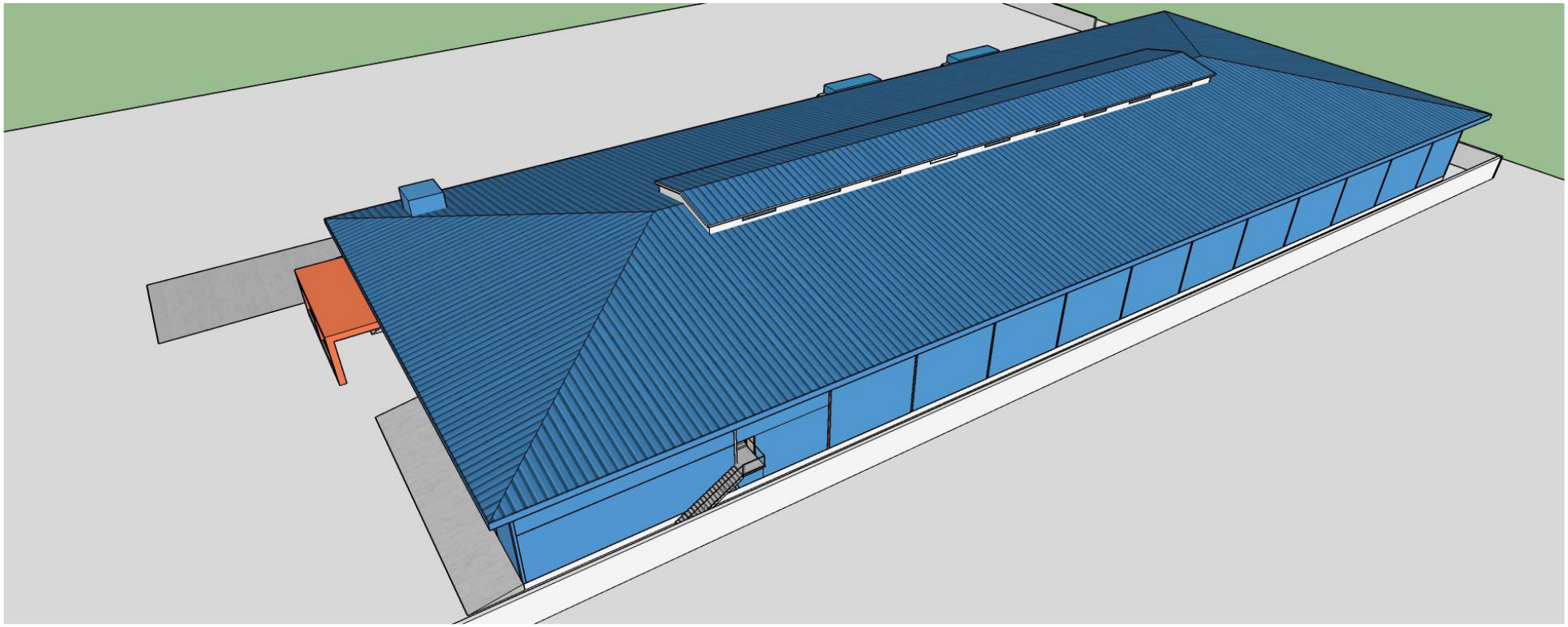


Figure 3-6 Back View of Factory Building

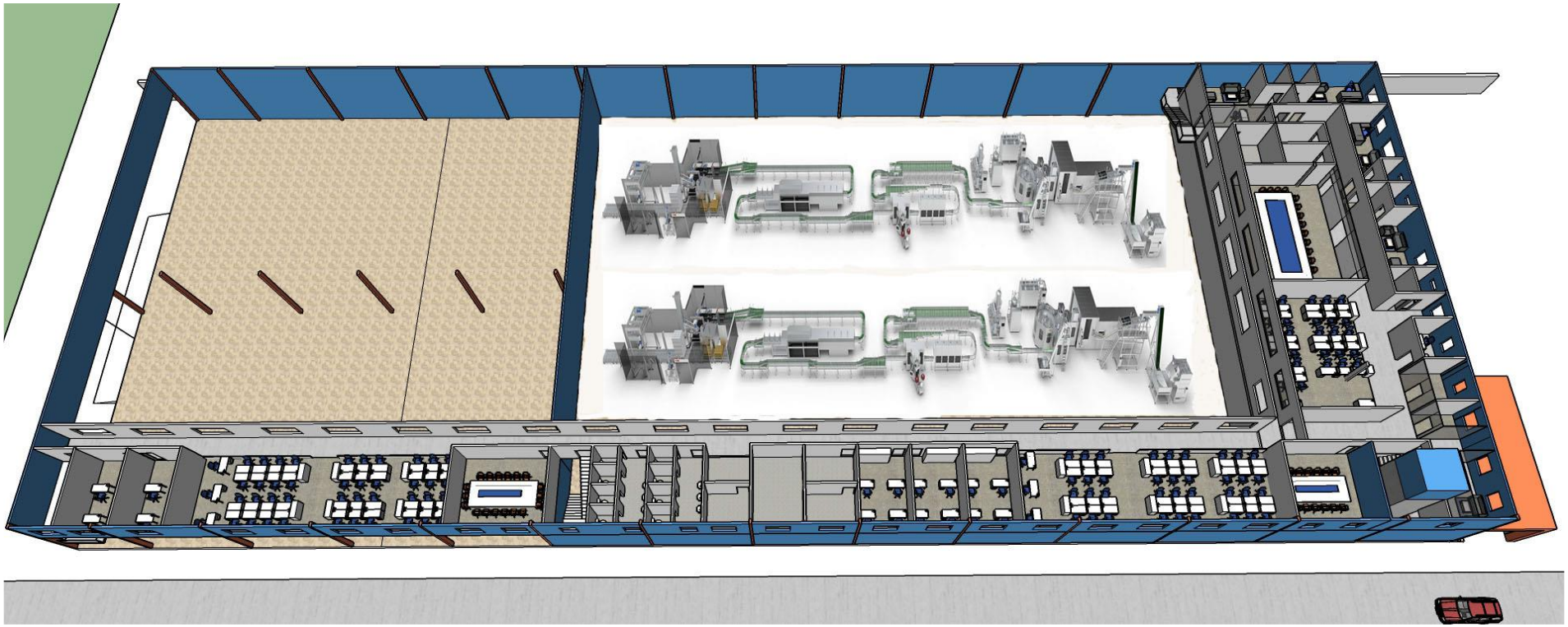


Figure 3-7 Machinery Layout Plan in Operation section

Figure 3-8 Office Section Layout Plan

Figure 3-9 Aerial of Proposed Project (December 2020)

Figure 3-10 Aerial of Photo of Project (September 2022)




Figure 3-11 Project Site Photo in December 15, 2020

3.5. OPERATION PHASE

Plus World Company Limited is the production of purified drinking water. The raw water will be used from tube well and the water is purified by reversed osmosis (R/O) treatment system. The plastic bottles, label, cup and other accessories/machineries imported from the Foreign Country. The products of drinking water (WavePlus) will be distributed to the local market. The factory will run operation about 18 hours per day by dividing in two shifts. The production process includes two sections: water treatment process and production process.

3.5.1. Water Purification Process

The project will use Reverse Osmosis (R/O) Water Treatment Process that can remove contaminants from unfiltered water, or feed water, when pressure forces it through a semipermeable membrane. Water flows from the more concentrated side (more contaminants) of the RO membrane to the less concentrated side (fewer contaminants) to provide clean drinking water.

The water treatment process includes the following steps:

- **Raw Water Sources**: The raw water is pumped out from six tube wells by using 2" diameters pipe and stored in the raw water storage tank.

- **Pre-Treatment System**: The substances from stored water are filtered by using sand and activated carbon filter and stored in treated water storage tank.

- **Reverse Osmosis (R.O) Purification System**: The water from treated water storage tank is then purified by using reverse osmosis (R/O) membranes. When water first enters a R/O system, it goes through prefiltration. Prefiltration typically includes a carbon filter and a sediment filter to remove sediment and chlorine that could clog or damage the R/O membrane. Next, water goes through the reverse osmosis membrane where dissolved particles, even too small to be seen with an electron microscope, are removed. After filtration, water flows to the storage tank, where it is held until needed. A reverse osmosis system continues to filter water until the storage tank is full and then shuts off.

- **Pure Water Storage Tank:** This tank holds treated water that is connected to the automatic control panel.

3.5.2. Water Filling and Packing Process

- **Dumper:** The raw PET plastic and caps are carried in the dumper and will be assembled into the production lines by a helper.
- **Molding:** The PET plastic is molded into plastic bottles by using fully automatic blow molding machine. The project will install 3 types of blowing machines to produce three sizes of plastic bottle, i.e; 1-liter size, 0.6-liter size, 0.3-liter size, 20-liter size and an operator will handle the machines. The molded bottles are collected by a helper.
- **Filling:** The filling machine combines washing, filling and capping three functions in a body in which the whole body is automatic that is operated by an operator. The purified drinking water from R/O storage tank is filled into the different types of bottles sizes by

using this machine and the HDPE Cap is used as capping for bottles. The next step is labelling.

- **Labelling:** The labelling machine is handled by an operator and a helper assemble the bottles for this process. The filled plastic bottles are label by using automatic labelling machine in which the label type is PVC label.
- **Packing:** The packing machine is handled by an operator and the helper. The labelled bottles are packed by using automatic packing machine and these are carried along the conveyor.
- **Product:** The purified drinking water of 1 liter, 0.6-liter, 0.3-liter, 20-liter bottles are produced. The products are unloaded by ten helpers and stored in the warehouse.

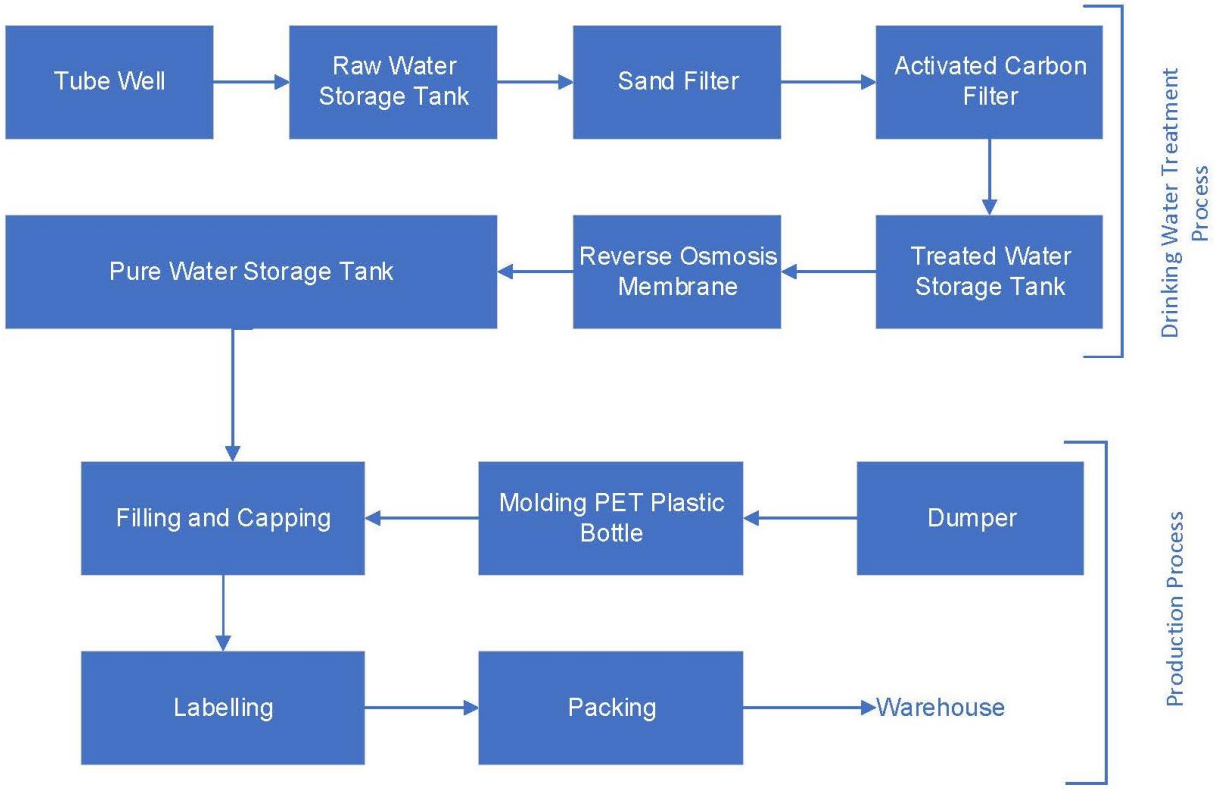


Figure 3-12 Diagrammatic Representation of the Bottling Plant


Raw Water


Raw Water


Carbon Filter


Sand Filter


Figure 3-13 Water purification photo in September 6, 2022

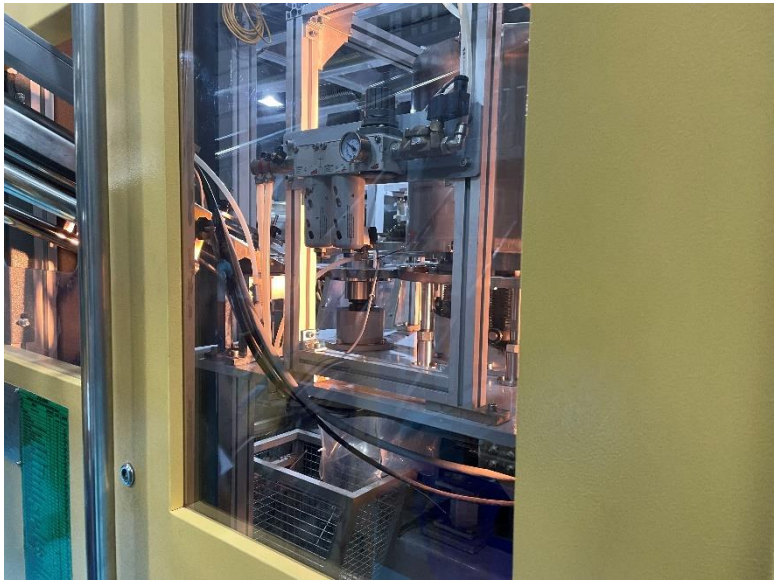


Figure 3-14 Water filling and bottling Photo in September 6, 2022

3.5.3. **Products**

Plus World Company Limited is the production of purified drinking water. The machine capacity is 24000 BPH and the running hour is 16 hours which is divided into two shifts. The factory runs 26 days per month and the production rate is 172800 bottles/ shift. The product is distributed as Wave Plus Purified Drinking Water and this will distribute within the local market. Annual production rate of the products is shown in Table 3-2.

Table 3-2 Expected Annual Production Rate

No.	Item	Qty	1st Year Production	2nd Year Production	3rd Year Production
1	1 Liter	pcs	36,864,000	44,236,800	53,084,160
2	0.6 Liter	pcs	46,080,000	55,296,000	66,355,200
3	0.3 Liter	pcs	36,864,000	44,236,800	53,084,160

Figure 3-15 Products Photos of Proposed Project

3.6. FACILITY OF TH FACTORY

3.6.1. Machinery and Equipment

Plus World Company Limited will install automation systems for fully automatic systems control of each process machine or complete processing line. List of operation accessories and machinery required and imported from China as mention in Table 3-3 and machine photos are described in Figure 3-16. The office equipment, utilities, the materials for bathroom and vehicles will purchase from local. The chemical needed for water treatment such as chlorine tablet, activated carbon and bio-media are local purchase.

Table 3-3 List of Machinery and Equipment in Proposed Factory

No.	Description	HS Code	Unit	Qty
1.	Water Treatment	8421	Set	2
2.	BFC Combi Block	8422	Set	2
3.	Blower -Filler-Crapper Combi System		Set	2
4.	Preterm De dust in System		Set	20
5.	Blow Mold – 1		Pcs	20
6.	Blow Mold – 2		Set	20
7.	Blow Mold – 3		Set	2
8.	CAP Feeding Device		Set	2

9.	CAP Sterilizer		Set	2
10.	Change Over Parts for Filler 600 ml		Set	2
11.	Change Over Parts for Filler 1000 ml		Set	2
12.	Conveyor System	8428	Set	2
13.	Full Bottle Convey		Set	2
14.	Pack/Case Conveyor System		Set	2
15.	Whole Line Electrical Control		Set	4
16.	Lamp Check Station		Set	2
17.	Bottle Blow Dryer		Set	4
18.	Labelling Machine	8422	Set	2
19.	Preform Dumper		Set	2
20.	Water Chiller		Set	2
21.	Sleeving Labeling Machine		Set	6
22.	Conveyor Lubricant System		Set	2
23.	In-Line Level and Cap Detection System		Set	4
24.	Changeover Parts		Set	2
25.	Shrink Wrapping Machine	8422	Set	2
26.	Shrink Wrapper		Set	4
27.	Changeover Parts		Set	2
28.	Inspection System (Packing Cost, Transportation, Installation, Commission Cost)	9031	Set	2
29.	High Pressure Air Compressor	8414	Set	2
30.	Low Pressure Air Compressor	8441	Set	2

Water Treatment System

Bfc Combi Block

Conveyor System

Labelling Machine

Shrink Wrapping Machine

Inspection System

Low Pressure Compressor

High Pressure Compressor

Figure 3-16 Machinery and Equipment Photos of Proposed Project

3.6.2. Raw Materials of Water Bottle and Accessory

The raw materials for production are water bottle, cap, label, which are imported from foreign country. Raw material requirement for each product is shown in Table 3-4. Raw materials supplying process is not affected to environment.

Table 3-4 List of Bottle and Accessory Requirement

No	Particulars	A/U	Year		
			1	2	3 to 30
1	Bottle (one liter)	pcs	36,864,000	40,550,400	44,605,440

2	Bottle (0.6 liter)	pcs	46,080,000	50,688,000	55,756,800
3	Bottle (0.3 liter)	pcs	36,864,000	40,550,400	44,605,440
4	CAP (White)	pcs	738,620	812,482	893,730
5	Cap Seal	pcs	1,231,034	1,354,137	1,489,551
6	Cap	pcs	119,808,000	131,788,800	144,967,680
7	Shrink (1 & 3 Liter)	pcs	168,960	185,856	204,442
8	Shrink (0.6 Liter)	pcs	96,000	105,600	116,160
9	Label (one liter)	pcs	36,864,000	40,550,400	44,605,440
10	Label (0.6 liter)	pcs	46,080,000	50,688,000	55,756,800
11	Label (0.3 liter)	pcs	36,864,000	40,550,400	44,605,440

Figure 3-17 Water bottle and accessories

3.6.3. **Human Resources**

The project will be hired 365 local employees to run the operation. These employees will be needed for 28 positions including ASM, engineers, supervisors, accountants, staff, admin, security. Therefore, the proposed project can create the job opportunities for local people.

Table 3-5 Requirement of Employees

Item	Designation/Rank	Citizen	Foreign
1.	Senior management (Managers, senior official)	20	-
2.	Other management level (Except from senior management)	59	-
3.	Professionals	-	-
4.	Technicians	5	-
5.	Advisors	-	-
6.	Skilled Labour	77	-
7.	Workers	204	-
Total		**365**	**-**

3.6.4. Water Supply System and Water Consumption

The project has been used six tube wells and the water was pumped out by using submersible pump which is 2" in diameter. The water will be stored in the overhead tank and underground water tank that can store 30000 gallons and 50000 gallons respectively. The estimated water usage may have 30000 liters per hour. During operation phase, most of the water is consumed for production of drinking water and other facility requirements.

3.6.5. Electricity Supply

Most of the electricity will be obtained from the national grid and that will reduce the diesel consumption to some extent. The estimated electricity consumption from the National Grid is 57,600 kWh/day. The project would receive electric power from Yangon Electrical Supply Corporation (YESC) by installing 1500 KVA and 315 KVA transformers. The estimated electrical usage is about 2800000 KW/hour per year.

If the electricity is obtained from the national grid, the estimated fuel consumption will be 310,000 liters (28 months): if not the total fuel consumption will be 1053,000 liters (28 months). The low fuel consumption of 500 KVA generators which is 15000 PRPM and 50 Hz frequency will be installed to run the operation during the electricity cut off. This generator has 415 output volt and include sound proof system. The 27.2 gallons per hour may consume for operation.

Table 3-6 Annual Electricity Usage of Proposed Project

No.	Particulars (Power Consumption)	A/U	Year		
			1	2	3 to 30
1	1-500	unit	500	500	500
2	501-5000	unit	4,500	4,500	4,500
3	5001-10000	unit	5,000	5,000	5,000
4	10001-20000	unit	10,000	10,000	10,000
5	20001-50000	unit	30,000	30,000	30,000
6	50001-100000	unit	50,000	50,000	50,000
7	100001-above	unit	2,700,000	2,700,000	2,700,000
Total Unit			2,800,000	4,100,000	4,300,000

Table 3-7 Fuel Requirement of Proposed Project

No.	Particulars	A/U	Year			
			1	2	3	4 to 30
1	Diesel	gallon	342,600	492,700	551,840	579,392
2	Lubricant	gallon	200	200	200	200

Figure 3-18 Electricity supply system

3.6.6. Wastewater Treatment System

Under operation stage, the wastewater from toilet is treated by Membrane Bioreactor (MBR) process which is an emerging advanced wastewater treatment technology. Wastewater dilution takes place only via toilet flushing which results in high BOD, nutrients and salt concentrations.

The solid/liquid separation is done om solid separation tank and the liquid is pumped out into the media filtration tank. This solid separation tank removes about 60-70% of suspended solids and the liquid leaving the primary sedimentation tanks still contains very fine solids and dissolved matters. In the media filtration tank, the air is pumped into this tank as aeration to promote the microbial growth in the wastewater and the remaining solids are decomposed by the microbes.

This effluent containing very fine solids and dissolved matters from the media filtration tank is settled in the sedimentation tank. Then the liquid from sedimentation overflow into the effluent tank. The liquid from the effluent tank is passed through the pressure line to prevent filter backwash. The liquid is passed through the sand filter which remove suspended matter, as well as floating and sinkable particles. Then the liquid is passed through the carbon filter which remove organic that can affect taste, odor and color. The liquid is then sanitized by passing through UV12 GPM. The result liquid is then chlorinated and the discharged into the drain.

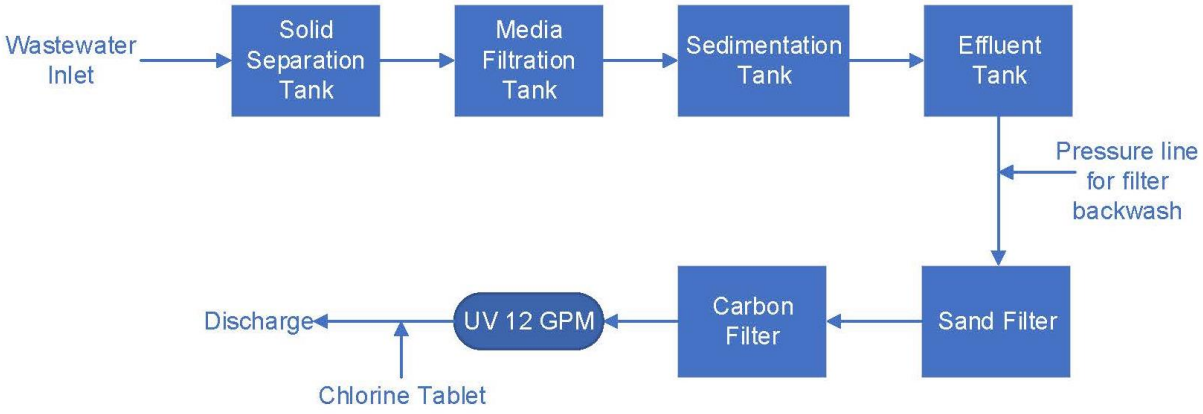


Figure 3-19 Wastewater Treatment Process Diagram

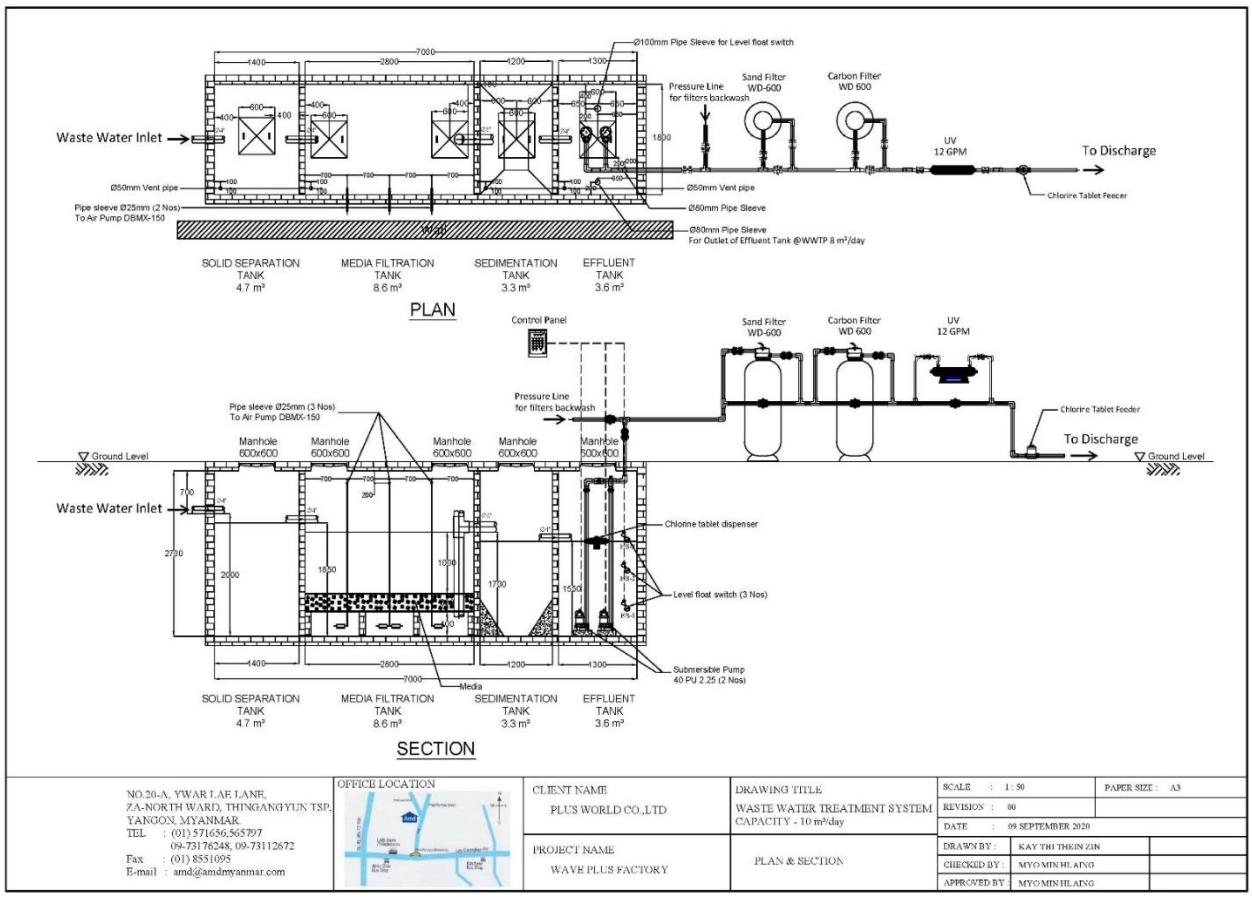


Figure 3-20 Wastewater Treatment System Drawing

3.6.7. **Drainage System**

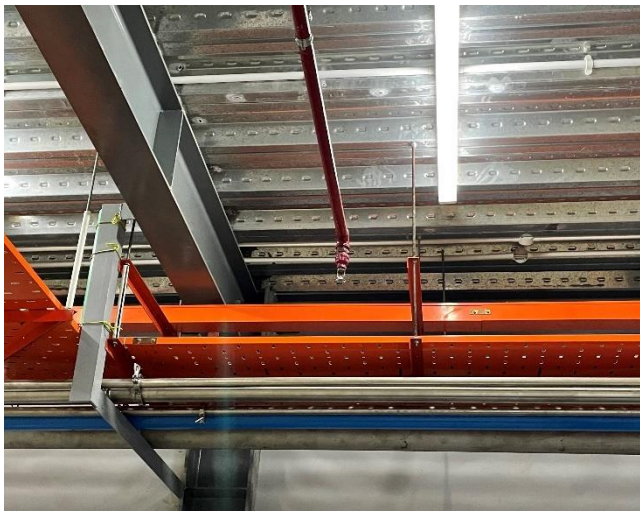
The factory will install concrete drainage channels along the factory. The effluent from the wastewater treatment process will be discharged into the drain. Rain water or domestic wastewater will be discharged into the existing drainage channel of the surrounding project area from the sides of the building.

3.6.8. **Solid Waste Management System**

The factory will provide separate garbage bins at each building. All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste bin: non-hazardous waste, hazardous waste, re-usable waste and final wastes will be disposed by connecting with Department of the Yangon City Development Committee (YCDC). Domestic wastes are disposed with the truck daily.

3.6.9. **Firefighting System**

The smoke detectors, fire alarm systems, sprinklers and fire escape systems will be installed to alarm the workers to escape from the factory safely. The automatic sprinklers will be installed in factory buildings. The fire hose reels will be placed every corner of the factory buildings. The main breakers will install which can automatically break down the unwanted voltages to prevent the electric shocks. The electric lines will be checked by the specialist to prevent fire and electric shocks. The water from underground water tanks and the overhead tanks will be connected to put out the fire. The fuel storage system training and the firefighting training will be arranged for the workers. The fire extinguishers will be placed according to the instructions of Myanmar Fire Force Ministry.



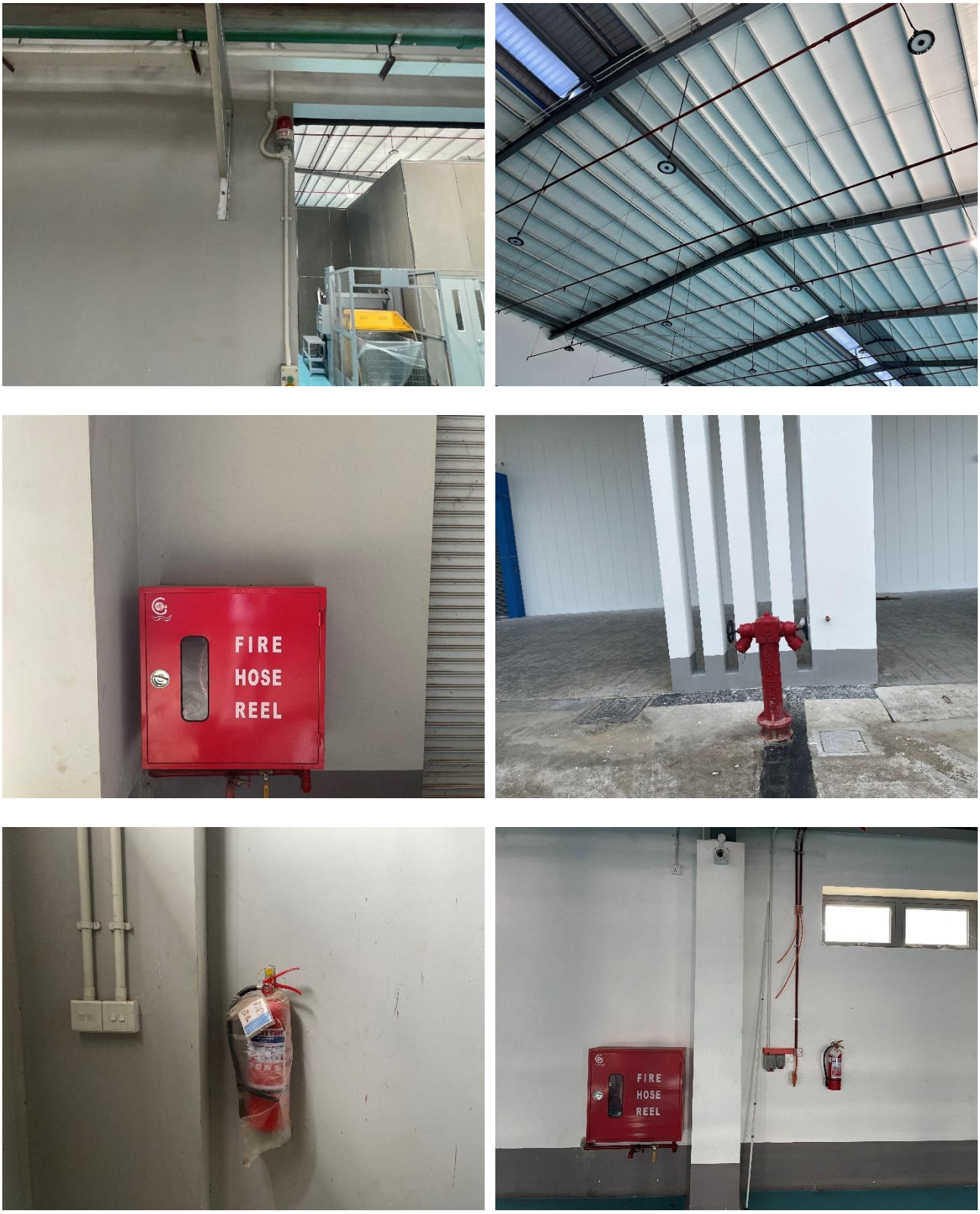


Figure 3-21 Firefighting installation photo

3.7. DECOMMISSING PHASE

The proposed project investment duration is 30 years. During the decommission phase, the project will follow the rules and regulations to reduce the impacts on the environment.

CHAPTER 4
DESCRIPTION SURROUNDING ENVIRONMENT

This chapter describes the environmental and socio-economic settings of the study area based on the latest available secondary information and primary information collected from field surveys by Myanwei. Basically, the project site is an abandoned place which has been left in nature without caring the land and buildings that had been used for convening meetings in late 1990s, an effort of accomplishment for developing the current constitution of the country. Now it becomes a Phone-zo area of a fallow land, dry in summer, swampy in rainy season.

In the EIA study, it is necessary to establish information on the environmental and socio-economic setting of an area, which could receive direct and indirect impacts as well as cumulative impacts during the project construction and operation phases. The information serves two purposes;

- Firstly, it is used in conjunction with the information on the project, for identification of potential impacts of the project and assessment of their significance, and
- Secondly, it serves as the benchmark for evaluating environmental and social management performance of the project construction and operation phases.

This study would be large enough to cope with most potential environmental and social impacts of the project during construction, operation and decommissioning phases.

4.1. PHYSICAL CHARACTERISTICS

4.1.1. Climate and Meteorology

The climate of Yangon City is a tropical monsoon climate with 3 seasons:

- A dry season from February to April
- A rainy season from May to October
- A winter season from November to January

The average rainfall is between 2500 mm to 3000mm a year with a maximum temperature of 370 C. and a minimum temperature of 11.3 0C as follows: Yangon has a tropical monsoon climate under the Koppen climate classification system. The city typically experiences a distinct rainy season from the month of May through to October when a substantial amount of precipitation occurs; and dry season which commences from November and ends in April. During the course of a year, average temperatures show some variance with average highs ranging from 26°C to 36°C and average lows occurring between 18°C and 25°C.The hottest period is between February and May, with little or no rain. At the end of this season, generally from March to April, the average monthly temperature reaches the upper 30°C. The average temperatures in Yangon range from 24°C to 36°C in April during the hot season and it ranges from 18°C to 32°C in January during the cooler season.

The proposed project is located at Mingalardon Township, Yangon Region. The climate condition of Mingalardon Township is the dry season of area in which starts in December and ends in March. The raining season starts in June and ends in September and the cold season follow with the cooler, drier months of October to January. The highest temperature range is 41°C

and low range is 27°C that are reference from Township Meteorology data, Regional Data of Mingalardon Township.

4.1.1.1. Average Weather in Yangon

In Yangon, the wet season is oppressive and overcast, the dry season is muggy and partly cloudy, and it is hot year-round. Over the course of the year, the temperature typically varies from 67°F to 97°F and is rarely below 62°F or above 101°F. [6]

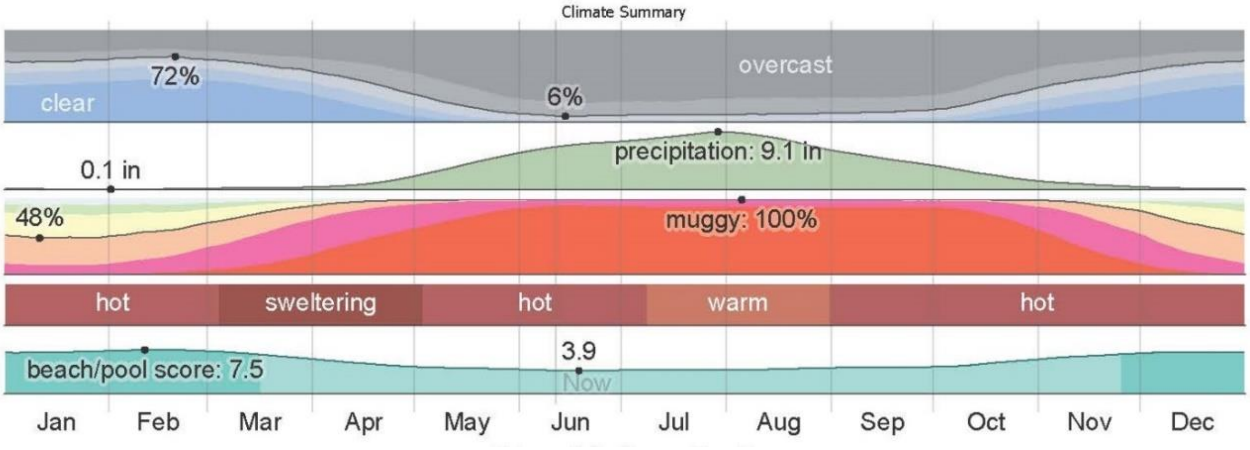


Figure 4-1 Climate Summary of Yangon Region

4.1.1.2. Temperature

The hot season lasts for 2.0 months, from March 2 to May 3, with an average daily high temperature above 95°F. The hottest day of the year is April 11, with an average high of 97°F and low of 78°F.

The cool season lasts for 3.9 months, from June 2 to September 29, with an average daily high temperature below 87°F. The coldest day of the year is January 10, with an average low of 67°F and high of 88°F.

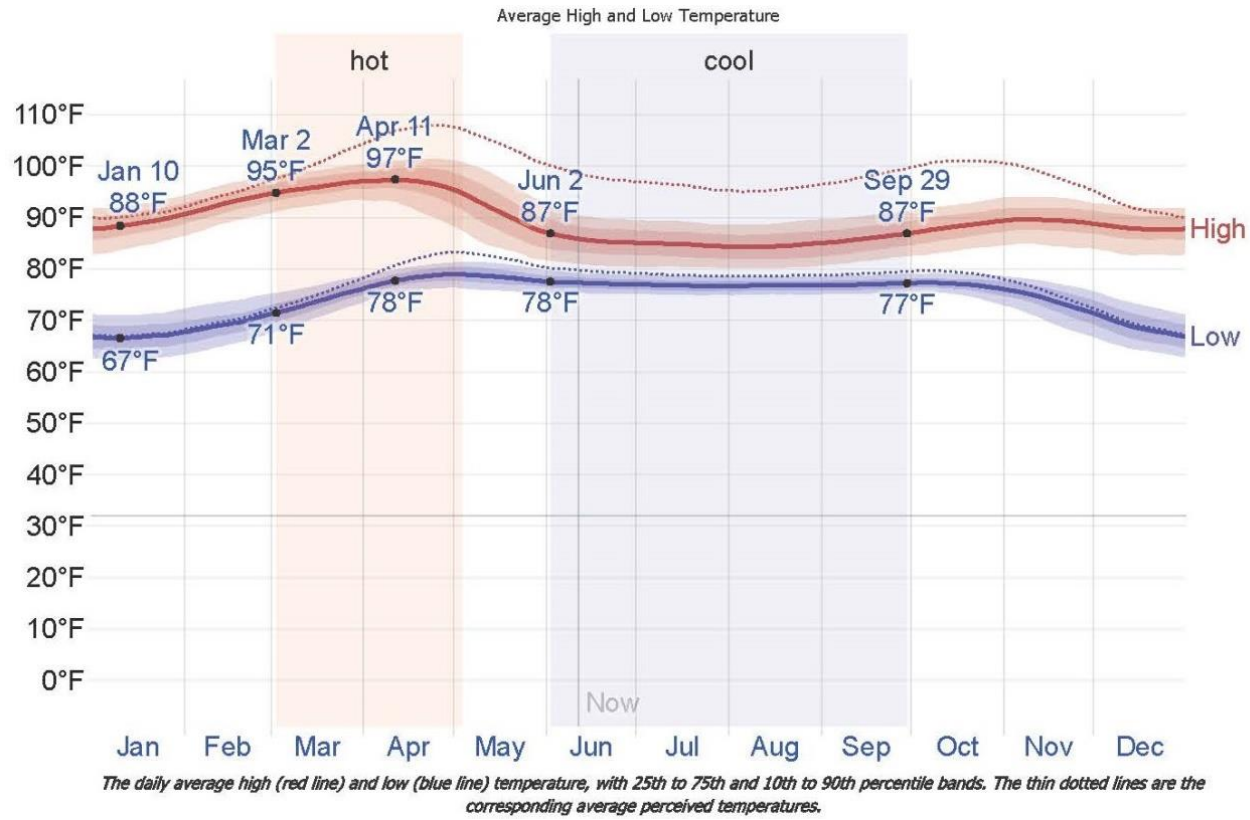


Figure 4-2 Average Temperature of Yangon Region

4.1.1.3. Clouds

In Yangon, the average percentage of the sky covered by clouds experiences extreme seasonal variation over the course of the year. In clearer part of the year in Yangon begins around November 2 and lasts for 5.6 months, ending around April 22. On February 20, the clearest day of the year, the sky is clear, mostly clear, or partly cloudy 72% of the time, and overcast or mostly cloudy 28% of the time.

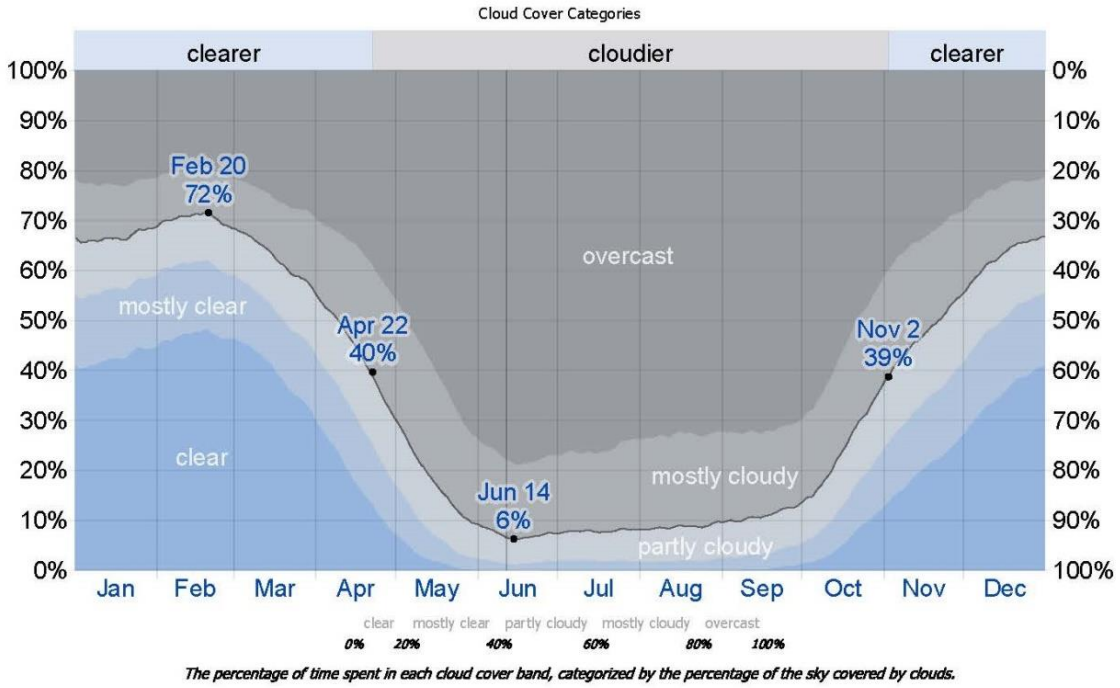


Figure 4-3 Cloud Cover Categories

4.1.1.4. Rainfall

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered on each day of the year. Yangon experiences extreme seasonal variation in monthly rainfall. The rainy period of the year lasts for 7.7 months, from April 5 to November 28, with a sliding 31-days rainfall of at least 0.5 inches. The most rain falls during the 31 days centered on July 30, with an average total accumulation of 9.1 inches. The rainless period of the year lasts for 4.3 months, from November 28 to April 5. The least rain falls around February 1, with an average total accumulation of 0.1 inches.

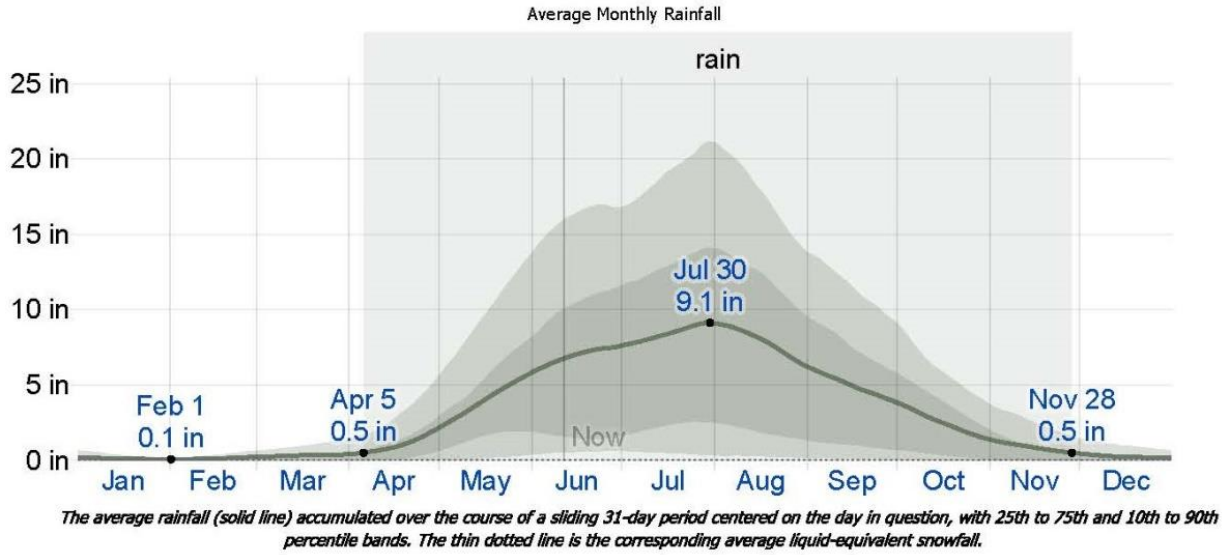


Figure 4-4 Average Monthly Rainfall at Yangon Region

Table 4-1 Annual Rainfall and Temperature

Year	Rainfall		Temperature	
	Raining day	Rainfall value (Inches)	Summer season Max (°C)	Winter season Min (°C)
2011	60	170.5	31	18
2012	58	180.2	42	16
2013	65	190.01	45	15
2014	59	187.5	42	18
2015	118	102.5	40	12.5
2016	110	105.27	45	15
2017	80	100.2	31	23
2018	102	105.4	41	27
2019	88	84.8	40	26

Source: Department of Administrative Mingalardon Township, Regional data (www.gad.gov.mm.com)

4.1.2. **Humidity**

We base the humidity comfort level on the dew point, as it determines whether perspiration will evaporate from the skin, thereby cooling the body. Lower dew points feel drier and higher dew points feel more humid. Unlike temperature, which typically varies significantly between night and day, dew point tends to change more slowly, so while the temperature may drop at night, a muggy day is typically followed by a muggy night.

Yangon experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 10 months, from February 22 to December 23, during which time the comfort level is muggy, oppressive, or miserable at least 61% of the time. The muggiest day of the year is August 5, with muggy conditions 100% of the time. The least muggy day of the year is January 11, with muggy conditions 48% of the time. In March 30, 2020, the weather condition of prosed project is 41.2°C average temperature and 69.1% average humidity.

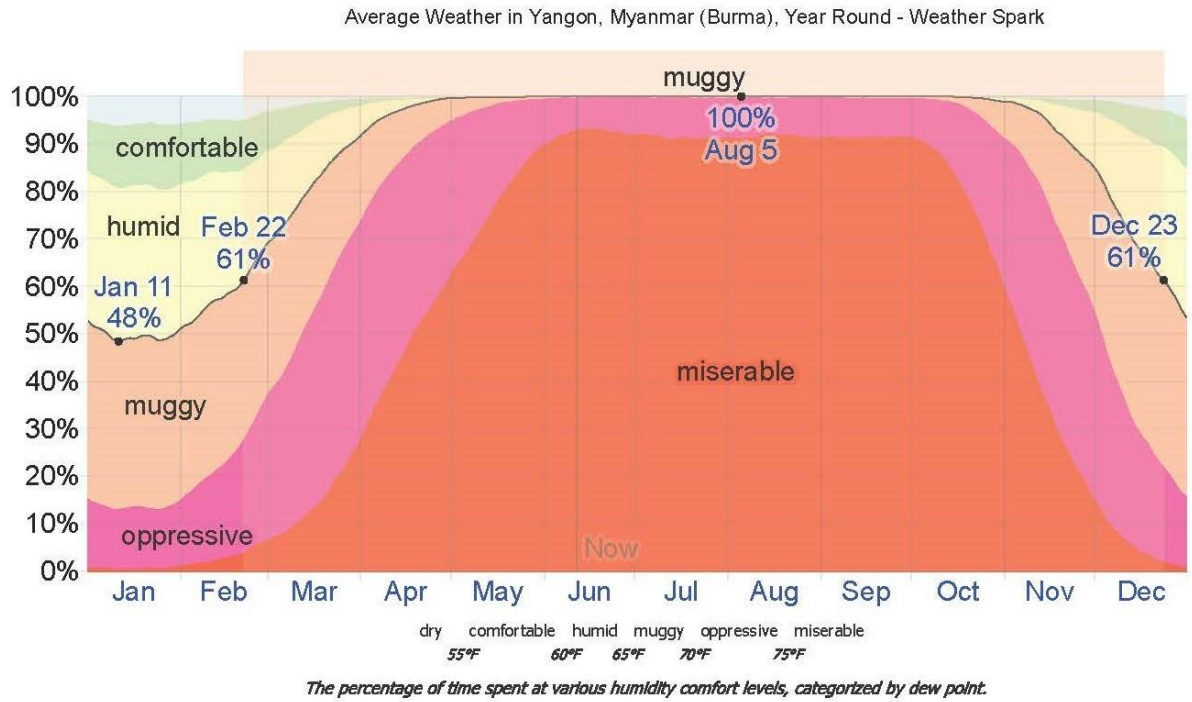


Figure 4-5 Humidity of Yangon

4.1.2.1. Wind

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly depended on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages. The average hourly wind speed in Yangon experiences significant seasonal variation over the course of the year. The winder part of the year lasts for 4.1 months, from May 1 to September 4, with average wind speeds of more than 8.2 miles per hour. The windiest day of the year is June 24, with an average hourly wind speed of 10.6 miles per hour. The calmer time of year lasts for 7.9 months, from September 4 to May 1. The calmest day of the year is January 9, with an average hourly wind speed of 5.8 miles per hour.

Table 4-2 Monthly Wind Speed at Yangon in kmile/hr

Wind Speed	Dry Season			Pre-Monsoon		Monsoon				Post Monsoon		Winter	Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Mean	4.3	4.5	4.8	5.4	5.5	5.3	5.2	5.6	4.7	4.8	5.2	5.2	5.0
Max	8.1	7.4	10.3	7.6	10.3	8.7	8.5	13.4	8.7	9.7	9.3	9.2	9.3
Min	2.6	2.3	1.0	3.2	2.7	2.7	2.3	3.5	2.9	1.9	1.8	3.7	2.5
Monthly Wind Speed at Yangon in mph (1mph = 1.61 kmph)													
Wind Speed	**Dry Season**			**Pre-Monsoon**		**Monsoon**				**Post Monsoon**		**Winter**	**Annual**
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Mean	2.7	2.8	3.0	3.4	3.4	3.3	3.2	3.5	2.9	3.0	3.2	3.3	3.1
Max	5.00	4.60	6.40	4.70	6.40	5.40	5.30	8.30	5.40	6.00	5.80	5.70	5.8
Min	1.60	1.40	0.60	2.00	1.70	1.70	1.40	2.20	1.80	1.20	1.10	2.30	1.6

Table 4-3 Monthly Relative Humidity at Yangon in Percentage (%)

Relative Humidity	Dry Season			Pre-Monsoon		Monsoon				Post Monsoon		Winter	Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Mean	60	57	61	62	74	88	89	89	85	80	72	65	73
Max	67	61	67	66	82	91	93	93	88	85	82	73	79
Min	55	51	54	58	63	83	85	83	81	77	66	60	68

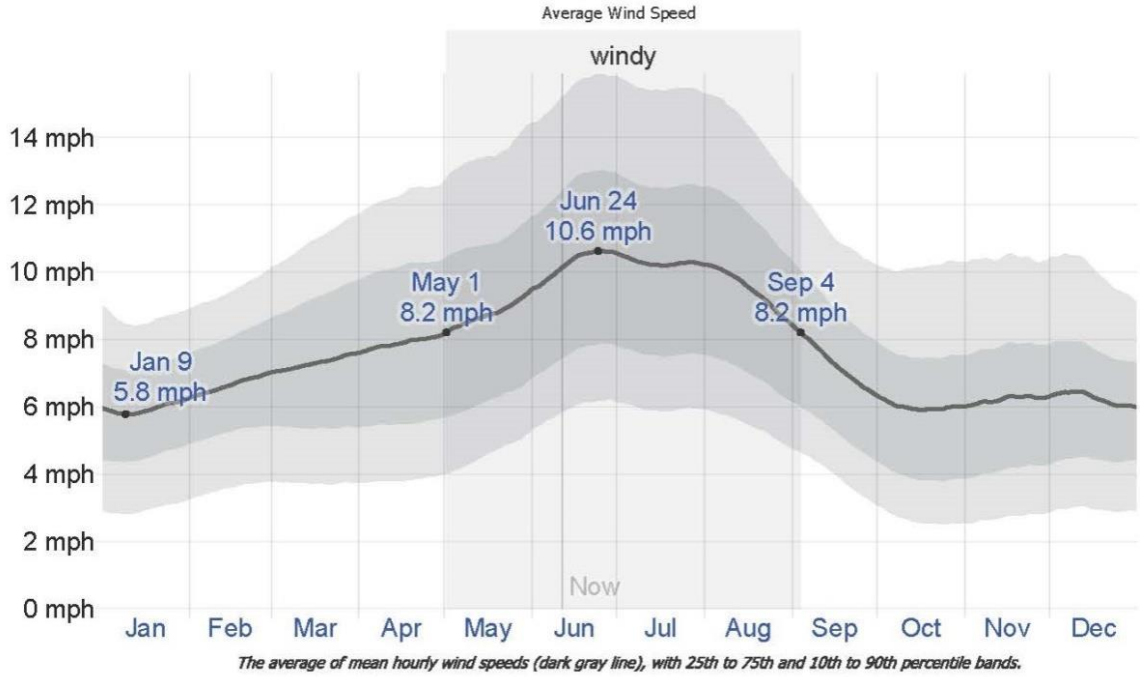


Figure 4-6 Average Wind Speed in Yangon

4.1.3. Topography

Yangon Region is located at the eastern extremity of the Ayeyarwady Delta with the Andaman Sea on the south. It is the capital of the region. Shwedagon Pagoda is the famous pagoda in the Yangon Region. The Yangon River is about 40 km long (25miles), and flows from southern Myanmar as an outlet of the Ayeyarwady River into the Ayeyarwady delta. Yangon Region is formed with four districts, which are, east Yangon District, west Yangon District, north Yangon District and south Yangon District, and 45 townships.

The proposed project area is situated at Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar and its topographic condition is flat. The proposed project site is primarily agricultural land, but now is initiated into the industrial zone area.

4.1.4. Geology

Myanmar can be subdivided into three provinces (Maung Thein, 1993): namely, the Western Fold Belt (WFB) in the west, the Central Lowland (CL) in the middle, and the Eastern Highland (EH) in the east. Tectonically, Yangon is situated in the southern part of the Central Lowland, which is one of three major tectonic provinces of Myanmar. The Central Lowland is the fertile alluvial, intermittently cropped out by the mountain range and hills running in a north-south direction and also enhanced.

Myanmar can be subdivided into three provinces (MaungThein, 1993): namely, the Western Fold Belt (WFB) in the west, the Central Lowland (CL) in the middle, and the Eastern Highland (EH) in the east. Tectonically, the Yangon is situated in the southern part of the Central Lowland, which is one of three major tectonic provinces of Myanmar. The Central Lowland is the fertile alluvial, intermittently cropped out by the mountain range and hills running in the north-south direction and also enhanced Yangon Region is located at the eastern extremity of the Ayeyarwaddy Delta area with the Andaman Sea on the south-east.

Yangon Region is located at the eastern extremity of the Ayeyarwady Delta area with the Andaman Sea on the south-east. Yangon Region is bordered on the west by the Ayeyarwady Region, on the north and east by Bago Region and on the south by the Gulf of Mottama. High areas of the region are the southern end of the Bago Yoma near Phaunggyi, and its farther southward extensions of isolated low hills and ridges like those near Hlawga Lake, the Shwedagon Pagoda Hill in Yangon City itself, and the ridge or rolling hills southeast of Thanhlyin. Laterite for use as road material is now being quarried at Wanetchaung, between Hmawbi and Taikkyi, north of Yangon.

The Yangon area is underlain by alluvial deposits (Pliestocene to Recent), the non-marine fluviatile sediments of Irrawady formation (Pliocene), and hard, massive sandstone of Pegau series (early-late Miocene). Alluvial deposits are composed of gravel, clay, silts, sands and laterite which lie upon the eroded surface of the Irrawaddy formation at 3-4.6 m above mean sea level (MSL). The rock type in Yangon is mainly soft rocks, which consist of sandstone, shale, limestones and conglomerate. Geological map of Yangon Regional area is shown in Figure 4-7.

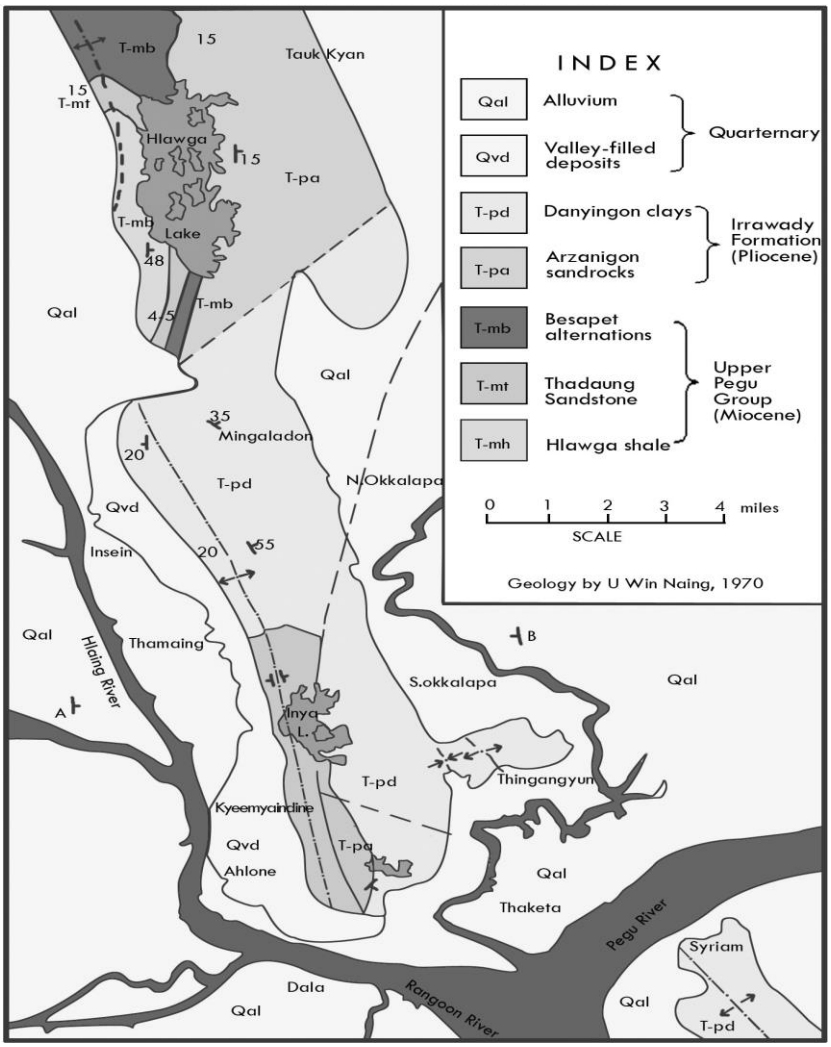


Figure 4-7 Geological Map of Yangon Region

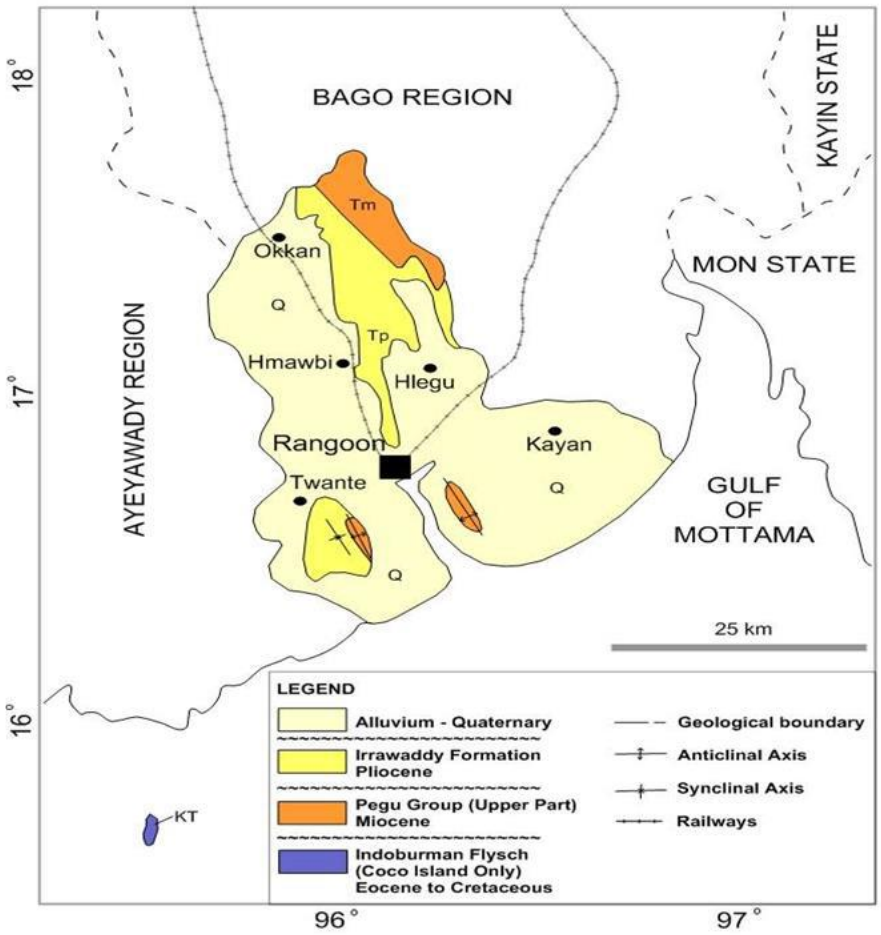


Figure 4-8 Regional Geological map of Yangon

Yangon Region is bordered on the west by the Ayeyarwady Region, on the north and east by Bago Region and on the south by the Gulf of Mottama. Noticeably high areas of the region are the southern end of the Bago Yoma near Phaunggyi, and its farther southward extensions of isolated low hills and ridges like those near Hlawga Lake, the Shwedagon Pagoda Hill in Yangon City itself, and the ridge or rolling hills southeast of Thanhlyin. Laterite for use as road material is now being quarried at Wanetchaung, between Hmawbi and Taikkyi, north of Yangon. By boring results of soil investigation, the project area has consisted of alluvial deposit of clay, clayey sand, and silty sand. According to the geological map of Win Swe (2012), the stratigraphic succession of the Yangon region is shown in Table 4-4.

Table 4-4 Stratigraphic succession of the Yangon Region

AGE	Unit
QUATERNARY	Younger Alluvium Unconformity Older Alluvium Unconformity
UPPER MIOCENE-PLIOCENE	Irrawaddy Formation Unconformity
MIOCENE	Pegu Group (upper part only)

4.1.5. **Tectonics**

Yangon is situated in the southern part of the Central Lowland which is one of the three major tectonic provinces of Myanmar. The Taungnio Range of the Gyophyu catchments area of Taikkyi District, north of Yangon, through the Thanlyin Ridge, south of Yangon forming a series of isolated hills probably resulted from the progressive deformation of the Upper Miocene rocks as the eastern continuation of the subduction or stretching and compression along the southern part of the Central Basin and regional uplifting of the Pegu Yoma (Aung Lwin 2012).

4.1.6. **Earthquake Intensity of Yangon City**

The project site is located in a zone of moderate seismicity zone (II) according to the seismic zone map of Myanmar 2005 (Figure 4-9).

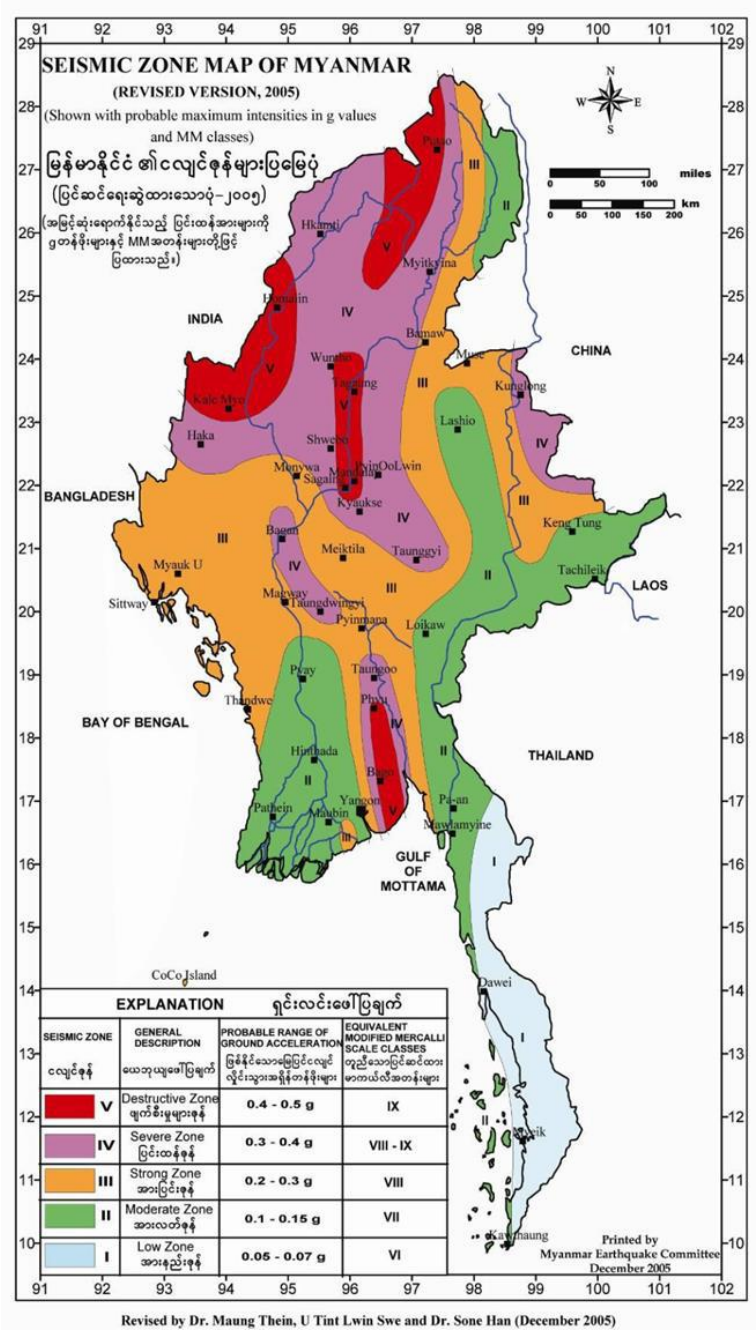


Figure 4-9 Seismic Zone Map of Myanmar

4.1.7. Earthquake Events recorded in Yangon Region

According to **Table 4-5**, from 2006 to 2014 earthquake events occurred in 2006, 2007, 2008, 2010, 2013 and 2014, except 2009, 2011 and 2012. However, the events were classified as slight as the scale of the magnitude ranges from 3.0 to 4.4.

Yangon City is situated in Earth Quake Zone II and is considered to be situated in earthquake-prone areas. Sagaing fault is the most active one and the past earthquakes recorded in Myanmar occurred along this fault.

Table 4-5 Seismic Zone Percentage of State and Region in Myanmar

State or Region\Zone	I	II	III	IV	V
Bago Region		35	30	20	15
Chin State			55	22	23
Ayeyarwady Region		95	5		
Kayah State		98	1		
Kayin State	30	50	20		
Magway Region		15	50	35	
Mandalay Region			45	40	15
Mon State	20	70	10		
Rakhine State		15	85		
Sagaing Region			10	65	25
Shan State		40	40	20	
Tanintharyi Region	5	15			
Yangon Region		40	23	20	17

Source; Hazard profile of Myanmar (2009)

Table 4-6 Earthquake Events Recorded in Yangon Region

No	Period						Epicenter		Magnitude Scale(M)					Class
	Date	Month	Year	Hours	Minute	Second	Latitude(N)	Longitude(E)	<4.0	<5.0	<6.0	<7.0	<8.0	
1	4	Jan	2006	11	9	54	17.12	95.98	3.9					Slight
2	23	Jun	2006	2	10	40	16.52	96.42	3.2					Slight
3	22	Feb	2007	3	20	31	17.33	95.95		4.4				Slight
4	26	Apr	2007	5	24	10	15.471	96.08		4.2				Slight
5	12	Mar	2008	0	46	32	16.54	95.99						Slight
6	2009 (No earthquake events recorded in Yangon Region)													
7	29	Apr	2010	18	3	28	19.375	93.18			5.1			Moderate
8	20011 (No earthquake events recorded in Yangon Region)													
9	20012 (No earthquake events recorded in Yangon Region)													
10	20	Jan	2013	6	26	40	17.28	95.98	3.5					Slight
11	22	Jan	2013	8	35	14	16.29	96.45						Slight

12	30	Jan	2013	20	5	52	16.83	96.01	3.7					Slight
13	2	Feb	2013	13	5	15	16.33	96.37	3.4					Slight
14	4	Aug	2013	9	11	24	16.86	96.13						Slight
15	2	Sept	2014	8	57	18	16.45	96.47	3.4					Slight
16	20015 (No earthquake events recorded in Yangon Region)													

4.1.8. **Soil**

The underlying soil type at the Project Site and its surroundings is characterized as the Meadow and Meadow Alluvial Soil. Meadow Soil is soil which occurs near the river plains exposed to occasional tidal floods, is non-carbonate and usually contains a large amount of salt. Both materials mainly comprise silty clay loam and neutral soil rich in plant nutrient. The upper layers (approximately 0 to 7 m) of the soil at the Project Site comprise largely of cohesive layers with traces of sand and gravel, followed by sand layers with low silt content and trace gravel from 7 to 35 m. The lower layers comprise denser silt layer with traces of sand and gravel from approximately 57 to 70 m. Standard Penetration Test (SPT) results obtained from testing at the Project Site indicate that the soil strength generally increases with depth. The STP results showed that the current soil quality can accommodate the construction of the Project.

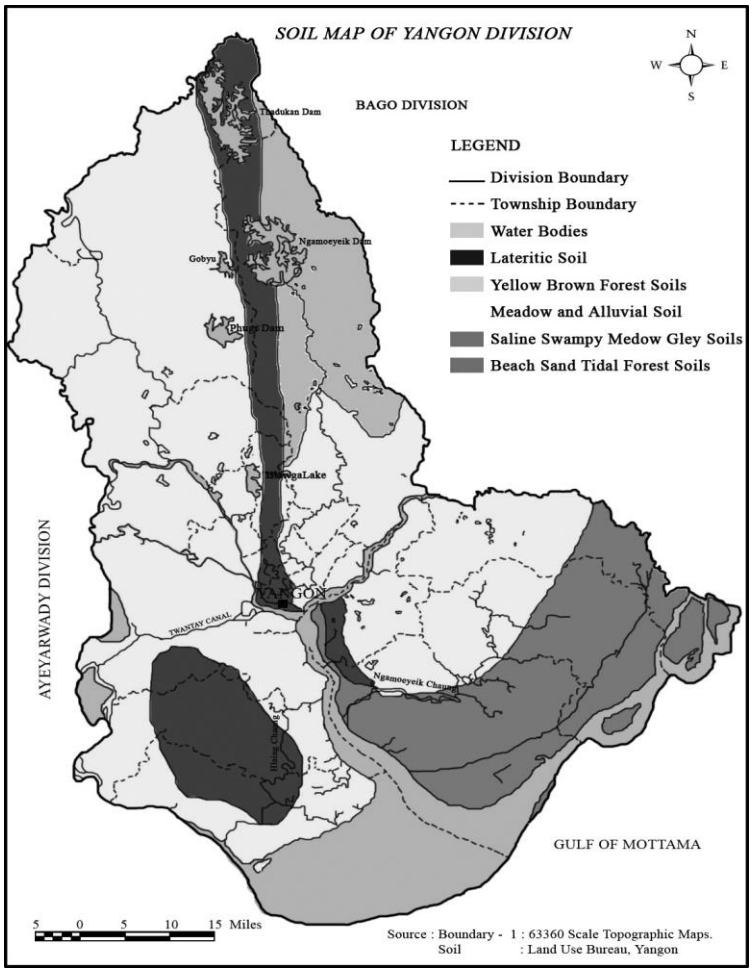


Figure 4-10 Soil Map of Yangon (Source: Land Use of Bureau of Yangon)

4.1.9. **Hydrogeology**

Yangon is rich in groundwater resources conserved by unconsolidated Tertiary-Quaternary deposits. In Yangon, groundwater is mostly extracted from Valley filled deposits and Ayeyawady sandstones.

4.1.10. **Groundwater**

Groundwater availability is generally based on the distribution of permeable and relatively impermeable rocks. The nature of openings in the rocks determines permeability of rocks. Based on local geological considerations, potential groundwater source of Yangon can be roughly divided into two sub regions, namely the low potential area and high potential area. Low potential areas are areas with those rock units of Hlawga Shale, Thadugan Sandstones and Base pet Alternation of upper Pegau Group (Miocene epoch) and Danyingon Clays of Irrawaddy rocks. These rocks and formations are a dense, massive and consolidated nature and have impervious characteristic. High potential areas are underlain by Pliocene Series and recent Formations. High potential area covers approximately 85 percent of the Yangon city including Pabedan. Stand pipe piezometers were installed at a depth of up to 30 m from the existing ground level while a pumping well was installed upon completion of the soil investigation works. Based on the results recorded up to the 8th of December 2012, stabilized groundwater level was observed to range between 0.49 m MSL to -1.81 m MSL4.

4.1.11. **Hydrology**

The Project Site lies along the catchment of the Hlaing River which flows North to South. The Yangon River (also known as the Rangoon River or Hlaing River) is formed by the confluence of the Pegau and Myitmaka rivers and flows into the Gulf of Martaban which is part of the larger Andaman Sea. The river flows along a 40 km stretch flowing from southern Myanmar as an outlet of the Ayeyarwady River into the Ayeyarwady delta. A small portion of the Bago River (the estuary) lies within the Yangon Division. The Pazundaung Creek and Bago River joins the Yangon River and from there, flow towards the Southwestern direction into Andaman Sea.

4.2. BIOLOGICAL COMPONENT

There is no forest area, wildlife and wetlands within or around the project compound. The proposed project site is not located in or near a sensitive ecosystem as the proposed project area is situated in the Mingalardon Township. Moreover, desktop review and site visits confirmed the absence of unique or ecologically significant flora and fauna.

4.3. SOCIO-ECONOMIC COMPONENT

Plus World Company Limited is located across Mingaladon Township, Yangon Region.

4.3.1. **Population**

In 2019, the population of Mingaladon Township is about 263,798 people as present in Table 4-7.

Table 4-7 Population of Males and Females at Mingaladon Township (2019)

Item	Over 18 year			Under 18 year			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total

Urban	50,578	59,513	110,091	19,242	20,564	39,806	69,820	80,077	149,897
Rural	31,976	44,422	76,38	18,459	19,044	37,503	50,435	63,466	113,901
Total	82,554	103,935	186,489	37,701	39,608	77,309	120,255	143,543	263,798

Source: Department of Administrative Mingaladon Township, Regional data (www.gad.gov.mm.com)

4.3.2. **Religion**

The different kinds of religion present in Mingaladon Township are shown in Table 4-8. More than 90% of the people living in the township are Buddhists.

Table 4-8 Religion in Mingaladon Township (2019)

Township	Buddhist	Christian	Hindu	Muslim	Other	Total
Mingaladon	252,156	4,339	3,232	4,071	-	263,798

(www.ygn.gov.mm)

4.3.3. **Local Economy**

Among regional towns, Mingaladon Township has a variety of businesses and services operating in the community with other businesses/services, based in the region. Most of the source of livelihood in the Township is employment of factory. Services and facilities available include:

- post office
- beauticians
- butcher
- hairdressers
- furniture and electrical store
- restaurants
- cafes
- shoe and clothing shops
- industrial services
- pharmacy
- veterinarian
- bus service
- gift stores
- music store
- pubs and bars
- florist

4.3.4. **Public Infrastructure and Access**

4.3.4.1. Communication and Transportation

Major transportation route in Mingaladon Township are airport, railway, port, and car road as presented in Table 4-9.

Table 4-9 Transportation Route

Categories	Township	Miles

	From	To	
Mingaladon International Airport	Ananpin Quarter, Mingaladon Township		
Railway (Circular Railway)	Mingaladon	Golf Club	4.78
Yangon-Bago Road	Htauk Kyak Road	No. (3) Road	2.7
Myot Shaung Road	Ye Su Taung	Bago Lan Ma	0.7
No. (7) Road	Bago Lan Ma	Ywar Ma Quarter	3.2

Source: Department of Administrative Mingaladon Township, Regional data (www.gad.gov.mm.com)

4.3.5. **Electricity**

The electricity demand of Mingaladon Township is higher and higher due to the normally increased in population and infrastructure. [1]

4.3.6. **Education**

Location of major schools were situated i.e. basic education primary school (B.E.P.S.), basic education middle school (B.E.M.S), basic education high school (B.E.H.S) and Computer University, in the Mingaladon Township. The name and the located village tract/ ward of schools are described in Table 4-10.

Table 4-10 List of Major School in Mingaladon Township

No.	Name of School	Location
1	Basic Education High School (1)	Pyitawtar Ward
2	Basic Education High School (2)	Mingalardone Zay Ward
3	Basic Education High School (3)	Bago Lan Ward
4	Basic Education High School (4)	Shwe Nant Thar Village Ward
5	Basic Education High School (5)	Mingalardone Zay Ward
6	Basic Education High School (6)	Khone Thala Paung Village Ward
7	Basic Education High School (7)	Thigyankyun Gyi Village Ward
8	Basic Education High School (8)	Shwe Nant Thar Village Ward
9	Basic Education High School (9)	Pyin Ma Pin Village Ward
10	Basic Education High School (12) (Branch)	Htunk Kyant Toechae Ward
11	Basic Education High School (9) (Branch)	South Htunk Kyant Ward
12	Basic Education High School (5) (Branch)	Pyitawtar Ward
13	Basic Education Middle School (1)	2/Kha Ward
14	Basic Education Middle School (3)	3/Kha Ward
15	Basic Education Middle School (4)	Mingalardone Zay Ward
16	Basic Education Middle School (6)	Ka Ma Ya (646)
17	Basic Education Middle School (10)	Htunk Kyant Zay Ward

No.	Name of School	Location
18	Basic Education Middle School (11)	Pyitawtar Ward
19	Basic Education Middle School (13)	Thigyankyun Gyi Village Ward
20	Basic Education Middle School (26)	Karya Ward
21	Basic Education Middle School (15)	Paung Ngu Ward
22	Basic Education Middle School (12)	Mya Thida Ward
23	Basic Education Middle School (14)	New Khyae Ward
24	Basic Education Middle School (27)	South Ward
25	Basic Education Middle School (30)	North Ward
26	Mingalardon Township office	25

Source: Department of Administrative Mingaladon Township, Regional data (www.gad.gov.mm.com)

4.3.7. **Health Status**

The diseases of high prevalence reported in 2019 are Tuberculosis (TB), followed by hypertension, diarrhea, dysentery and hepatitis. With reference to the Township Health Profile 2019 of Mingaladon Township, no accidental work injuries reported to the township hospital in 2013. The common diseases are shown in Table 4-11.

Table 4-11 Common Diseases in the Mingaladon Township

Diseases	Mingaladon Township	
	Morbidity	Mortality
Hypertension	921	13
Diarrhea (Per 100000P)	76	-
TB (Sputum+)(Per 10000P)	192	-
Dysentery	6	-
Hepatitis	392	-
HIV/AIDS	12	-

Table 4-12 Lists of hospital in the Mingaladon Township

Hospital Name	Beds/Services	Responsible
Pearl Hospital	50	Government
Infectious Diseases Hospital	100	Government
General Hospital	1000	Government
Defense Service General Obstetric Hospital	500	Government
Defense Service General Orthopadeic	500	Government
Padauk Clinic	-	Private
Zi Wa Ka Clinic	-	Private
Myayadanar Clinic	-	Private
Ar Yu Clinic	-	Private

Hospital Name	Beds/Services	Responsible
Ar Yaw Gyan Clinic	-	Private
Nilar Clinic	-	Private
Nay Wunni Clinic	-	Private
Myat Saydanar Clinic	-	Private
Alinn Yaung Clinic	-	Private
Myityar Mon Clinic	-	Private
Ngwe La Min Clinic	-	Private

Source: Department of Administrative Mingaladon, Regional data (www.gad.gov.mm.com)

4.3.8. **YCDC Land Use Zone**

In the Master Plan for the future development of Yangon City (YCDC 2014) (Figure 5.53), YCDC intends to carry out medium (2025) and long-term (2040) land use plan. According to the proposed land use zoning plan, there are mainly 3 types of zones:

- Urbanization Promotion Area consists of General Urbanization Area Industrial/Logistic Zone and Special Urbanization Zone which contains two sub-categories, Secondary CBD/Sub Center Zone and Suburban Development Zone.
- Controlled Urban Redevelopment Area consists of CBD Zone, Heritage Protection Zone and Shwedagon Townscape Zone
- Urbanization Control Area consists of Conservation Zone, Green Zone and Urbanization Zone

4.3.9. **Water Quality**

The proposed project locates within the Mingalardon Township. Plus World Company Limited is about 0.28 km radios away from Hlaing River. The water quality parameters of Hlaing river such as temperature, total dissolve solid, total suspended solid, Conductivity, Salinity, pH, BOD, COD and Arsenic were monitored. The results of water quality parameters showed significant variation in water quality of the river and the water quality monitoring data were compared to the water quality standards for different uses. It is found that water quality of Hlaing River deteriorates and doesn't meet the requirements for conserving of living environment due to the pollution from the tributary streams which received wastewater from adjacent industrial zones and newly Satellite town.

Yangon City is bounded on the south, southeast and southwest by the Yangon, Hlaing, and Bago rivers. The Nga Moeyeik Creek flows into the Yangon City and changes its name to Pazyndaung Creek and penetrates the center of the city to the Bago River. The river system of the western side of Greater Yangon is more complicated. A few of tidal rivers, namely, the Kok Ko Wa River, the Pan Hlaing River, Hlaing River, and the Twante Canal flow into the Yangon River.

Catchment area of the study river is about 700km^2 and length is 12km long. There are several industrial zones were developed along the bounded rivers and most of the wastewater discharge without proper treatment to the natural water body. Population density increase significantly due to the development of industrial zones and housing projects

domestic wastewater and dumping of garbage into drains are also the source of pollution of it.

Physical parameters such as temperature, dissolved solid and total solid and chemical parameters such as pH, BOD, COD, Salinity and Arsenic were examined for water quality characterization. Test results of individual water quality parameters for the selected stations along the river reach and inlets during the low flow season. In this study, observations were carried out in small place and the same time and duration within only two months. It was found that Temperature values of all observations are almost constant in each and every station. pH values at all river stations and almost all the inlets lie between 6.5 to 8.5. Therefore, water quality status of Hlaing River is neither acidic nor basic. The standard of surface water for any purpose in-terms of pH is 6.5-8.5. Indicate slightly acidic water but still in the range for the different uses for the river. DO values of all river stations are less than the requirements for conservation of living environment (5 mg/l) and all inlet stations are much larger than the requirements for conservation of living environment. The BOD level in the river at studied stations was found exceeding the permissible limit of 8 mg/l for aquatic life. COD value is higher than the permissible for aquatic live, 50 mg/l in almost all the river stations.

It is founded that pH values are between 6.5 to 8.5 and suitable for drinking, irrigation and aquatic life. BOD values are higher than the 8mg/l in most of the river stations and much higher than in all the inlet streams. COD is also higher than maximum limits of 50mg/l for aquatic life in most of the river stations and inlets. It can be noted that water quality of the Hlaing River and especially in its tributary streams deteriorates and is not good even for aquatic life. DO values are higher than the minimum requirements for aquatic life in most of the river stations but lower than the minimum limit only in a few observations of river two and inlet two stations. Salinity values are higher than in most of the river stations depending on tidal conditions. Degradation of water quality of the Hlaing River was found especially in downstream stations and seriously in almost all the inlet streams. BOD and COD values in all the inlet streams are higher than requirements of water quality standards for different uses. Salinity values are much higher in the downstream of the river due to tidal effects. pH and DO values are within the acceptable limit for the aquatic life in most of the river stations and some inlet streams.

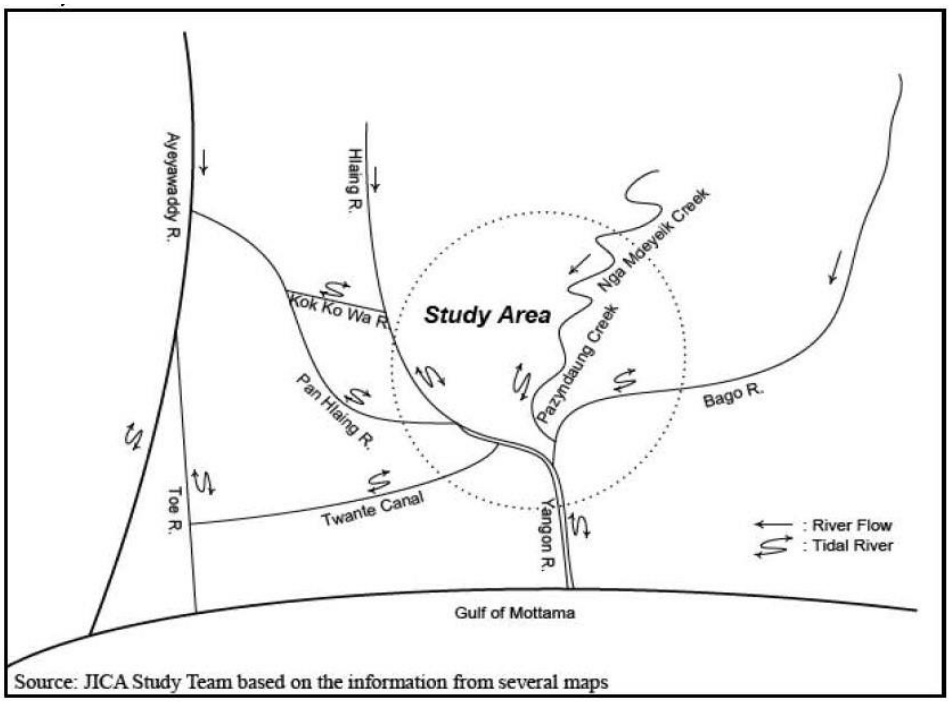


Figure 4-11 Schematic Diagram of River System around Yangon

4.3.10. **Water Supply**

The Yangon City Development Committee (YCDC) has an overall responsibility for the management and distribution of water for Yangon City. Presently, YCDC's water supply is obtained from two main sources: (1) reservoir (Hlawga, Gyobu, Pugyi and Ngameoyeik reservoirs) and, (2) groundwater from YCDC's tube wells. Water from these sources is utilized to varying degrees. Areas not supplied with water from the YCDC rely on shallow surface wells and private boreholes. Water supply for the Project Site will be obtained from onsite borewells for both construction and operations due to the poor reliability of municipal supply. Permitting is part of the Planning Consent Application currently underway. The boreholes will be provided and operated by the Developer. Hydrology: The Project Site lies along the catchment of the Pazundaung River which flows east of the site in a southerly direction to converge into the Yangon River. The Yangon River (also known as the Rangoon River or Hlaing River) is formed by the confluence of the Pegau and Myitmaka rivers and flows into the Gulf of Martaban which is part of the larger Andaman Sea. The river flows along a 40 km stretch flowing from southern Myanmar as an outlet of the Ayeyarwady River into the Ayeyarwady delta. A small portion of the Bago River (the estuary) lies within the Yangon Division. The Pazundaung Creek and Bago River joins the Yangon River and from there, flow towards the southwestern direction into Andaman Sea.

4.3.11. **Sewage**

Yangon City, the former capital city of the Republic of the Union of Myanmar, is the economic center of the country with a population of 5.21 million. In Yangon city, approximately 500,000 m3 (2011) of sewage (human waste, domestic wastewater and industrial waste water) is generated per day. In Central Business District, hereinafter referred as to CBD, the area has quarter-millions of people and generates about 100,000 m3/day of sewage.

Sewerage system in Yangon City was firstly constructed in the downtown in the 1880s, which is located in the southern part of the city covering about 9 km2 service area, and was expanded in

1929. A wastewater treatment plant was constructed in 2004 with a design capacity of 14,500 m3/day. Currently, the sewerage service area is limited to 6 townships out of 33 townships. In the remaining 27 townships, wastewater is treated by on-site systems (septic tank, etc.) and in such cases treatment efficiency is deemed to below. Also, being located in the monsoon region, Yangon City has suffered due to flooding in the absence of appropriate wastewater collection networks.

For the treatment of human waste, human waste collection pipes installed in the British colonial era connect wastewater treatment plant constructed by their own budget in 2005. However, the collection area has not been expanded, issues such as water leakage due to old pipes, failures of pressure pumps are frequently identified and sewage influent volume to the wastewater treatment plant is currently 2,300 m3/day which is only 5% of the population of Yangon city. 80% of sewage is collected in septic tanks and 15% is discharged to stormwater drainage pipes without any treatment. As domestic wastewater and industrial wastewater are also discharged to stormwater drainage pipes, therefore, the water quality of rivers and lakes in the city has declined. Moreover, during the rainy season, overflow of flood water including human waste from stormwater drainages makes sanitary condition worsened. In addition, water supply system in CBD will be developed (water supply amount 86,000m3) in Greater Yangon Water Supply Improvement Project (Phase II) (yen-loan, L/A signed in 2017), accordingly sewage volume is also to be increased. The current situation of wastewater treatment not only brings forth deteriorated living conditions but also involves potential health risks.

Under the circumstances mentioned above, the development of sewerage systems in Yangon is urgently required for improvement of the level of services and living conditions.

In the past, JICA implemented a development plan titled “PREPARATORY SURVEY FOR THE IMPROVEMENT OF WATER SUPPLY, SEWERAGE AND DRAINAGE SYSTEM IN YANGON CITY” in March 2014. The study was conducted to prepare a sewerage system development plan targeting the year 2040. JICA study team will study and analyzed the background, objectives, and scope of the Project to check feasibility. Upon confirmation of the feasibility, JICA study team will study on appraisal items required for implementing the Project under the ODA loan project, such as objectives, scope, cost, implementation schedule, implementation method (procurement and construction), implementing organization, operation and maintenance organization, environmental and social considerations, etc.

4.3.12. **Waste**

The Non-Hazardous waste collected will be disposed of on a daily basis after contacting YCDC for final disposal. Currently, there are six final disposal sites (FDS) in Yangon City and dedicated site for YCP is Htein Bin site. Waste Disposal Sites in Yangon City (YCDC) are shown in Table 5.41 and Figure 5.33. On average, over 1690 tons of garbage is generated per day and around 0.396 kg per person. Facts about waste and final disposal sites are provided below.

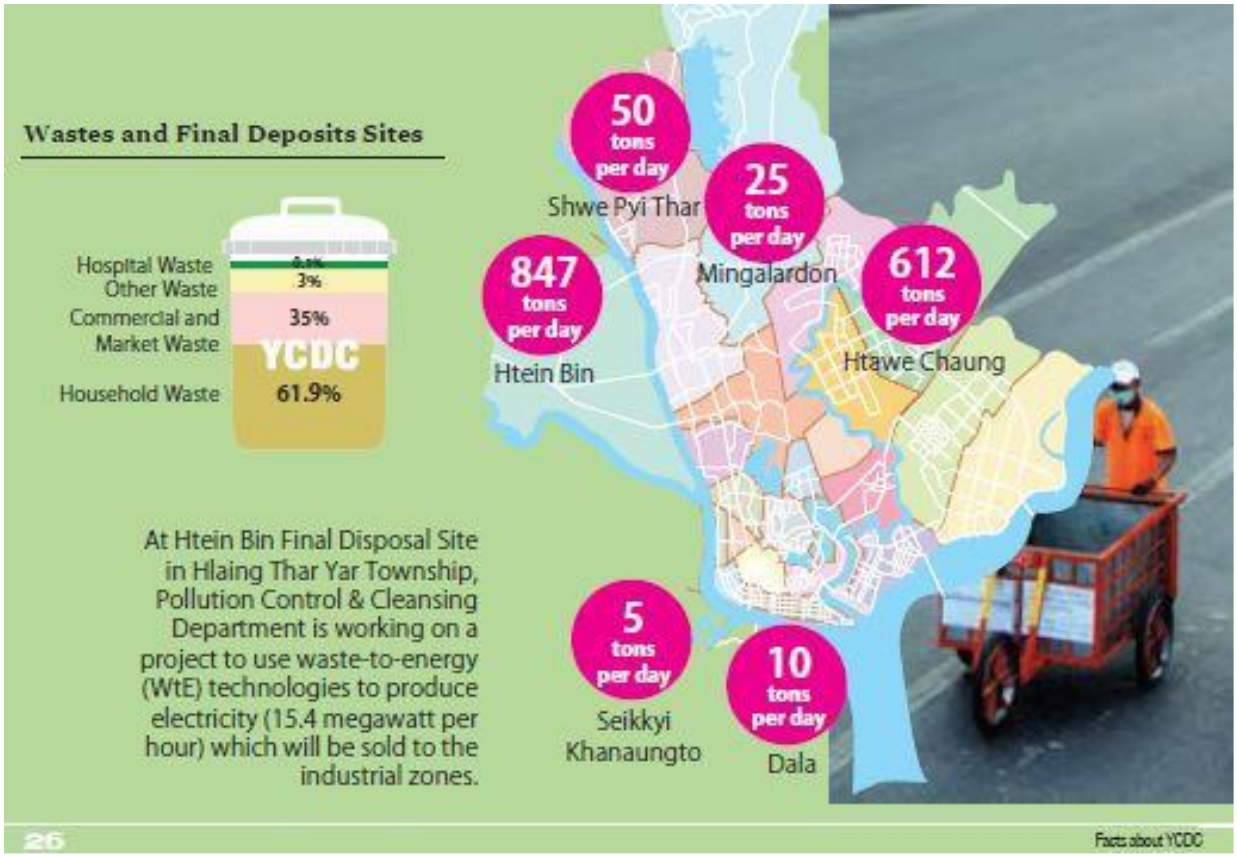


Figure 4-12 Waste disposal sites in Yangon (YCDC)

Table 4-13 Dumping site location

Final dumping sites	Constructed year	Toral area/Used in acre	Ton of waste/day	Remark
Htein Bin	2002	150/70	847 tons per day	Open dumping
Htawe Chaung	2001	55.77/47.4	612 tons per day	Open dumping
Shwe Pyi Thar	2005	1	50 tons per day	Low landfill (temporary site)
Mingalardon	2003	0.91	25 tons per day	Low landfill (temporary site)
Dala	2003	1.3	10 tons per day	Low landfill (temporary site)
Seikkyi Khanungto	2003	0.25	5 tons per day	Low landfill (temporary site)

4.3.13. CULTURAL AND VISUAL COMPONEMTS

Mingaladon Township is growing into a busy and vibrant community. The population fluctuates; however, there has been steady growth over the last decade. It tends to be a stopover on a journey rather than a destination. It has a number of sites that are interesting; however, there is no main attraction. Visitors to the town are generally visiting for work, investment or family reasons.

According to the information provided from YCDC concerning cultural heritage sites, the following are those included in Mingaladon Township. Only cultural heritage sites, relevant to the

EIA of this project will be considered within 200 m perimeter scope of the existing project; among which there are 3 Cultural Heritage Sites still existing.

CHAPTER 5
CURRENT SITUATION OF ENVIRONMENT QUALITY

5.1. ENVIRONMENTAL BASELINE SURVEY

In EIA study, it is necessary to establish baseline information on the environmental and socio-economic settings of an area which could receive direct and indirect impacts from the project construction and operation. Environmental baseline surveys were conducted both in scoping stage (2020) and EIA study stage (2022) covering the information on the ambient environment quality, natural environment and socio-economic characteristics. There have not been any notable changes in the Study Area including the Project Site in terms of both natural and social environment items which are examined by the survey in scoping stage (2020) and EIA stage (2022), therefore, all data collected through these surveys can be considered consistent data for assessment impacts. Therefore, period (rainy/dry), frequency, and other factors/conditions of related surveys can be considered as complementary each other.

Figure 5-1 Study area map

5.2. FIELD SURVEY

The overall conditions of air quality, water quality, soil quality, and noise levels are quoted from the project. The summary of the field survey for overall conditions is shown in Table 5-1 for 2020 and 2022.

Table 5-1 Environmental Monitoring Schedule for 2020 and 2022

No	Item	Monitoring Date	Coordinates	Parameter
Summary of Field Survey in 2020				
1.	Air Quality	15, December 2020	16°58'14.51"N 96° 8'40.63"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen dioxide (NO2), (4) TSP, PM10 and PM2.5
2	Noise Level	15, December 2020	16°58'13.37"N 96° 8'39.63"E	dBA
3	Water Quality	15, December 2020	16°58'11.45"N 96° 8'41.35"E	(1) Temperature, (2) Odor, (3) Color, (4) pH, (5) Turbidity, (6) SS, (7) DO, (8) COD, (9) TOC, 10) BOD5, 11) Oil and Grease, (12) Total Coliforms,
Summary of Field Survey in 2022				
4	Air Quality (AQM - 1)	6, September 2022	16°58'13.02"N 96° 8'39.90"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen dioxide (NO2), (4) TSP, PM10 and PM2.5
5	Air Quality (AQM – 2)	7, September 2022	16°58'4.77"N 96° 8'43.16"E	(1) Sulfur dioxide (SO2), (2) Carbon monoxide (CO), (3) Nitrogen dioxide (NO2), (4) TSP, PM10 and PM2.5
6	Noise Level (NL -1)	6, September 2022	16°58'13.02"N 96° 8'39.90"E	dBA
7	Noise Level (NL -2)	7, September 2022	16°58'4.77"N 96° 8'43.16"E	dBA
8	Traffic Counting (TC -1)	6, September 2022	16°58'15.54"N 96° 8'39.42"E	Road Condition
9	Traffic Counting (TC – 2)	7, September 2022	16°58'5.01"N 96° 8'52.27"E	Road Condition

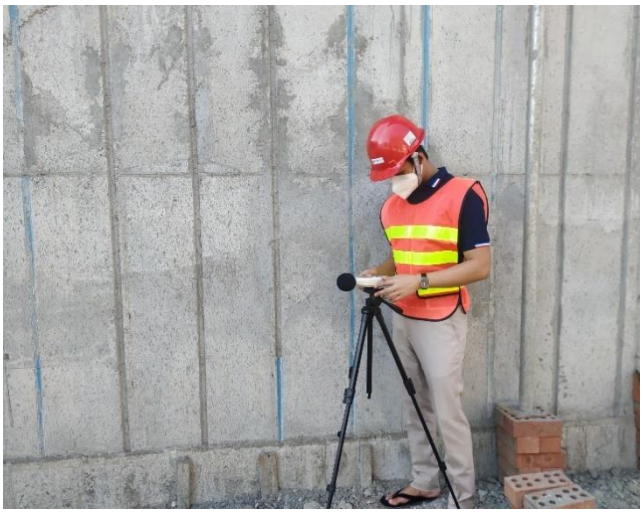
Figure 5-2 Overview Monitoring Point of Environmental Survey 2020

Figure 5-3 Overview Monitoring Point of Environmental Survey 2022


Air Quality Monitoring (15, December, 2020)


Air quality monitoring AQM - 1 (6, September, 2022)


Air Quality Monitoring AQM - 2 (7, September, 2022)




Sound level monitoring (15, September, 2020)


Sound level monitoring (6, September, 2022)


Sound level monitoring (7, September, 2022)


Traffic Counting TC – 1 (6, September, 2022)


Traffic Counting TC – 2 (7, September, 2022)

5.3. AIR QUALITY

The air quality survey results obtained every minute at each survey site were combined to make daily average values (24 hours) for further evaluation and comparison with corresponding standard values.

Table 5-2 Ambient Air Quality at Project Site

No	Parameters	Result			Average Period	Guideline Value	Unit	Period
		2020	2022					
		AQM	AQM - 1	AQM - 2				
1	TSP	38.496	19.81	20.62	24 - hour	-	µg/m^3	24 - hour
2	PM_{10}	30.397	15.70	16.48	24 - hour	50	µg/m^3	24 - hour
3	$PM_{2.5}$	22.471	10.75	10.95	24 - hour	25	µg/m^3	24 - hour
4	SO_2	20.8	1.21	2.17	24 - hour	20	µg/m^3	24 - hour
5	NO_2	17.617	25.73	20.42	1 - hour	200	µg/m^3	1 - hour
6	CO_2	-	4.16	1.10	-	-	ppm	
7	CO	0.389	0.30	0.28	24 - hour	-	ppm	24 - hour

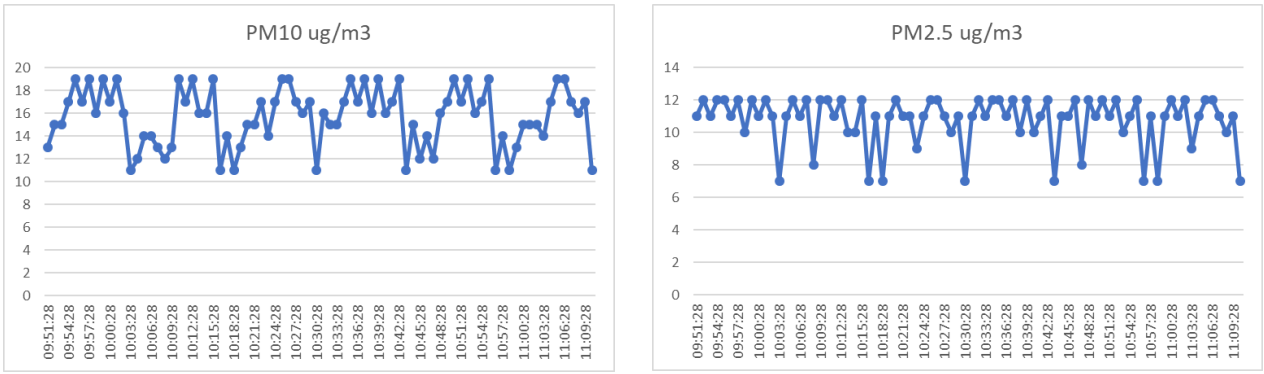
No	Parameters	Result			Average Period	Guideline Value	Unit	Period
		2020	2022					
		AQM	AQM - 1	AQM - 2				
8	VOC	-	0.01	0.01	-	-	ppm	-
9	O_3	46.125	3.86	3.00	8 - hour	-	µg/m^3	8 - hour
10	Humidity	38.050	77.04	85.05	24 - hour	-	%	24 - hour
11	Temperature	35.631	31.52	28.53	24 - hour	-	°C	24 - hour

NEQG = National Environmental Quality (Emission) Guideline

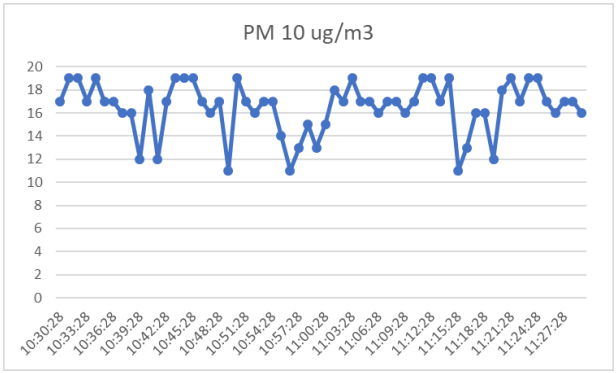
5.3.1. Summary of Dust (Particulate Matters) Emission result

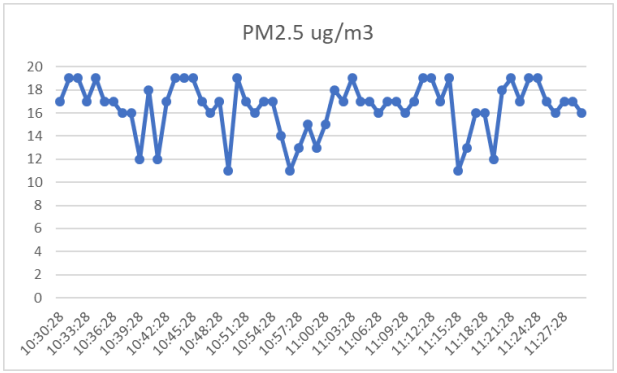
PM_{10} is particulate matter 10 micrometers or less in diameter and $PM_{2.5}$ is particulate matter 2.5 micrometers or less in diameter. $PM_{2.5}$ is generally described as fine particles. The major components of PM are sulfate, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water. 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 to obtain the baseline data during the operation phase of the proposed Plus World Co., Ltd. The observed average values for PM $_{10}$ are 15.70 µg/m^3 and 16.48 µg/m^3 and PM 2.5 are 10.75 µg/m^3 and 10.95 µg/m^3 respectively. When compared with NEQ (emission) guideline, ambient air quality of both PM 10 and PM 2.5 values are within the standard value and the observed particulates matter of PM measurement is shown in graph Figure 5-4.

Mostly, the particulate matters are generated from the proposed New Hope animal feed factory activities on road and off-road vehicle movements and delivering of cereal and grains raw materials and transportation and delivering of raw materials and final products. Generally, the concentration of the particulate matters in the air is related to the microclimate of the area.



AQM - 1





AQM - 2

Figure 5-4 PM measurement graph

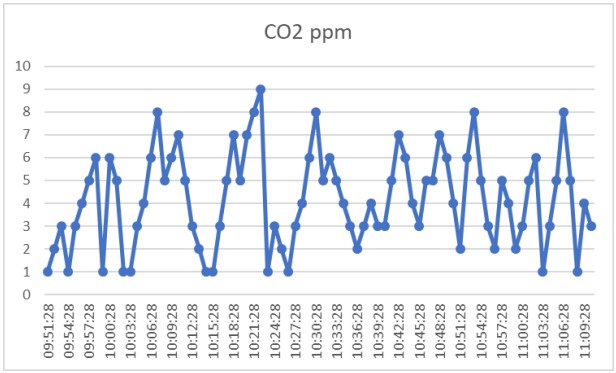
5.3.2. Summary of Gas Emission result

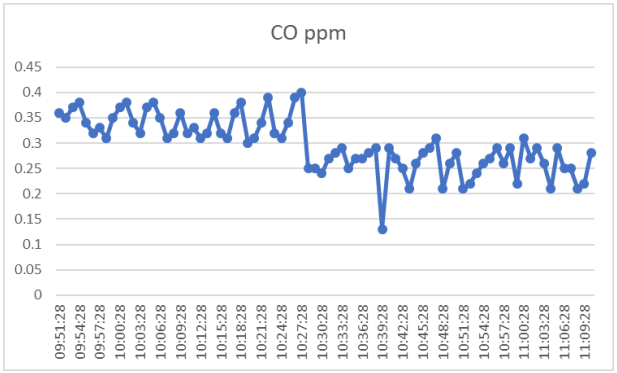
The main impact of carbon dioxide is the transportation of water purified packing carrying by car and the factory generator. The measurement results of CO2 are 4.16 ppm and 1.10 ppm for average 24 hrs measurement.

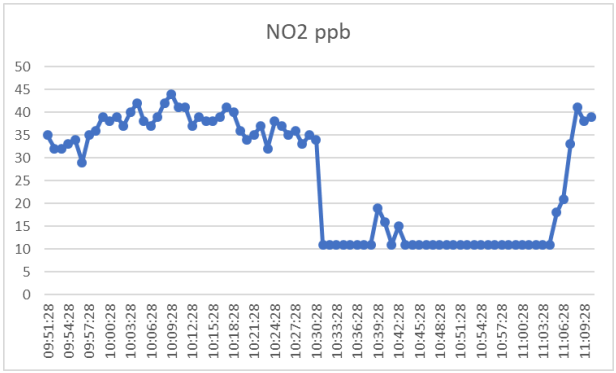
The significance of carbon monoxide is effect on human and other animal health; plants are relatively insensitive, and other deleterious effects are notable. The measurement results of CO are 0.30 ppm and 0.28 ppm for average 24 hrs measurement.

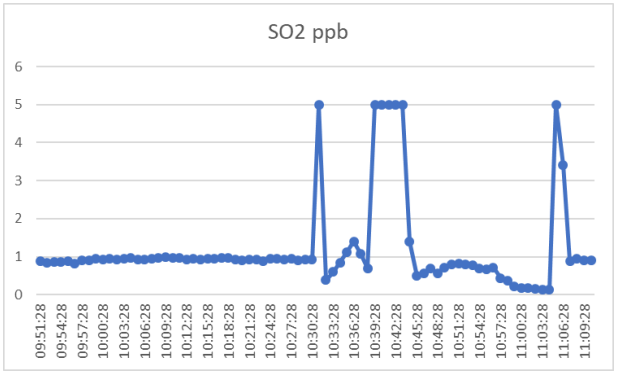
These are mostly generated from explosive manufacturing industry, automobile workshop, acid manufacturing plant, etc. Concentration of ambient NO2 level was measured for 24 hours continuously. The average concentration for 1hr is 25.73 µg/m3 and 20.42 µg/m3. According to the standards mentioned in above table, the level within the guideline permissible value of ambient air quality for National Environmental Quality (emission) Guideline.

It is generated from thermal power plants petroleum industries, oil refineries, acid manufacturing plants, etc. It causes respiratory diseases, irritation of throat and eyes, etc. In this project may emit sulfur dioxide from steam boiler process. According to the results of field surveys, the air sampling activities conducted for 24 hours continuously measurement and the ambient air quality observed values of sulfur dioxide of proposed factory site are 1.21 µg/m3 and 2.17 µg/m3 within the range of standard value of National Environmental Quality (Emission), WHO and IFC guidelines.

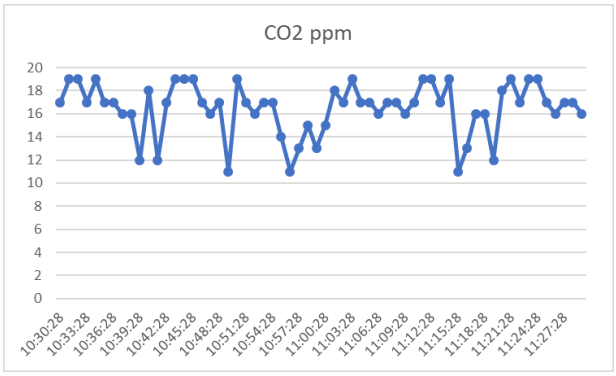


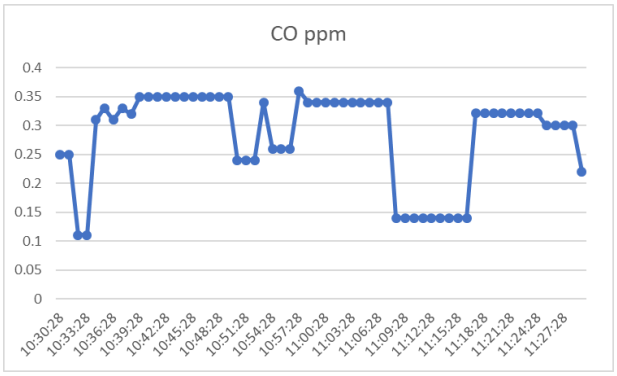


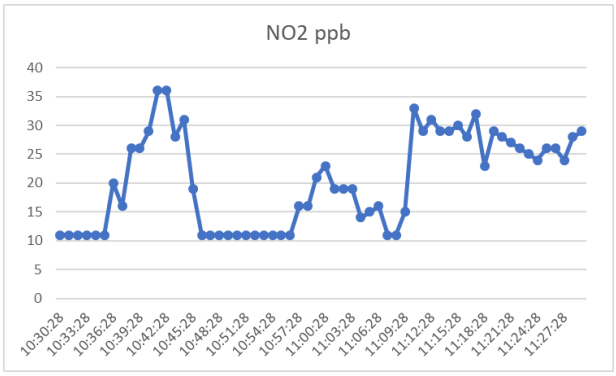


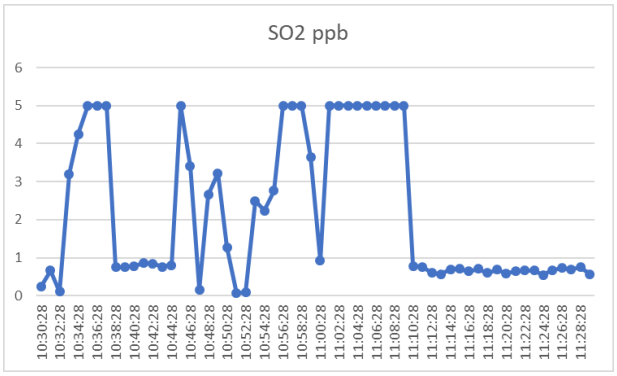


AQM - 1









AQM – 2

Figure 5-5 Gas measurement graph

5.3.3. **Wind Speed and Direction**

5.3.3.1. Location of Measurement and Survey Methods

Wind speed and direction are at 1.5 meter above ground level at also measured on same date and location as those selected for the air quality measurements.

5.3.4. **Survey Results**

Wind speed and wind direction are also measured at the same location of air quality measurement. The results of wind speed and wind direction are described in Table 5-3. The wind rose diagram and wind class frequency distribution are shown in Figure 5-6 and Figure 5-7.

AQM -1

0.00 % of wind are calm and wind speed are 1.34 m/s in 24 hours is lower than 1.5 meter per second. The wind blows mostly to the North West – East South (NW – ES) direction.

AQM - 2

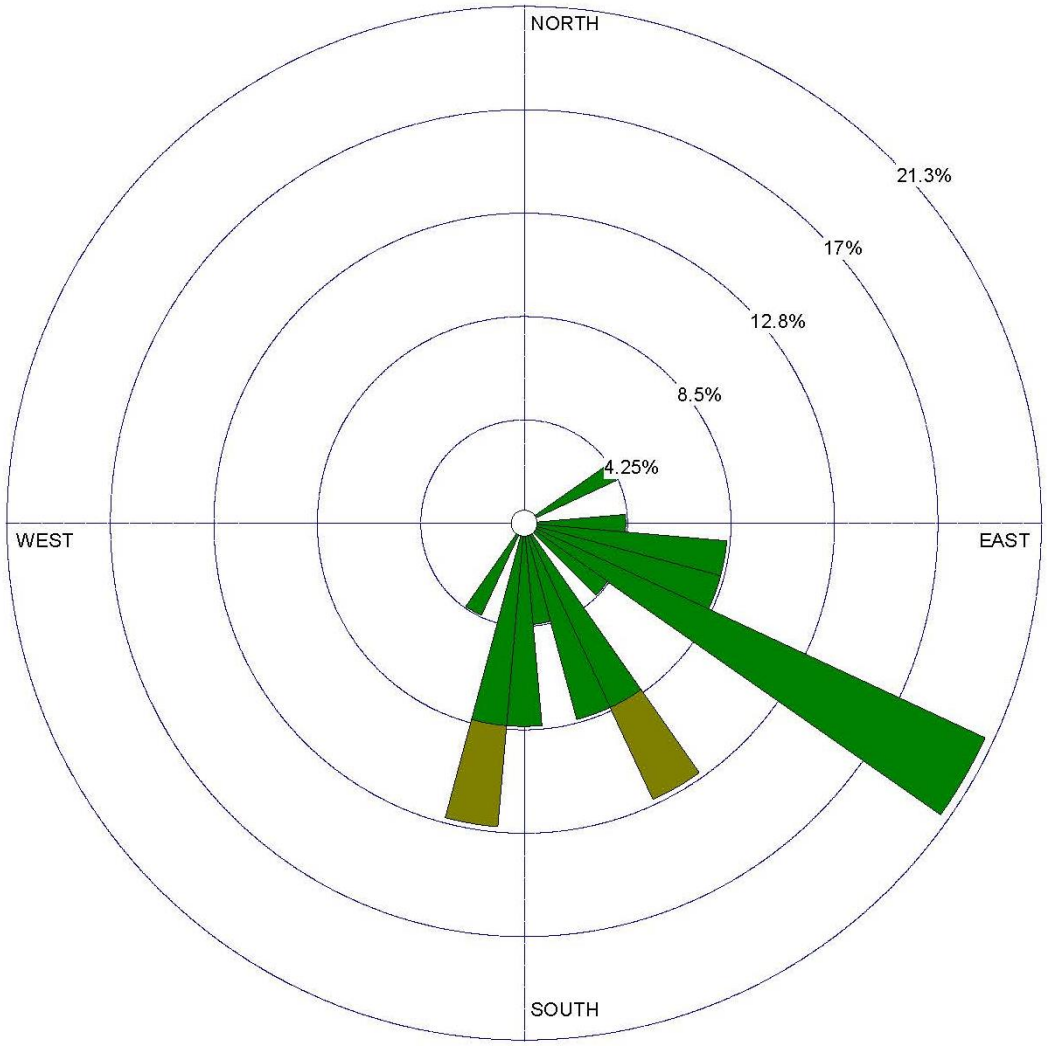
0.00% of wind are calm and wind speed are 1.70 m/s in 24 hours is lower than 1.5 meter per second. The wind blows mostly to the South – North (SN) direction.

Table 5-3 Results of Wind Speed and Direction Measurement in 2022

Station	Measurement Date	Location of Measurement	Wind Speed (m/s)	Wind Calm (%)	Prevailing Wind Direction
Station AQM - 1	6, October 2022	Project Site Area	1.34	0.00	NW-ES
Station AQM - 2	7, October 2022	Shwe Kyar Nyo Kan Monastery	1.70	0.00	S-N

WIND ROSE PLOT:
Station # 1 - AQM - 1, YG

DISPLAY:
Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)
>= 11.10
8.80 - 11.10
5.70 - 8.80
3.60 - 5.70
2.10 - 3.60
0.50 - 2.10
Calms: 0.00%

COMMENTS:

DATA PERIOD:
Start Date: 06/10/2022 - 01:00
End Date: 07/10/2022 - 23:00

TOTAL COUNT:
24 hrs.

CALM WINDS:
0.00%

AVG. WIND SPEED:
1.34 m/s

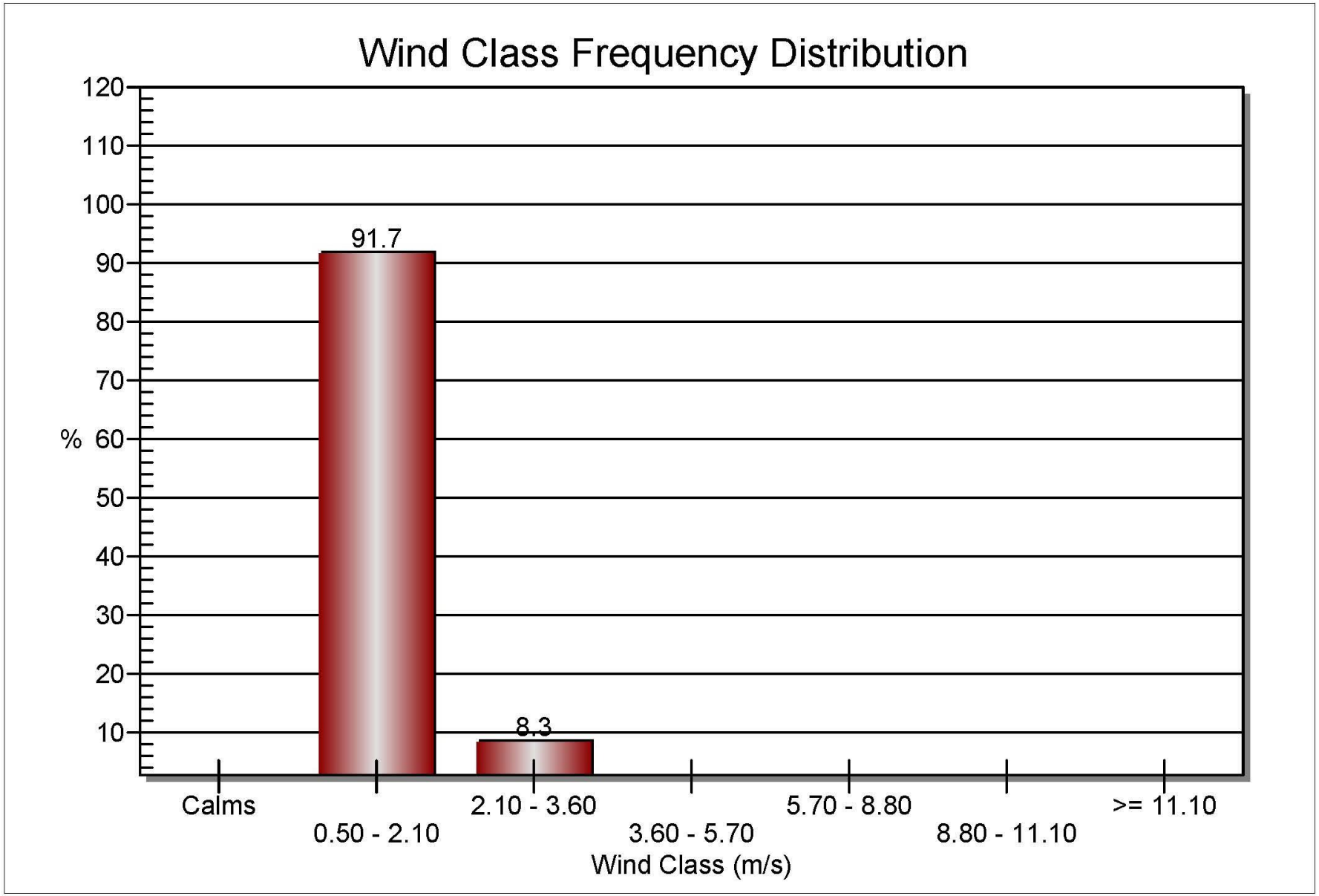
COMPANY NAME:

MODELER:

DATE:
20/12/2022

PROJECT NO.:

WRPLOT View - Lakes Environmental Software



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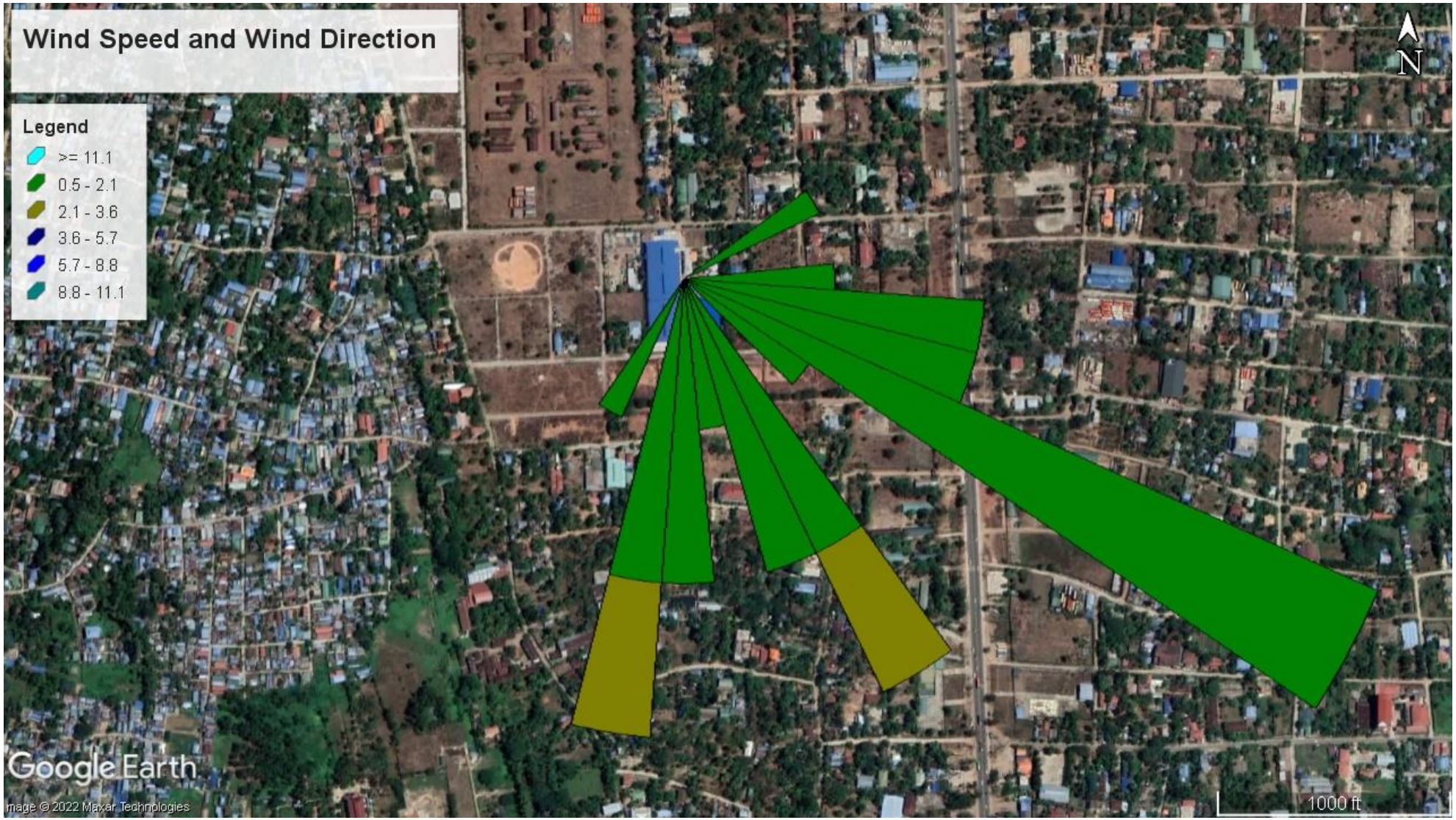
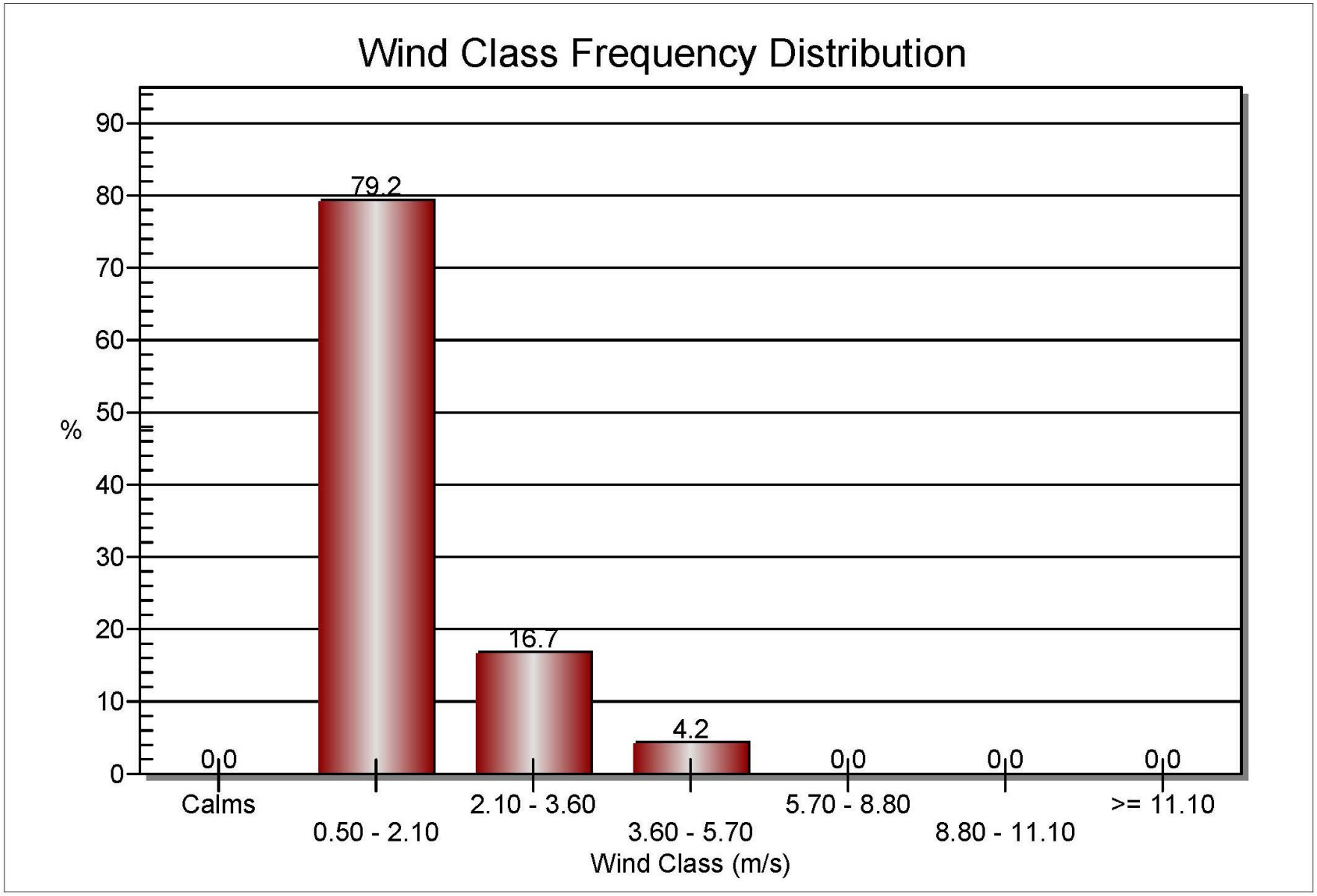


Figure 5-6 Wind Speed and Wind Direction for AQM - 1



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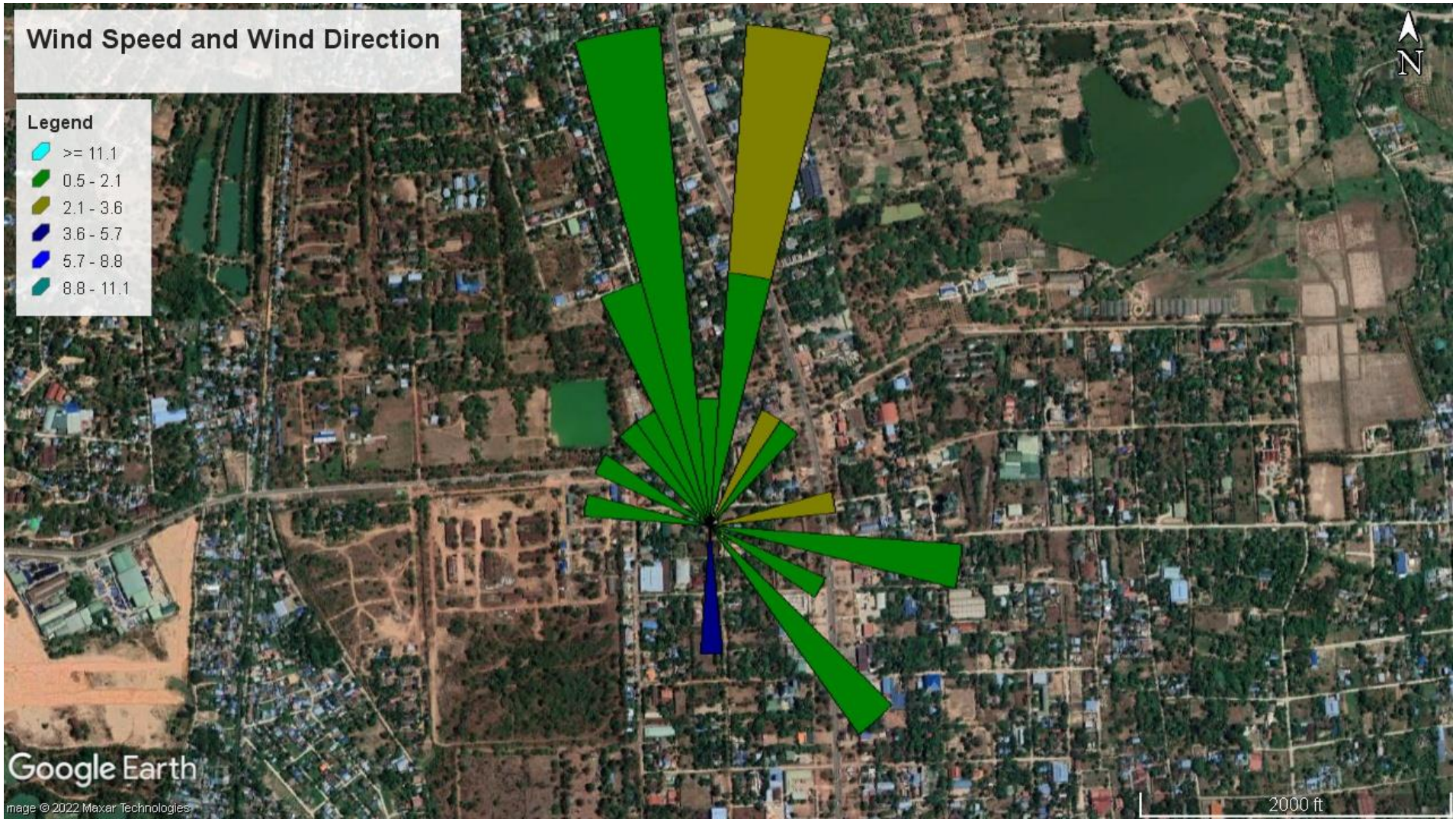

Figure 5-7 Wind Speed and Wind Direction for AQM - 2

5.4. NOISE

The Noise level was measured by using Digital Sound Level Meter for working 24 hours monitoring. The project site was measured from 6th to 7th October 2022. Another point was measured at the Shwe Kyar Nyo Kan monastery from 7th to 8th October 2022. This monastery is located south of the project site area. The average noise level in the project site area is presented in Table 5-4 compared with NEQ guideline. According to the monitoring result of noise level within the NEQ guideline.

Table 5-4 Comparison of Noise Level measurement

Date and Time	Location	GPS value	Result value	NEQ Guideline
15th, December 2020 (10:00AM to 4:00PM)	Construction Area	16°58'13.37"N 96° 8'39.63"E	80.5 dBA	70 dBA
6th October 2022 - 7th October 2022 (10:00 AM to 10:00 AM)	Project Site Area (NL -1)	16°49' 09" N 96°15' 54" E	62.40 dBA	70 dBA
7th October 2022 - 8th July 2022 (10:00 AM to 10:00 AM)	Shwe Kyar Nyo Kan Monastery (NL -2)	16°48' 52" N 96°15' 52" E	58.32 dBA	70 dBA

5.5. TRAFFIC COUNTING

The traffic conditions were analyzed to establish as a baseline data. Traffic counting were carried out at two stations within the study area on 6th and 7th October, 2022 (week day) from 11:00 am to 2:00 pm. The details of two traffic counting (TC) stations are shown in Table 5-5. The locations of these two TC stations are described in Table 5-5.

Table 5-5 Detail of 2 TC Stations

No	Station	Location	Coordinates
1	TC 1	Project Site to No.3 Main Roads	16°58'15.54"N 96° 8'39.42"E
2	TC 2	Aung Min Galar to Highway Road	16°58'5.01"N 96° 8'52.27"E

5.5.1.1. Methodology and Approach

Traffic counting was done both manually by two surveyors and during 11:00 am to 2:00 pm for weekday at 2 stations. During the survey, the number and types of vehicles passing the stations were recorded. The traffic counting data were used to calculate the V/C ratios.

Traffic condition is normally assessed in terms of road capacity relative to traffic volume. The V/C ratio is commonly used to consider as a baseline traffic flow condition and will be further utilized to evaluate the consequences of the impact of the project on local transportation.

The V/C ratios is calculated as per following procedures:

(1) Convert the number of vehicles from observation to Passenger car Unit (PCU) by using Passenger Car Equivalents (PCD) factors specified for each type of vehicles as described in Table 5-6. This is used as “Traffic Volume” or “V”

(2) Choose an applicable carrying capacity of “C” for the road (as in Table 5-7).

(3) V/C ratio can be calculated using the following formula.

$$V/C = \frac{\text{Traffic Volume}}{\text{Carrying Capacity of Respective Road}}$$

V/C ratio can be used to compare with the values defined by the Department of Highways, Thailand as shown in Table 5-8 for indication of current traffic condition.

Table 5-6 Passenger Car Equivalents Factor (PCD)

No.	Types of Vehicles	Passenger Car Equivalents Factor (PCD)
1.	Bicycle/Tricycle	0.20
2.	Motorcycle	0.33
3.	Motor-tricycle	1.00
4.	Passenger Car/Taxi	1.00
5.	Light Truck	1.00
6.	Light Bus	1.50
7.	Medium Bus	1.50
8.	Medium Truck	2.10
9.	Heavy Bus	2.10
10.	Heavy Truck	2.50

Source: Department of Highways, Thailand

Table 5-7 Design Service Volume

No.	Types of Carriageways	Total Design Service Volumes for Different Categories of Urban Roads		
		Arterial*	Sub-Arterial**	Collector***
1.	2-Lane (One way)	2,400	1,900	1,400
2.	2-Lane (Two way)	1,500	1,200	900
3.	3-Lane (One way)	3,600	2,900	2,200
4.	4-Lane Undivided (Two way)	3,000	2,400	1,800
5.	4-Lane Divided (Two way)	3,600	2,900	-
6.	6-Lane Undivided (Two way)	4,800	3,800	-
7.	6-Lane Divided (Two way)	5,400	4,300	-
8.	8-Lane Divided (Two way)	7,200	-	-

* No frontage access, no standing vehicles and very little cross traffic.

** Frontage development, side roads, bus stops, no standing vehicles, waiting restrictions

*** Roads with free frontage access, parked vehicles and cross traffic

Source: IRC 106:1990

Table 5-8 Level of Service

Level of Service (LOS)	Volume/Capacity Ratio (V/C)	Nature of flow
A	<0.30	Free Flow
B	0.30-0.50	Reasonably free flow
C	0.50-0.70	Stable flow
D	0.70-0.90	Approaching unstable flow
E	1.00	Unstable flow
F	>1.00	Forced flow

Source: Gajjar R., and Mohandas D. (2016)

5.5.1.2. Results

The results of traffic counting are presented in Table 5-9. Based on the data from Department of Highway, Thailand, there were 10 categories of vehicles such as (i) bicycle/tricycle, (ii) motorcycle, (iii) motor-tricycle, (iv) passenger car/taxi, (v) light truck, (vi) light bus, (vii) medium bus, (viii) medium truck, (ix) heavy bus and (x) heavy truck.

Table 5-9 Existing Traffic Counting Condition near Proposed Project Site

Description	TC-1	TC-2
Traffic volume: 3 hr of working hour (PCU/hour)	99.49	3316.11
Carrying capacity (C) (PCU/hour)	1200	3000
Average V/C ratio	0.08	1.0
Traffic condition	Free Flow (A)	Unstable Flow

5.5.2. **Traffic Conditions**

The project area has one main roads. This road is No. 3 main Road. The project has one main entrances. These entrances are located at Zagawar road. The Mingalardon township, No. (3) Main Road is a four lane two-ways and Zagawar Road is two lane two ways. According to the monitoring results of traffic condition can cause a few traffic jams at No (3) Main Road. The traffic condition at Zagawar Road is normal condition.

TC-1

Table 5-9 shows the traffic condition of Project site to No (3) main road in front of the project site on 6th October 2022 (Weekday) during 11 am to 2 pm of 3-hour period. The majority of vehicles were motorcycle truck. The total volume of traffic was recorded about 99.49 PCU per hour. The average V/C ratio at that period was 0.08. The results show that TC-1 for weekday are free flow traffic condition.

TC-2

Table 5-9 shows the traffic condition of Aung Min Galar Road to Highway Road near project site on 7th October 2022 (Weekday) during 11 am to 2 pm of 3-hour period. The majority of vehicles were passenger car taxi. The total volume of traffic was recorded about 3316.11 PCU per hour. The average V/C ratio at that period was 1.0. The results show that TC-2 for weekday is unstable flow traffic condition.

5.6. WATER QUALITY

The proposed project uses water supply from tube wells which are aimed to use both industrial and domestic usages. The water samples are collected from tubes well February 6, 2020. At present, government does not issue National Drinking Water Quality Standard. So, World Health Organization (WHO) drinking water quality is used as a reference.

Table 5-10 Sampling Points for Water Quality Survey

No	Sample Name	Location	GPS Value
1	Tube well -1	Tube well water in project site	16°58'11.45"N 96° 8'41.35"E

5.6.1. Water Result

According to analyzed result, the water parameters are under WHO drinking water guideline except iron parameter as shown in Table 5-11. The presence of iron in ground water is a direct result of its natural existence in underground rock formations and precipitation water that infiltrates through these formations. Iron is the second most abundant metal in the earth's crust, of which it accounts for about 5%. Therefore, the iron contamination cannot be harmful the human beings or the living things.

Table 5-11 Tube Well Water Quality Analysis

No	Characteristics	Drinking Water Standards World Health Organization (WHO)	Units	Result	Remarks
1	pH	6.5—8.5	S.U	7.7	Normal
2	Apparent Colour	15	TCU	5	Low
3	Turbidity	5	NTU	8	Low
4	Conductivity		Micro S/cm	184	
5	Total Hardness	500	mg/l as CaCO3	34	Low
6	Calcium Hardness		mg/l as CaCO3	10	
7	Magnesium Hardness		mg/l as CaCO3	10	
8	Total Alkalinity		mg/l as CaCO3	84	
9	Phenolphthalein Alkalinity		mg/l as CaCO3	Nil	
10	Carbonate ($CaCO_3$)		mg/l as CaCO3	Nil	
11	Bicarbonate (HCO_3)		mg/l as CaCO3	84	
12	Iron	0.3	mg/l	0.46	Slightly High
13	Chlorine (as CL)	250	mg/l	4	Low

No	Characteristics	Drinking Water Standards World Health Organization (WHO)	Units	Result	Remarks
14	Sodium Chloride (as NaCL)		mg/l	7	
15	Sulphate (as SO_4)	500	mg/l	7	Low
16	Total Solids	1500	mg/l	104	Low
17	Total Suspended Solids		mg/l	92	
18	Manganese	1000	mg/l	Nil	
19	Phosphate	0.05	mg/l	Nil	
20	Phenolphthalein Acidity		mg/l	2	
21	Methyl Orange Acidity		mg/l	Nil	
22	Salinity		ppt	0.1	

CHAPTER 6
IMPACTS ASSESSMENT AND MITIGATION MEASURE

6.1. ENVIRONMENTAL IMPACT SCREENING

In this chapter, the potential impacts were identified by their relative significance in line with the requirements set out by the Guidelines for Environmental Impact Assessment Procedure (2015) The impacts were grouped under aspects such as physical, biological, health and socio-impacts during the three phases of the project activities:

6.1.1. Development Phases

Potential impacts have been classified into the following project phases, i.e., Construction, Operation, and Decommissioning Phases (Pre-Construction phase of demolishing the existing building and Construction phase of factory have been excluded as it is not included in the scope of the project and finished in EIA study):

- Operation Phase: The main activities of the project are production and distribution of purified drinking water (Wave Plus water) in Myanmar
- Decommissioning phase: The final phase of the project will reach after 50-year service in line with the terms of the contract.

Potential impacts from the project were considered under the following categories:

1) Direct impacts- those directly due to the project itself
2) Indirect and induced impacts – those resulting from activities arising from the project, but not directly attributable to it; and
3) Cumulative impacts – impacts that in combination would exert significant additional influence

The significance of the impact has been taken into consideration the sensitivity of the receiving environment according to the relative importance of the existing environmental features on or near to the project area, or by the sensitivity of receptors, which would potentially be affected by the development.

6.1.2. Sensitivity of Receptors

Receptor: The resource (human/natural environment/economic/social) which is potentially going to receive and have to cope with an impact.

Sensitivity: The sensitivity of baseline conditions within each topic has been determined according to the relative importance of existing environmental features on or near to the project or by the sensitivity of receptor.

6.2. METHODOLOGY FOR THE ASSESSMENTS

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 three phases and

characteristics of the project site. The assessment is qualitative and the significance of each impact is classified into 5 categories in overall.

The following methodology has been applied to assess the environmental impacts of the factory 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 point have 5 scales as mentioned in Table 6-1.

Table 6-1 Impact Assessment Parameters and Its Scale

Assessment	Scale				
	1	**2**	**3**	**4**	**5**
Magnitude (M)	Insignificant	small and will have no effect on working environment	Moderate and will result in minor changes on working environment	High and will result in significant changes on working environment	Very high and will result in permanent changes on working 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 the local area	Limited to the 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:

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

Table 6-2 Evaluation of Significant Impacts for operation phase

No	Impact	Possible Sources	Impact assessment scale					Impact Significance
			M	D	E	P	SP	
1	Air pollution	Dust and GHGs emission from using of generators and vehicles	2	4	2	3	24	Low
2	Water pollution	The accidental spillage of oil and diesel from vehicles, generators. Improper chlorination dosage may alter water quality Contamination of water due to spills and propagation of chemical elements (e.g. PCB, oil, etc.)	2	4	1	3	21	Low
4	Noise Pollution	Noise from the generating of the emergency generators Use of vehicles for transportation of raw materials and products	2	4	1	3	21	Low
5	Fire Hazard	Poor electrical installations Waste disposal area Poor installation of production lines Cooking and smoking of labours Risk of leakage from fuel storage tanks	3	4	1	3	24	Low
6	Solid waste	Waste from kitchen, dormitory and office. Chemical coagulation, settled water from pre-sedimentation	3	4	2	3	27	Low
7	Hazardous waste	Used oil and lubricant discharged from the maintenance of vehicles and machines.	2	3	1	2	16	Low
9	Occupational Health and Safety	Accidental cases cause by operating machines. Electrical shocks	3	4	1	2	16	Low
10	Local traffic pattern	Increase traffic of vehicles required to deliver materials and supply for the treatment processes	3	4	2	3	27	Low
11	Social-economic Condition	Job opportunities for local people	-	-	-	-	-	Positive Impact

Table 6-3 Evaluation of Significant Impacts for Decommissioning phase

No	Impacts	Possible source	Impact assessment scale					Impact Significance
			M	D	E	P	SP	
1	Air pollution	Decommissioning of buildings and related materials Transportation of demolished materials Fugitive dust from site preparation, excavation and movement of vehicle.	3	1	2	4	24	Low
2	Water pollution	The run-off of cleaning of heavy machines and tools to surface water. Decommission of sewage and septic tank, domestic wastewater can affect surface water and ground water quality	3	1	3	3	21	Low
3	Soil Contamination	The spillage of oil and diesel and the decommission of buildings and the related buildings can cause soil erosion	3	1	2	3	18	Low
4	Noise Pollution	The demolition process such as excavation, removal of buildings, etc Transportation of demolished materials	4	1	3	3	24	Low
5	Occupational Health and Safety (Accidents, Injuries)	Decommissioning activities such as use of heavy equipment fall down of buildings and transportation of demolished materials Health risk to construction laborers during demolition period (Like water bone/ air bone diseases, infected diseases such as HIV, AIDS)	3	2	2	2	14	Low
6	Social-economic Condition	Temporary job opportunities for local people	-	-	-	-	-	Positive Impact

According to the result of analysis, it can be concluded that most of the project activities have low significance on environment, in all phases. During the construction phase, noise pollution is the significant impact on the environment. There are no significant impacts during the

operation phase. The local traffic pattern can slightly high during the decommission phase. The following figure shows the impact significance of the proposed project.

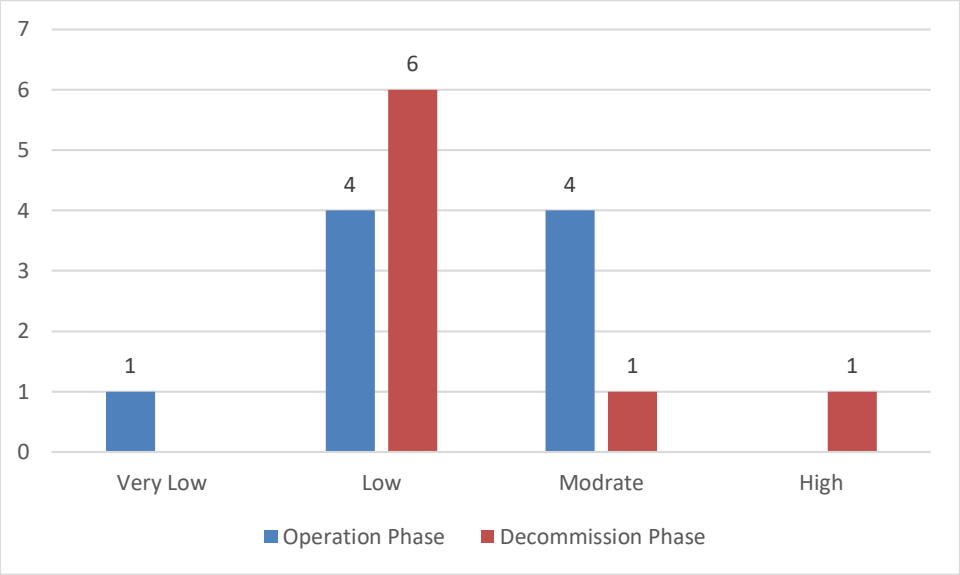

Figure 6-1 Impact Significance of Proposed Project

Table 6-4 Impact Mitigation Measure for Operation phase

No	Impact	Impact Significance	Mitigation Measure
1	Air pollution	Low	Good ventilation system should be inside the factory building. Install the stack for generators. Vehicles and operation equipment should be checked and repaired regularly. Generators and other equipment that generate gases must be turned off when not in use.
2	Water pollution	Low	Wastewater that includes oil and grease should be treated using a floating equipment. Sewage should be treated using a septic tank or similar facilities that allow its proper decomposition. Heavy metals containing wastewater should be treated using one of the conventional techniques such as membrane filtration, ion exchange, chemical precipitation, electrochemical treatment, etc.
4	Noise Pollution	Low	Use equipment, generators and machines which generate low noise levels. Regular maintenance and inspection of all vehicles and equipment should be carried out to minimize the generation of noise and vibration. Monitoring of noise level will be conducted to carefully check the actual noise level since the area affected by noise can be large. Then, the project proponent plans to discuss the additional measures with residents and take the measures.
5	Fire Hazard	Low	To provide fire extinguishers, fire hose reels and fire hydrants on the walls of the company for fire emergency cases. Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening.

No	Impact	Impact Significance	Mitigation Measure
			The emergency fire alarms are installed at the company for alerting the workers in case of fire. The main entrances and route for emergency cases of the company must not be blocked with materials or machines for fire emergency cases.
6	Solid waste	Low	Provides separate garbage bins at each building. All of the solid wastes will be collected separately in garbage based stored in relevant separated waste storage area Final wastes should be disposed by using YCDC's service.
7	Hazardous waste	Low	Proper inspection and maintenance in storage of hazardous waste. Dispose of hazardous chemicals and containers in accordance with occupational health, safety and environmental requirements. The hazardous wastes are transported by specially licensed carriers.
9	Occupational Health and Safety	Low	To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.
10	Local traffic pattern	Low	If necessary, place traffic warning signs along accessible route and company compound yards. Attention to the driving environment. Operate the vehicle according to the requirements of Motor Vehicle Law.

Table 6-5 Impact Mitigation Measure for Decommissioning phase

No	Impacts	Impact Significance	Mitigation Measure
1	Air pollution	Low	Dust suppressant should be used where necessary by spraying water to affected area. Dust filter mask should be provided to workers. Open burning should be prohibited. Purchase vehicles and equipment that emit lowest CO2. Banning of old diesel or gasoline powered vehicles for construction and decommission activities by defining specific types and ages of vehicle. Vehicle speed limit should be restricted around the project site.
2	Water pollution	Low	Provide proper sanitation facilities for the construction workers. Prepare proper fuel storage area such as putting fuel tank on the concrete slab instead of natural ground within the construction and decommission site. Regular inspection of the construction machines and maintaining the good condition. Provide proper temporary drainage system for construction and decommission site.

3	Soil Contamination	Low	Store the fuel and oil properly. Regular check and maintain the fuel and oil storage tanks and sewer pipeline. Regular check the temporary solid waste disposal site in order to prevent leakage of leachate.
4	Noise Pollution	Low	Use equipment, generators and machines which generate low noise levels. Regular maintenance and inspection of all vehicles and equipment should be carried out to minimize the generation of noise. Change vehicle types and driving habits can affect the intensity of exposure to noise. Uneven driving such as frequent acceleration or deceleration of speed can result in increase in noise emissions. Provide adequate ear protection (ear plugs or muffs) to workers who work in the excessive noise areas
5	Occupational Health and Safety (Accidents, Injuries)	Low	Warning signs should be set around spills or wet floors and avoid walking on slippery floors as much as possible. Use non-slip footwear. Illegal drugs or alcohol must be prohibited at any time on working hours. Provide First Aid Kits sufficiently at the hotel area. Restricted to use mobile phone while driving a motor vehicle or equipment. Health impact training for workers about waste handling. Practice about good personal hygiene for workers.

6.3. RESIDUAL IMPACT

The project will apply careful design and planning in combination with the mitigation measures and hence there are no significant adverse impacts to the physical, biological and socio-economic environments. For several valued Environmental and Social Components, no adverse environmental effects were identified that could result from routine activities during any of the project phases. However, there will be some residual impacts predicted.

The residual impacts are the impacts which remain after the implementation of the mitigation measures described. The predicted residual adverse impacts are considered for each project phase (Operation and Decommissioning/Closure). The residual impacts and their significance are determined by the professional judgement and expertise based on the nature of impacts, namely, magnitude, duration, and reversibility.

Level of magnitude	**Description**
High	Impact is high enough to cause numerous effects
Medium	Impact may result in changes that affect the value of resources, social-cultural, economic and environment

Low	Impact may result in changes in resources and environment, but this change does not decrease value of these resources, socia-cultural, economic and environment.
Nil	Impact has no effect

Duration	**Description**
Long term	Beyond the construction phase for years of the operation life of project or permanent
Medium term	1-2 years
Short term	0-12 months and intermittent

Reversibility	**Description**
Reversible	Capable of re-establishing the original condition after a change or being impacted
irreversible	Incapable of re-establishing the original condition after a change or being impacted

Level of significance	**Description**
Major	Potential impact could threaten the long-term sustainability of the resource. Additional research, monitoring and/or recovery initiatives should be considered
Medium	Potential impact could result in a decline of a resource in terms of quality/quantity, such that the impact is considered moderate in its combination of magnitude, aerial extent, duration and frequency, but does not affect the long-term sustainability. Additional research, monitoring, and/or recovery initiatives may be considered.
Minor	Potential impact may result in a localized or short-term in are source during the life of the project. Typically, no additional research, monitoring, and/or recovery initiatives may be considered.
Minimal	Potential impact may result a small, localized decline in resource during the operation phase of the project and should be negligible to the overall baseline status of the resource.

No	**Impact**	**Magnitude**	**duration**	**reversibility**	**Level of significance**
1	Air pollution of residual impact can cause due to contributes to the formation of acid rain, atmospheric precipitation in the form of rain, snow or fog, which are released during combustion of fossil fuels and transformed by contact with water vapor in the atmosphere. Acid rain affects the amount of chemicals in soils and freshwater, affecting food chains.	low	Intermittent and short term	reversible	Minimal
2	Degradation of groundwater quality due to accidental and release of chemical and hazardous material	low	Intermittent and short term	reversible	Minimal

No	Impact	Magnitude	duration	reversibility	Level of significance
4	The potential health effects of noise pollution include increased stress levels, sleep disturbance, or hearing damage.	low	Intermittent and short term	reversible	Minimal
5	Residual impacts can cause Combustion and damage of structure and flammable material in a building like furniture, roof, paper, plastic bottle, etc.	low	Intermittent and short term	reversible	Minimal
6	Residual impact from domestic waste can cause foul odor, operation waste was produced plastic bottle and shrink. It can cause fire hazardous.	low	Intermittent and short term	reversible	Minimal
9	Risk of injuries and accidents to workers	low	Intermittent and short term	reversible	Minimal

Although the residual impacts are expected for operation and decommissioning/closure phases as described in the tables above. The level of significance of these residual impacts are minor and minimal. Therefore, no additional research, monitoring, and/or recovery initiatives are considered and these impacts are negligible to the overall baseline status of the resource.

6.4. POSITIVE IMPACT

There are several potential positive impacts in social environment. These are mentioned below.

6.4.1. Creation of employment opportunities

Several employment opportunities will be created by different construction activities of the project. This will be a significant positive impact to the community nearby.

6.4.2. Provision of market for supply of building materials

The project will require supply of large quantities of building materials which will be sourced locally. This provides a market for building materials suppliers such as sand, gravel, stones, woods and hardware stores and individual with such materials.

6.4.3. Increased business opportunities

Requirement of a large number of project staff members and workers will create a market for various goods and services, leading to several business opportunities for small-scale traders such as food stalls near the construction site.

6.4.4. Living and livelihood

The increase of job opportunities as construction workers, technicians or increased business opportunities or provision of market for supply of building materials can positively change the living standards and livelihood of the community to some extent.

6.4.5. Existing social infrastructures and services

The social infrastructures will be improved due to the project (for instance. a new school will be built for the project as part of CSR program).

6.4.6. Corporate Social Responsibility Programs of Project Proponent

The Plus World will accept Corporate Social Responsibility (CSR) for the communities living near to the project. The CSR programs will cover:

- Education Sector: Construction and upgrading school building and facilities, providing necessities for students (for instance, school uniforms, books, pencils).
- Healthcare Sector: Building dispensary/healthcare center at the appropriate village where villagers from surrounding villages can access.
- Infrastructure Development: Upgrading of the roads which connect the project site and the village nearby.

Note: Details of CSR programs are mentioned in Corporate Social Responsibility

Programmed (CSR) under Environmental Management Sub-plans.

CHAPTER 7
COMMULATIVE IMPACT ASSESSMENT

Cumulative impacts from different projects (in combination with the project being assessed) whereby the impact may arise from the combined action of a number of different projects, in combination with the project being assessed, on a single environmental parameter (receptor/resource). This can include multiple impacts of the same or similar type from a number of projects upon the same environmental receptor/resources.

7.1. METHODOLOGY AND APPROACH

In order to carry out the Cumulative Impact Assessment (CIA), as a methodology, the IFC's Rapid Cumulative Impact Assessment (RCIA) was adopted and the following steps were followed:

1. Identification of other existing and future private and public projects and developments;
2. Determining spatial and temporal boundaries;
3. Identification of Valued Environmental and Social Components (VESCs) for which CIA will be assessed;
4. Determination of present conditions of VESCs;
5. Assessing cumulative impacts and their significance on VESCs; and
6. Developing mitigation measures for cumulative impacts.

The approach included following a six-step RCIA process, engaging stakeholders to get their views and making professional judgement. This assessment considered the residual impacts of the project and evaluated these alongside potential impacts from other projects/activities that may impact common resources and receptors.

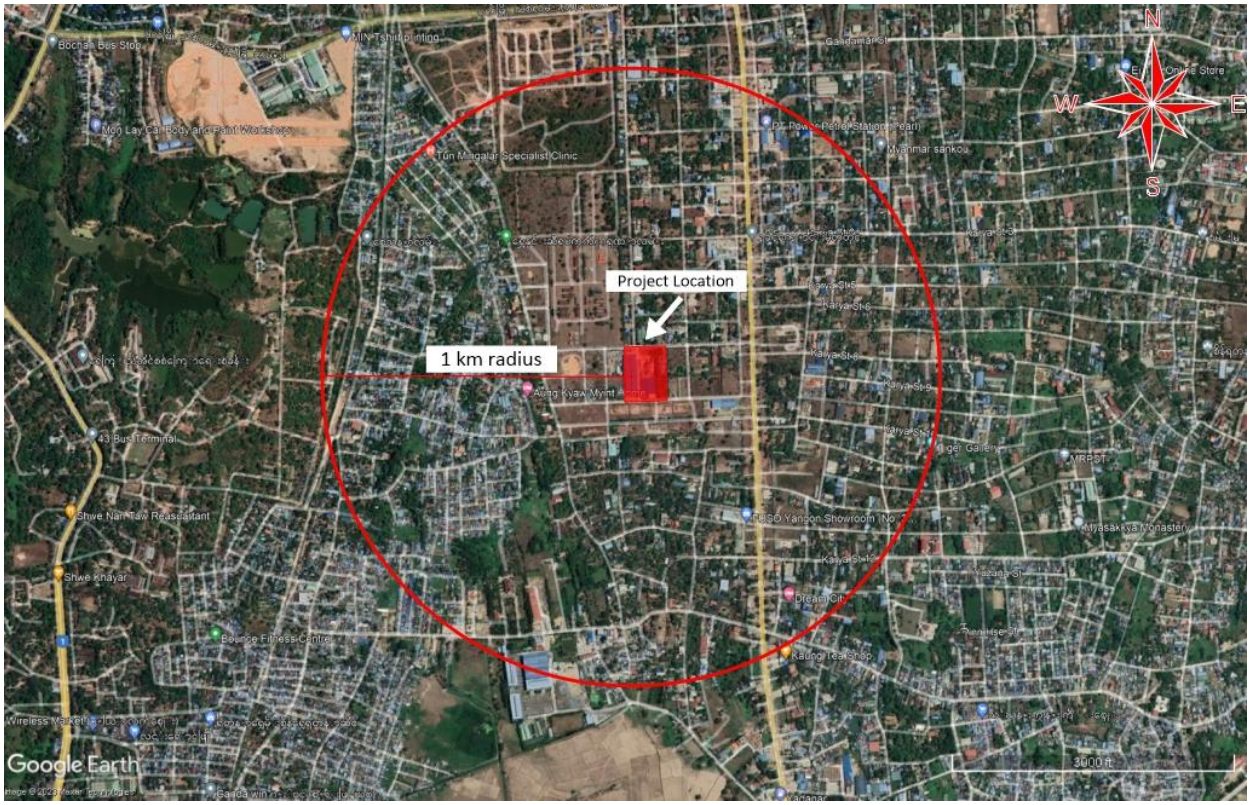

Figure 7-1 (1 km) radius boundary area study limited

7.2. IDENTIFICATION OF OTHER EXISTING AND FUTURE PRIVATE AND PUBLIC PROJECTS AND DEVELOPMENTS

The planned or reasonably foreseeable projects are the drinking water manufacturing and distribution for this project. These outside has located residential area.

7.3. SETTING UP SPATIAL AND TEMPORAL BOUNDARIES

In order to define the boundaries for the assessment, it is necessary to encompass the spatial and temporal extent of impacts that influence VESC condition throughout the time period during which project impacts will occur. The spatial boundary for VESCs for which cumulative impacts were assessed was 1 km both sides from the center of the factory. The area directly affected by the project and where cumulative impacts may be exposed to within its range. The temporal boundary is the lifetime of the factory, including the operation and decommissioning phases. The potential effects of the proposed project cannot extend beyond the lifetime of project because of the good industrial practices, implementation of Environmental Management Plan and monitoring plans. Hence this temporal boundary is the most conservative timeframe.

7.4. IDENTIFICATION OF VEC

The VESCs that are likely to be at the greatest risk from the residual impacts of the project and the potential impacts of the anticipated future developments to cumulative impacts were identified. VESCs are the environmental and social attributes that are considered to be important in assessing risks and ambient air and surface water and ground water are the VESCs for environmental perspective. From socio-economic perspective, cumulative impacts would include: the safety and health of the community and hence social conditions (community health and safety) are VESCs.

7.5. BASELINE INFORMATION OF VECS

The baseline information of VESCs are the existing information for ESIA because such information provided a sufficient basis for a complete assessment of cumulative impacts.

7.6. ASSESSMENT OF CUMULATIVE IMPACTS AND THEIR SIGNIFICANCE ON VECS

In order to assess the cumulative impacts, it was first assessed that how the residual impacts of the project could combine with the potential impacts of the anticipated future projects and impact common resources and receptors.

The Cumulative Impact Assessment is the process of assessing potential effects on community of neighboring area of the proposed project caused by the combination of known projects in the adjacent area. Therefore, cumulative health impact is unable to assess.

However, assumption can be made that creation of job opportunities will cause population influx in the surrounding area. There will be a positive effect on local business as a result of the presence of operation workers using local facilities during the operation. Increase job opportunities for the local people will promote wellbeing.

For the operation phase it is more realistic and rational to do the cumulative impact assessment by the factories based on their business and the existing and future private and public developments and projects. The residual impacts for operation phase in combined with the potential impacts of the anticipated future developments to produce cumulative impacts and this will be conducted by respective of the each factory.

Table 7-1 Relevant Mitigation Measures for Cumulative Impacts

No	Cumulative Impacts	Significance Impacts	Mitigation Measures
1	Increase in pollutant concentrations in surface water	Negligible	• Following EMP and monitoring plan • Engaging developers of other developments/ projects for effective collaboration or coordination
2	Increase in pollutant concentrations in ground water	Negligible	• Following EMP and monitoring plan • Engaging developers of other developments/ projects for effective collaboration or coordination
3	Incremental contribution of air pollutants	Negligible	• Following EMP and monitoring plan • Engaging developers of other developments/ projects for effective collaboration or coordination • Collaborative engagement in other regional cumulative impact management strategies

No	Cumulative Impacts	Significance Impacts	Mitigation Measures
			• Participation in regional monitoring programs to assess the realized cumulative impacts and efficacy of management efforts (The last two points involve collaborative engagement with other stakeholders, including project proponents, government agencies, affected communities, conservation groups and expert groups.)
	Increased community safety and health issues	Low	• Following EMP and monitoring plan • Engaging developers of other developments/ projects for effective collaboration or coordination • Consultation with community and providing education programs related to community health and safety issues • Providing additional community safety and health measures based on discussion with the community

CHAPTER 8
ENVIRONMENTAL MANAGEMENT PLAN

8.1. ENVIRONMENTAL MANAGEMENT SYSTEM (ISO-14001:2015)

An Environmental Management System (EMS) encourages an organization to continuously improve its environmental performance. The system follows a repeating cycle Figure 8-1. The organization first commits to an environmental policy, then uses its policy as a basis for establishing a plan, which sets objectives and targets for improving environmental performance. The next step is implementation. After that, the organization evaluates its environmental performance to see whether the objectives and targets are being met. If targets are not being met, corrective action is taken. The results of this evaluation are then reviewed by top management to see if the EMS is working. Management revisits the environmental policy and sets new targets in a revised plan. The company then implements the revised plan. The cycle repeats, and continuous improvement occurs.

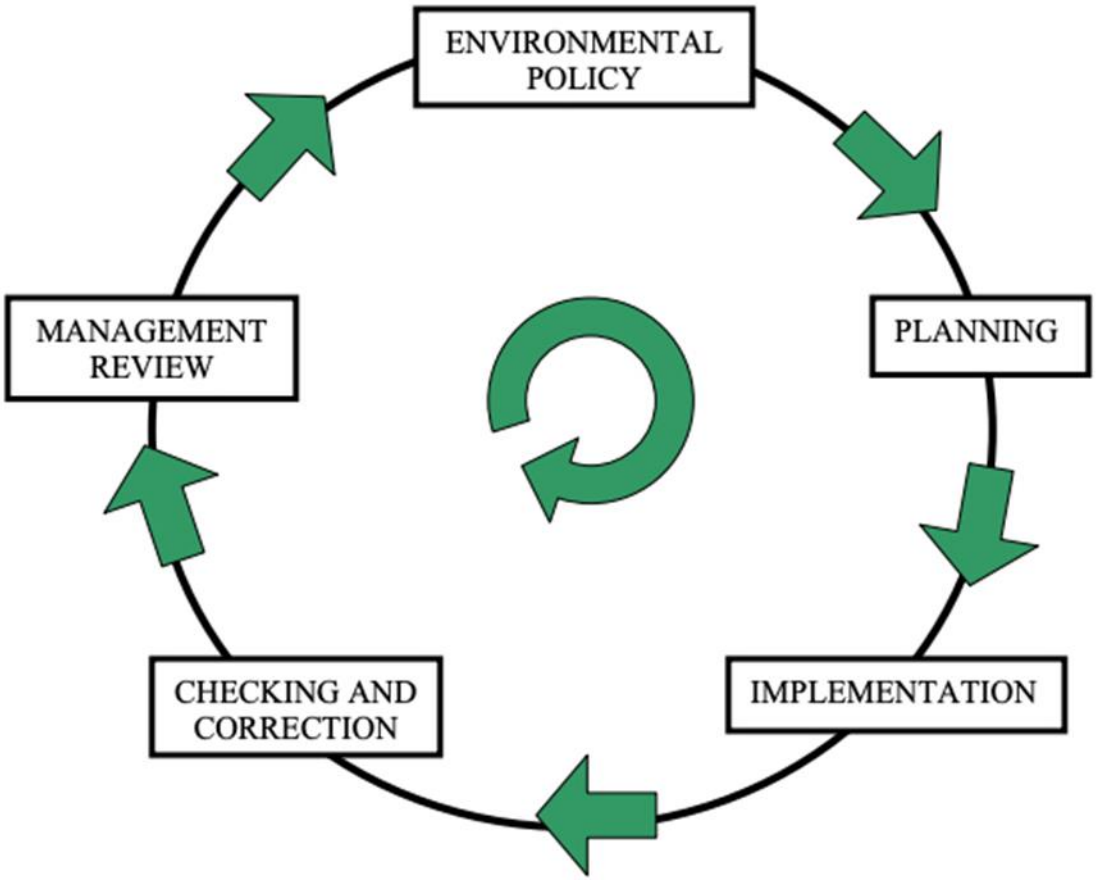

Figure 8-1 Flow diagram of EMS

- **Environmental Policy** – Top management commits to environmental improvement and establishes the organization's environmental policy. The policy is the foundation of the EMS.
- **Planning Environmental Aspects** – An organization first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste that can have negative impacts on people and the environment. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. For example, an organization may choose

worker health and safety, environmental compliance, and cost as its criteria. Once significant environmental aspects are determined, an organization sets objectives and targets.

- **Implementation** – An organization follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.
- **Checking and Correction** – The checking and corrective action step includes monitoring and measuring (e.g., internal assessments), problem and cause identification, corrective and preventative action implementation.
- **Management Review** – In the management review step, upper management reviews the EMS, including the results of internal assessments. Modifications to the EMS are made, as necessary, to ensure compliance. The management review is designed to ensure continual improvement of the EMS, taking into account the results of checking and corrective actions undertaken in Step 4.

8.2. OBJECTIVE OF ENVIRONMENTAL MANAGEMENT PLAN

An EMP is a framework that helps an organization achieves its environmental goals through consistent review, evaluation, and improvement of its environmental performance. The assumption is that this consistent review and evaluation will identify opportunities for improving and implementing the environmental performance of the organization. The EMP itself does not dictate a level of environmental performance that must be achieved; each organizations EMS is tailored to its own individual objectives and targets.

The primary purpose of the EMP is to provide an easily interpreted reference document, which ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals and project implementation. It aims to minimize impacts associated with the operation of the project. The aims of operational EMP is to:

- Define details of who, what, where and when environmental management and mitigation measures are to be implemented
- Provide government and their stakeholders batter on-site environmental management control over the life of operation
- Ensure that the commitments made as a part of the project's EMP are implemented throughout the project life
- Ensure the environmental management detail is performed and documented at all stages of the project
- Provide environmental management plans that minimize the environmental impact of the works and identify those responsible for its implementation.
- Define the monitoring program which assesses the implementation.

8.3. STRUCTURE FOR THE EMP DEVELOPMENT AND IMPLEMENTATION

The HSE officer is responsible to the HSE components of the project and on matters relating to the implementation of the EMP throughout operation life. The HSE officer will have responsibilities that include:

- Ensure a monitoring system is in place to track and report all health, safety and environmental incidents;
- Carry out a thorough initial site inspection of environmental controls prior to work commencement;
- Record and provide a written report to the General manager and production team of non-conformances with the EMP and require the HR supervisor to undertake mitigation measures to avoid or minimize any adverse impacts on environment or report required changes to the EMP;

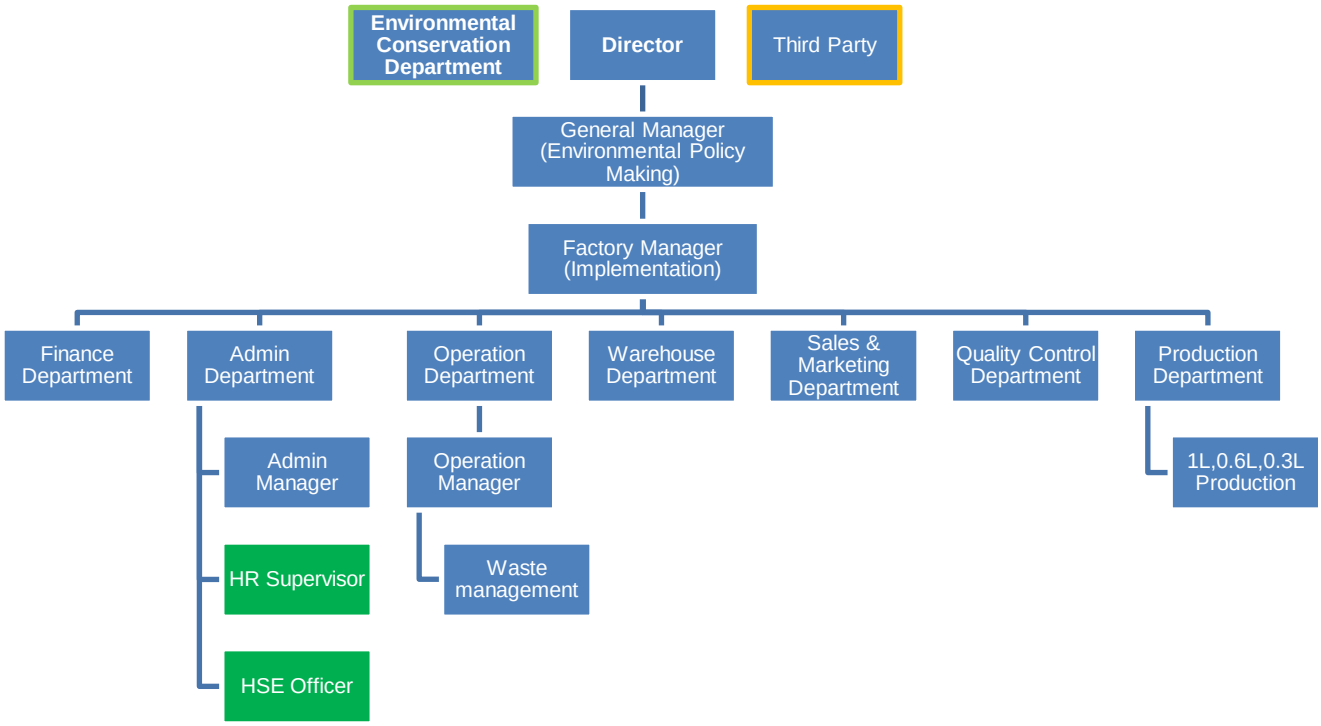

Figure 8-2 Organization Structure of Environmental Management

8.4. RESPONSIBILITIES

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:

Plus World Co., Ltd.: The proponent will be charged with the responsibility for ensuring that the proposed development has been accomplished in an environmentally sound manner. This can be achieved by inclusion of environmental specifications in the tender specifications, selection of environmentally conscious contractors, and supervision to ensure that the objectives of this EMP are met. The implementation of EMP process will prepare and follow up by appointed persons for health, safety, and environmental management under the instruction of management team of Plus World Co., Ltd. for EMP implementation facilities.

Environmental Conversation Department: The responsibility of ECD is to exercise general supervision and coordinating over all matters relating to the environment and to be instrumental in providing guidance for recognized regulatory frameworks.

Third-Party Environmental Consultant: The environmental consultant will have to ensure that the proposed EMP is up to date and is being followed properly by the proponent. Periodic audits of the EMP will have to be done to ensure that its performance is as expected, by comparing with operating standards so that any corrective actions can be taken.

8.5. ENVIRONMENTAL MANAGEMENT ACTION

The environmental management action for this project has been prepared to added potential issues based upon discussion with operation management teams, workers, local community view, stakeholder consultation and the site visit. The Factory Manager is additional to and compliments the occupational health and safety management system. The following environmental impact issues which require environmental management plans based upon the potential impact activities of factory operation are as follows Table 8-1 and Table 8-2.

Table 8-1 Environmental Management Action during Operation Phase

Categories	Management Action	Responsible Person	Inspection Type	Frequency
Air Quality	Good ventilation system should be inside the factory building. Install the stack for generators. Maintain the generators.	HR Supervisor	Monthly Check	Two times per year
Water pollution	Minimise the spillage of diesel and oil. Regular monitoring of water content and of chlorination performance Store chemicals in a contained location with no drainage connection to the water network Ensure that transformers are located on impermeable and contained surfaces	Production Engineer & HSE Officer	Regular Check	Monthly
Noise Pollution	Provide the noise-controlled equipment for the factory workers to avoid hearing loss.	HR Supervisor & HSE Officer	Regular Check	Monthly
Fire Hazard	Maintain and check the electric lines and machines. Prohibit the fire usages. Install the firefighting system.	Production Engineer, HR Supervisor & HSE Officer	Regular Check	Monthly

Categories	Management Action	Responsible Person	Inspection Type	Frequency
	Cover area where fuel storage tank is located with impervious material to limit leakage to groundwater			
Solid Waste	Recycle bin and allocated dumping location will be provided in factory Empty sedimentation pond more frequently and dispose solid waste at specified landfills	All Department Head	Regular Check	Monthly
Hazardous Waste	Manage and prevent the spillage of oil and diesel.	Production Engineer & HSE Officer	Regular Check	Monthly
Occupational Health and Safety	Work permit will be issued for any work to be carried out within the hazardous /dangerous area and other equipment.	Production Engineer & HSE Officer	Regular Check	Monthly
Local Traffic Pattern	Improve footway surface along the boundary of the site. Provide one or two persons for traffic management in front of the factory	HR Supervisor	Regular Check	Monthly

Table 8-2 Environmental Management Action During Operation Phase

Categories	Management Action	Responsible Person	Type	Frequency
Air Quality	Spray water twice a day Cover mesh trap around the decommission area Install shading net about 2 meters above temporary fence of decommission area Carry broken material with cover by canvas.	Site Engineer	Monthly Check	Two times per year
Water pollution	Systematically demolish the septic tanks.	Site Engineer	Regular Check	Monthly
Soil Contamination	Manage the spillage of oil and diesel and sewage.	Site Engineer	Regular Check	Once per year
Noise Pollution	Provide noise protection equipment for construction workers Install temporary barriers of 2.5 m height and made by steel at construction area Carry out construction activities of high noise level doing day time.	Site Supervisor	Regular Check	Monthly
Waste disposal	Recyclable materials and dispose to the define areas.	Site Supervisor	Regular Check	Monthly
Hazardous waste	Manage the disposal way of hazardous waste.	Site Supervisor	Regular Check	Monthly
Occupational Health and Safety (Accidents, Injuries)	Protective fencing or demarcation with tape will be provided at the boundaries of dangerous / hazardous zone and the appropriate warning signs, marking and safety signs and	Site Engineer	Regular Check	Monthly

Categories	Management Action	Responsible Person	Type	Frequency
	installation of the lost time injury notice board. Cleaning up excessive waste debris and liquid spills regularly Use the third-party expert assisted by trained personnel to identify and remove hazardous materials.			
Local traffic pattern	Decommission vehicle in and out going process should have two or three persons for traffic management	Site Supervisor	Regular Check	Monthly

8.6. CAPACITY BUIDLING AND TRAINNING PLAN

The emergency preparedness is vital, as quick and correct response is necessary in case of emergency to reduce injuries, harm and other damage. Care should be given for during processing activities in order to prevent synthetic errors and accidental cases (e.g., electricity shock and fire hazards).

The emergency response plans should be established for handling all foreseeable emergencies in the workplace and must provide the following;

8.6.1. Assignment of responsibilities

All senior staff such as a line/production manager or safety officer should be assigned to lead the emergency response team and charged with the duties of (1) assessing the emergency and taking necessary actions (2) overseeing the implementation of the emergency response plan (3) organizing regular drill (4) ensuring all emergency equipment is well maintained.

8.6.2. Emergency procedures

Emergency procedures are operating instructions for employees to follow in emergency case

About work safety in the concerned processing, the management team should

a) Identify and list out all possible emergency situations in the workplace
b) Assess the effects and impacts of the emergency situations
c) Establish emergency response plans
d) Provide and maintain emergency equipment and other necessary resources
e) Ensure that staff are familiarized with the arrangements in case of emergencies by providing procedural instructions and employee training and organizing drills

8.6.3. Training for Emergencies

The type, amount and frequency of training varies, depending upon the task's employees are expected to perform. Although training must be provided to employees at least annually, safety meetings and drills should be conducted at more frequent intervals.

Regardless of the specific type of facility, training should include, though not be limited to the following;

- Hazard recognition and prevention (fire, explosion, etc.)

- Proper use of fire extinguishers
- Emergency reporting procedures
- Preventive maintenance
- Hazardous materials spill response
- First Aid

8.6.4. **Fire Prevention and Protection**

The fire prevention and protection program must address the following topics:

Prevention; policies, practices and procedures designed to keep the conditions necessary for a fire from coming together

- Hot work permits
- Lockout/tag out policies
- Design specifications for storage of flammable materials

Severity reduction; policies, practices and procedures designed to reduce the spared of fire and end the fire.

- Emergency plans
- Alarm systems
- Portable fire extinguishers
- Fire Protection Equipment

Cleanup; policies, practices and procedures designed to return the affected area to an operational level and reduce other losses created by improper cleanup

- First aid
- Removal of debris to an appropriate waste site
- Equipment and facility repair

8.6.5. **Fire Protection Equipment**

1. Explosion Suppression Systems: Explosion suppression systems should be used in unusually hazardous areas such as elevator legs, boots and head, or in areas such as bins, distributors and tanks.

2. Portable Fire Extinguishers: All buildings within a facility must have fully charged and operable portable fire extinguishers. If employees are expected to use portable extinguishers or other firefighting equipment against incipient fires, they must be trained to use the equipment. Training must include the following:
   - Correct type of extinguisher to use on different classes of fire
   - Proper techniques for use of the equipment to extinguish a fire
3. Standpipes and Hoses: All areas within a facility that are above 75 feet from ground level and in which combustible materials other than grain are stored should have wet or dry standpipes and hoses installed.

4. Automatic Sprinkler Systems: Automatic sprinkler systems are recommended in areas containing combustible materials.

5. Fire Hydrants: All grain and feed mill facilities should have adequate public or private fire hydrants on site. Each fire hydrant should have an adequate water supply.

8.6.6. **Fire Safety and Evacuation Plan**

Fire Evacuation plans should include the following information

- Emergency escape routes must be clearly shown on floor plans and workplace maps
- Employers must know that their employees know the emergency escape routes
- Procedures for employees who must remain to operate critical equipment before evacuating
- Identification and assignment of personnel responsible for rescue or emergency medical aid

Fire Safety Plans should include the following information:

1. Procedure for reporting a fire or other emergency
2. Site plans indicating the following
   - The Occupancy assembly point
   - The locations of fire hydrants
   - The normal routes of fire department vehicles access
3. Floor Plans identifying the locations of the following
   - Exits
   - Primary evacuation routes
   - Secondary evacuation routes
   - Accessible egress routes
   - Areas of refuge
   - Exterior area for assisted rescue
   - Manual fire alarm boxes
   - Portable fire extinguishers
   - Occupant-use hose stations
   - Fire alarm annunciators and controls

The following American National Fire Fighting Association (NFFA) Standards must be following.

Table 8-3 American National Fire Fighting Association (NFFA) Standards

No.	Parameters	Proposed Capacity	Remark
1	Fire water flow	14 bars	
2	Deluging rate	12.0 liters/m2/min	
3	Foam rate	10.0 liters/m2/min	
4	Maximum water pressure	190 liters/min	For storage area

Emergency evacuation Drill: An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency excavation procedures

Employee Training and Response Procedures: Employee shall be trained in the fire emergency procedure described in their fire evacuation and fire safety plans and training should be based on these plans;

Frequency: Employee shall receive training in the contents of fire safety and evacuation plans and their duties as part of new employee orientation and at least annually thereafter. Records shall be kept and made available to the fire code official upon request.

Employee Training Program: Employee shall be trained in fire prevention, evacuation and fire safety in accordance with the following sections.

Fire Prevention Training - Employee shall be apprised of the fire hazards of the materials and processes to which they are exposed. Each employee shall be instructed in the proper procedures for preventing fires in the conduct of their assigned duties

Evacuation Training – Employees shall be familiarized with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation

Fire Safety Training – Employee assigned fire-fighting duties shall be train Toiled to know the locations and proper use of portable fire extinguishers or other manual fire-fighting equipment and the protective clothing or equipment required for its safe and proper use.

8.6.7. **Site Fire Control**

1. Alert other people through fire alarm
2. If small, control using an extinguisher
3. Contact fire brigade if not under immediate control
4. Attend to human life in immediate danger
5. For electrical fires turn off power before fighting
6. Once out of the building, stay out. Do not allow people to go back into the burning building to collect valuables. While evacuating the building, close doors (but do not lock) to slow down the spread of fire
7. Obey all instructions
8. Proceed to an emergency evacuation area (Muster Point)

8.6.8. **Employee Information and Training**

Employees must be informed about any operations in their work area where hazardous chemicals or materials are present. They must also be informed about the locations and availability of the hazard communication program, list of chemicals and SDSs. Employees must receive training on the following:

- Methods for detecting the presence or release of a hazardous chemical, such as monitoring devices and the visual
- appearance or odor of the chemical
- Physical and health hazards of chemicals in their work area
- How to protect themselves using work practices, emergency procedures and personal protective equipment
- How to interpret the information on the labels and MSDS.

8.6.9. **Health and Safety Training Plan for Worker**

Health and Safety Training plan currently used and provided in Plus World Co., Ltd. to all employees and workers by trainings internally and externally. Specific trainings are recommended and conducted according to the health and safety guidelines to enhance worker's health and to prevent all potential risks and hazards might occur in the factory. All required

trainings related to health and the respective departments propose safety or operational parts, top management makes decision and HR Supervisor and conducts the trainings.

Table 8-4 Training Plan Used

No.	Health and Safety Guidelines	Training needs
1.	Management	General fire and emergency response plan, evacuation. All training materials and procedures covering health and safety for workers and employees
2.	Machine safety and noise management	Training for machine operations to all operators Use of PPE and proper use of any necessary protection Maintenance and Emergency procedures
3.	Environment safety	Understanding and training on recognition and maintenance not to affect environment
4.	Material storage and safety	Safety use of related devices and machines Use of necessary protections in working areas Sanitation work
5.	Fire Safety	Firefighting and evacuating training and practices Firefighting materials/ devices use
6.	First Aid	first aid / CPR/ AED training from providers (Outsource) training on hazard of pathogens

8.7. ENVIRONMENTAL MONITORING SCHEDULE AND REPORTING

The Environmental Monitoring Plan (EMoP) cell members responsible may conduct daily, weekly or monthly general inspections of the project area and facilities. The objectives are to identify non-compliances to EMoP. The factory submits monitoring report to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP.

Table 8-5 Environmental Monitoring Process

Issues	Parameter	Frequency	Area to be monitored	Responsible Person
Operation Phase				
Common	Monitoring of mitigation measures	Yearly (3 years after operation)	The project	Management Team of Plus World Co., Ltd
Air quality	SO_2, NO_2, CO, CO_2, $PM_{2.5}$, PM_{10}	Biannually monitoring and reporting to ECD (first 3 years after operation)	One point in the factory	Management Team of Plus World Co., Ltd
Water quality	pH, Apparent Colour, Turbidity Conductivity, Total Hardness Calcium,	Biannually monitoring and reporting to ECD	One point in the factory	Management Team of Plus World Co., Ltd

Issues	Parameter	Frequency	Area to be monitored	Responsible Person
	Hardness Magnesium, Hardness Total Alkalinity, Phenolphthalein Alkalinity, Carbonate (CaCO3), Bicarbonate (HCO3), Iron, Chlorine (as CL), Sodium Chloride (as NaCL), Sulphate (as SO4), Total Solids Total Suspended Solids, Manganese Phosphate, Phenolphthalein Acidity, Methyl Orange Acidity, Salinity	(first 3 years after operation)		
Waste Generation	Solid waste, Liquid waste and Hazardous waste	Weekly	Recycle house and waste house and at the factory office	Management Team of Plus World Co., Ltd
Fire Hazardous	Visual inspection, firefighting equipment	Monthly	At the factory	Management Team of Plus World Co., Ltd
Decommissioning Phase				
Air quality	SO_2, NO_2, CO, CO_2, PM2.5, PM10	One time during this phase	One point in the production area	Land Owner & Constructor
Noise	Noise level in decibel (dBA)	One time during this phase	One points in demolishing area	Land Owner & Constructor
Rehabilitation	Recovering and Revegetation		All decommissioning area	Land Owner & Constructor

8.8. BUDGET PLAN FOR ENVIRONMENTAL MANAGEMENT AND MONITORING

This section describes the budget plans for the environmental management and environmental monitoring by the project proponent. On the other hand, Plus World Co., Ltd. will take necessary environmental mitigation measures and its expenses for the environmental management not only at the construction and operation phases but also at the closing phase in accordance with their responsibility for the studies of recommendation.

The following table shows the expenditures for the implementation of Environmental Management Plan for operation phase annually. Estimation cost for EMP implementation is presented in Table 8-6.

Table 8-6 Cost Estimation for EMP implementation

No	Item	Frequency/Times	Cost (MMK)
Mitigation Plan			
1	Maintenance of air ventilation system	Once per year	300000 per year
2	Grass plantation within the area of factory compound	Once per three months	50000 per three months
3	Solid waste disposal	Monthly	20,000 per month
4	Purchase of Personal Protective Equipment (PPE)	Once per half a year	150,000 per month
5	Medical Check-up and Health Insurances	Once per year	500,000 per year
Monitoring Plan			
1	Air Quality	2 times	1,000,000 per year
2	Ground water	2 times	1,000,000 per year
3	Environmental Monitoring report	2 times	500,000 lump sum

8.9. EMERGENCY RESPONSE SITUATIONS

8.9.1. Emergency Plan and Evacuation Coordinators

When drafting an emergency action plan, consider selecting a responsible individual to lead and coordinate the emergency plan and evacuation. It is critical that workers know who the coordinator is and understand that the coordinator has the authority to make decisions during emergencies.

The coordinator should be responsible for:

- Assessing the situation to determine whether an emergency exists and if so, requiring activation of emergency procedures;
- Supervising all emergency efforts in the area, including evacuating personnel;
- Ensuring that external emergency services, such as the local fire department or emergency medical service, are available and notified when necessary; and coordinating these services when they arrive on site; and
- Directing the shutdown of plant operations when required;
- Ensuring that only trained workers use portable fire extinguishers;
- Ensuring that routes for emergency vehicles and paths for emergency responder access are clear;
- Informing arriving emergency responders of the incident location, conditions, and status of occupants; and
- Having knowledgeable workers available to advise emergency responders.

8.9.2. **Evacuation Wardens**

In addition to a coordinator, designate and train workers as evacuation wardens to help move workers from danger to safe areas during an emergency. Generally, one warden for every 20 workers should be adequate, and the appropriate number of wardens should be available at all times during working hours.

Workers (e.g. coordinators or wardens) designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes. All workers should be made aware of workers with special needs who may require extra assistance; how to use the buddy system (i.e., procedure where two people, the "buddies", operate together as a single unit so that they are able to monitor and help each other); and hazardous areas to avoid during an emergency evacuation.

What type of training do workers need?

- Educate workers about the types of emergencies that may occur and train them in the proper course of action. The size of the workplace and workforce, processes used, materials handled, and the availability of on-site or outside resources will determine the specific training requirements.
- Ensure that all workers understand the function and elements of the emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures.
- Discuss any special hazards on site such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances.
- Clearly identify and communicate to workers specifically who will be in charge during an emergency to minimize confusion.

Topics for worker training:

- Individual roles and responsibilities;
- Threats, hazards, and protective actions;
- Notification, warning, and communications procedures;
- Means for contacting family members in an emergency;
- Any special tasks that workers may be called upon to perform during an emergency (if applicable);
- Evacuation, shelter, and accountability procedures;
- Location and use of common emergency equipment;
- Who is authorized to perform emergency shutdown procedures (if any);
- First-aid procedures;
- Protection against blood borne pathogens
- Respiratory protection (also see the Respiratory Protection standards)
- Methods for preventing unauthorized access to the site.

How often to train workers?

Review the plan with all workers and consider requiring annual training on the plan. Also conduct training after:

- Development of the initial plan;
- Hiring of new workers;
- Introduction of new equipment, materials, or processes into the workplace that affect evacuation routes;
- Reassignment of workers or changing their job duties;
- Change of layout or design of the facility; and
- Revision or updating of emergency procedures.

8.9.3. Worker Protection during High-Hazard and/or Unique Emergency Operations

During high-hazard or other unique emergency operations, an employer should work with the incident commander, unified command staff, and other health and safety personnel to limit worker exposures to all hazards through a combination of engineering and administrative controls and safe work practices, supplemented by PPE (personal protective equipment).

Employers should work with emergency response organizations in their jurisdictions to ensure the organizations are prepared to respond to and safely perform needed rescue operations that may pose unique or particularly hazardous conditions for emergency responders. This may include preparing, training, and exercising capabilities for response and rescue operations at steep angles or heights, or in the presence of chemical or other hazards such as in pits, tanks, manholes, boilers, furnaces, silos, hoppers, vaults, pipes, ducts, and bins or on slopes, communication towers, or other tall structures, including those under construction; in confined spaces, trenches, or underground; and over, near, or in water of various depths. Such operations may require special engineering and administrative controls, work practices, and PPE to protect emergency response and recovery workers.

8.9.4. Emergency Rescue and Fire Control Measurement

- Posting emergency numbers in the workplace for the fire brigade, fire department, and other appropriate emergency responders;
- Inviting external emergency responders to tour the facility to learn about hazards, the facility's processes, protective features and systems, and proper actions to take (or not to take) during emergencies. Tours should account for different shifts of firefighters;
- Coordinating tours for volunteer firefighters at times that accommodate their work schedules;
- Arranging training drills for responders and facility personnel to practice emergency procedures together;
- Designating a facility liaison to coordinate with emergency responders and keep them updated if hazards or processes change;
- Designating one or more emergency contact persons that are knowledgeable of the facility's hazards and processes and ensure their contact information is quickly accessible during emergencies;
- Designating staff responsible to inventory and maintain emergency equipment and supplies;
- Including a description of the alarm system in the emergency plan to be used to notify workers (including disabled workers) to evacuate and/or take other actions. The alarms used for different actions should be distinctive and might include horn blasts, sirens, or even public address systems;

- Identifying the site of an alternative facility for communications to be used in the event the primary facility is inaccessible because of emergencies, such as a fire or explosion; and
- Storing original or duplicate copies of accounting records, legal documents, worker emergency contact lists, building plans and other essential records at a secure on-site or off-site location.

Figure 8-3 Emergency Response Signature

Figure 8-4 Personal Protective Equipment (PPE)

8.10. ENVIRONMENTAL MANAGEMENT SUB-PLANS

The details of the following Environmental Management Sub-Plans are mentioned.

1. Air pollution control management plan
2. Waste management plan (Hazardous and Non-hazardous wastes)
3. Wastewater management plan
4. Water quality management plan
5. Energy and water efficiency plan
6. Grievance Redness Mechanism (GRM)
7. Corporate social responsibility (CSR) program

8.10.1. Air pollution control management plan

8.10.1.1. Objectives

The objective of the plan is to reduce and mitigate the emission of air pollutants and dust from the project activities following National Environmental Quality Emission guidelines (EQEG) and in their absence current World Health Organization (WHO) air quality guidelines for the most common pollutants.

8.10.1.2. Legal Requirements

The plan will be in line with Environmental Conservation Law (2012), Environmental Conservation Rules (2014), EIA Procedure (2015), Motor Vehicle Law (2015), National Environmental Quality (Emission) Guideline – relevant standards for air emissions (2015) and World Health Organization (WHO) air quality guidelines.

8.10.1.3. Implementation Schedule

The plan will be implemented for the operation phases of project.

8.10.1.4. Management Actions

The following mitigation measures will be implemented for reducing the air and dust emissions generated from the operation and decommissioning phases of the project. For the operation phase, the developers of industries and factories will be encouraged to adopt the following mitigation measures.

- ✓ Controlling the emissions of the factories and industries by different technologies and technical measures to follow Guidelines for Air Emissions described in National Environmental Quality Emission Guidelines
- ✓ Controlling greenhouse gas emissions by energy use efficiency, process modification, selection of fuels or other materials, the processing of which may result in less emission, application of emission control techniques, if possible;

8.10.1.5.Budget

For the operation phase, total 1,500,000 Ks per year is budgeted for implementing Environmental Management Plan and Monitoring Plan.

8.10.2. **Wastewater management**

8.10.2.1.Objectives

The objective of the plan is to manage the wastewater generated from project activities to avoid or reduce the impacts on soil, surface water, ground water and public health and any other impacts and nuisance.

8.10.2.2.Legal Requirements

The plan will be in line with Environmental Conservation Law (2012), Environmental Conservation Rules (2014), National Environmental Policy of Myanmar (2019), EIA Procedure (2015), National Environmental Quality (Emission) Guideline – Site Runoff and Effluent Levels, Public Health Law (1972), and Yangon City Development Law (2018).

8.10.2.3.Implementation Schedule

The plan will be implemented for the operation phases of project.

8.10.2.4.Management Actions

- ✓ Adopting the proper waste management system (including hazardous and non-hazardous wastes);
- ✓ Regular maintenance and check of the machineries, vehicles and sources which can cause oil spill and hazardous chemical spills (if found, the immediate repair and cleansing will be conducted);
- ✓ Daily checking to earth moving machines by motor transport officer before start engines;
- ✓ Providing a good pavement at machine workshop and garage;
- ✓ Providing the proper sanitation system for the project staff;
- ✓ Maintaining on-site sanitation facilities in good condition and encouraging to use;
- ✓ Preventing sewer leakage and implementation of adequate final disposal of sludge as permitted by the local municipality;
- ✓ Checking all development/activity - related machinery thoroughly not to leak oils on the ground and regular maintenance of the machinery;
- ✓ Managing car wash areas and other places handling oil activities within the site and controlling the drains from these areas;
- ✓ Treating domestic and industrial wastewater to reach the standards stipulated in National Environmental Quality (Emission) Guidelines before disposal;

8.10.2.5.Budget

For the operation phase, total 2,500,000 Ks per year is budgeted for implementing Environmental Management Plan and Monitoring Plan.

8.10.3. Waste management (Hazardous & Non-hazardous)

8.10.3.1.Objectives

The objective of the plan is to manage the waste generated from project activities to avoid any environmental damages and to monitor the effectiveness of the management plan and actions.

8.10.3.2.Legal Requirements

The plan will be in line with Environmental Conservation Law (2012), Environmental Conservation Rules (2014), National Environmental Policy of Myanmar (2019), EIA Procedure (2015), National Environmental Quality (Emission) Guideline, Public Health Law (1972), and Yangon City Development Law (2018).

8.10.3.3.Implementation Schedule

The plan will be implemented during the operation phases of project.

8.10.3.4.Management Actions

The following management actions for hazardous and non-hazardous wastes will be carried out. The waste management will be sustainable and based on the principle of 3 Rs (Reduce, Reuse, Recycle) practice.

For non-hazardous solid wastes, the following practices will be exercised as management actions:

- ✓ The size of the bin center will be big enough for storing the amount of waste generated for two days.
- ✓ The routes for garbage collection trucks to get easy access to the bin center will be considered and made.
- ✓ Locating the separate collection dust bins at the bin center for separately disposing the wastes and recycle products.
- ✓ The bad smell from walls and leakage of contaminated water will be avoided.
- ✓ Collection of solid waste by Pollution Control and Cleansing Department – PCCD (Urban Environmental Conservation and Cleansing), Yangon City Development Committee on a regular basis (on-call system for construction waste).

For hazardous solid wastes, in addition to the above-mentioned measures for nonhazardous solid waste, the following practices will be exercised as management actions:

- ✓ Educating workers and staff about hazardous wastes and waste management;
- ✓ Identifying and characterizing the waste as hazardous waste;
- ✓ Providing safety shoes, masks, face shields and tools with the workers/cleaners (who have been trained to manage hazardous wastes) to handle the waste;
- ✓ Segregation and collection will be made on the day of generation of the waste and sending for the transit storage for facilitating the storage at the place of “earmarked” storage point;
- ✓ Storing hazardous waste in the specific containers used for storage (the date of storage is stated specifically, and each container contains the label and tag of the waste stored);
- ✓ Clear mention of the content and composition of the chemicals for hazardous chemicals;

- ✓ The waste storage area will be away from the place of generation and specifically marked for the purpose of storage;
- ✓ Cleaning the waste storage area by authorized cleaning staff at fixed intervals;
- ✓ Avoiding the use of containers with leakage;
- ✓ Keeping hazardous waste containers closed at all times except to add waste;
- ✓ Storing hazardous wastes with secondary containment;
- ✓ Making space available in between the containers of different characteristics;
- ✓ Having all the equipment for controlling the pollution, water – spray systems, and alarm systems to caution others at the storage area;
- ✓ Carrying out regular inspections to find the deficiencies of the storage systems;
- ✓ Availability of an extra number of containers at the place of storage to meet the exigencies of the demand or excess generation of the wastes;
- ✓ Maximum quantity permissibility depends upon the type and characteristics of the waste intended to be stored;
- ✓ The maximum quantity will not be more than a truckload;
- ✓ Taking care of loading waste container to the transportation truck (Transportation and disposal will be carried out by Pollution Control and Cleansing Department – PCCD (Urban Environmental Conservation and Cleansing))
- ✓ Availability of first-aid kit and cleaning materials for emergency spills.

8.10.3.5.Budget

For the operation phase, total 6,000,000 Ks per year is budgeted for implementing Environmental Management Plan and Monitoring Plan.

8.10.4. **Water quality management**

8.10.4.1.Objectives

The objective of the plan is to protect the surface and ground water quality from polluting due to solid waste and wastewater disposal and other project activities. Water will be treated by the standard treatment process, coagulative precipitation and rapid filtration process for distribution to Plus World.

8.10.4.2.Legal Requirements

The plan will be in line with Environmental Conservation Law (2012), Environmental Conservation Rules (2014), EIA Procedure (2015), and National Environmental Quality (Emission) Guideline.

8.10.4.3.Implementation Schedule

The plan will be implemented for the operation phases of project.

8.10.4.4.Management Actions

The following actions will be taken to manage and monitor the water quality. These actions are also the management actions for solid waste management and wastewater management plans mentioned above.

- ✓ Regular solid waste collection and disposal by YCDC;

- ✓ Avoidance of hazardous wastes disposal in drinking-water sources;
- ✓ Regular maintenance and check of the machineries, vehicles and sources which can cause oil spill and hazardous chemical spills (if found, the immediate repair and cleansing will be conducted);
- ✓ Systematic storage of fuels at handling and disposal of new oil and used oil waste;
- ✓ Providing a good pavement at machine workshop and garage;
- ✓ Providing a proper sanitation system for the project staff;
- ✓ Preventing sewer leakage and implementation of adequate final disposal of sludge as permitted by the local municipality;
- ✓ Checking all development/activity - related machinery thoroughly not to leak oils on the ground and regular maintenance of the machinery;
- ✓ Managing car wash areas and other places handling oil activities within the site and controlling the drains from these areas;
- ✓ Treating domestic and industrial wastewater to reach the standards stipulated in National Environmental Quality (Emission) Guidelines before disposal;
- ✓ Measuring the quality of surface water which will receive the treated wastewater from Plus World.

8.10.4.5.Budget

The budgets allocated for solid waste management and wastewater management plans will be covering the water quality management and monitoring.

8.10.5. **Corporate Social Responsibility (CSR)**

8.10.5.1.Objectives

The objective of the program is to fulfill the commitment related to CSR program made by the developer in his/her business proposal to Myanmar Investment Commission (MIC). It is also intended to meet the needs of the community and project directly affected people by providing assistance in health, education and infrastructure development to be a sustainable development.

8.10.5.2.Legal Requirements

There is no legal requirement but the developer has to fulfill the commitment related to CSR program made in his/her business proposal to Myanmar Investment Commission (MIC).

8.10.5.3.Implementation Schedule

The plan will be implemented for the operation phases of project.

8.10.5.4.CSR Programs of Project Proponent

The Plus World will accept Corporate Social Responsibility (CSR) for the communities living near to the project. The CSR programs will cover:

- ❖ Education Sector: Construction and upgrading school building and facilities, providing necessities for students (for instance, school uniforms, books, pencils).

- ❖ Healthcare Sector: Building dispensary/healthcare center at the appropriate village where villagers from surrounding villages can access.

- ❖ Infrastructure Development: Upgrading of the roads which connect the project site and the village nearby.

CSR activities have the objective to uplift quality of life and gain favorable relations from all communities in the operation area. The CSR program for Plus World Company Limited consists of three main sectors; health, education and regional development sectors. CSR activities are conducted in compliance with MIC's guideline for implementation of CSR program.

Plus, World Company Limited will contribute 2% of Net Profit for cooperate social responsibility (CSR) fund in which 30% of fund will be used for education to support the schools and students within the region. The regional healthcare programs for regional mothers and children will be use 30% of fund. The regional transportation development will be use 20% of fund. The last percent will be used for social and environmental programs according to the instruction of regional government. The CSR activity is described in Table 8-7.

Table 8-7 CSR Plan of Plus World Company Limited

No.	Particle	Contribution
1.	Regional Education Supports (Schools, Students)	30%
2.	Regional Healthcare (especially for mothers and children)	30%
3.	Regional Transportation Development	20%
4.	Social and Environmental Programs	20%

8.11. GRIEVANCE REDRESS MECHANISM (GRM)

People who live near the project affected area or stakeholders can complain about the problems and impacts that they suffer; they can complain though Grievance Committee, which includes the responsible persons of Plus World Co., Ltd. representative from Mingalardon Township and representative from General Administration Department (Mingalardon Township). Small issues will be solved at the Grievance Committee stage and other unsolved problems will be submitted to higher responsible authorities and finally the responsible person decided by the court in legal terms. The following diagram shows the steps of Grievance Redress Mechanism of Proposed Factory Project.

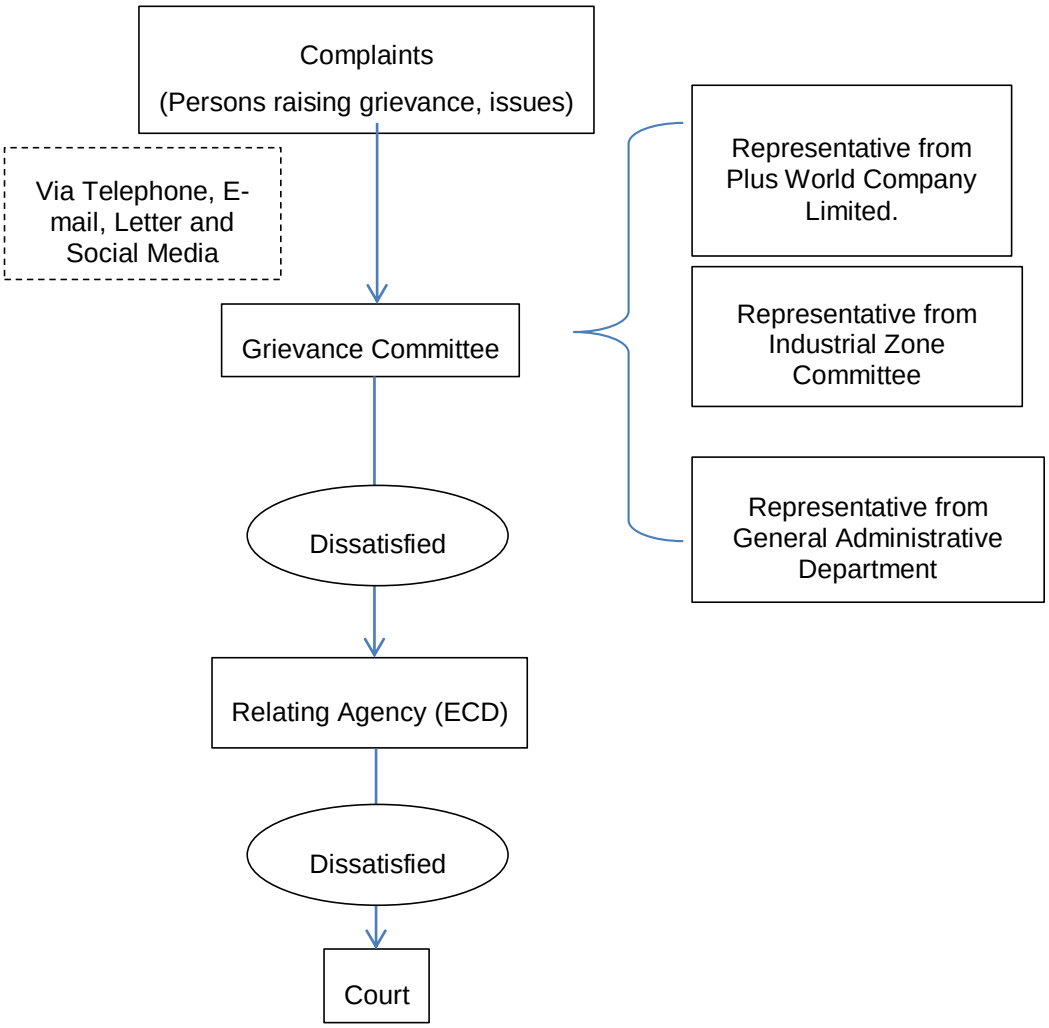

Figure 8-5 Grievance Redress Mechanism flow diagram

CHAPTER 9
PUBLIC CONSULTATION PROCESS

9.1. PUBLIC DISCLOSE

Informing the local public about project and answering public concerns is the effective way to achieve the information purpose, to seek views of the participation and partnership purpose. Although this is the effective way, the public consultation cannot be held depending on Covid-19 cases and the political situation in country.

During the preparation of this report, the second wave of Covid-19 disease becomes serious in Yangon. The Ministry of Health and Support declared to avoid gathering more than 5 people to avoid close contact and to prevent spreading of disease. Moreover, the government declared the “Stay Home” announcement and limited the travelling one township to another township to control the spreading of diseases. Moreover, the pollical situation changes are affecting to carry out this process.

Depending on the current conditions, Myanwei Environmental Solution Company Limited; third party, declared the information of the project on their social media page in 31st May, 2020. The company warmly welcomes the suggestion, complain and comments from the public, organization and stakeholder through via mailing, comment, telephoning and messengers.

[Social media link is as follow:

https://m.facebook.com/story.php?story_fbid=304538437973686&id=107000201060845]

Figure 9-1 Photo of Project Announcement on social media

9.2. PUBLIC CONSULTATION MEETING

Public consultation during preparation of EIA report was conducted on 9, September 2022. The project's stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EIA process for environmental and social clearance and issuing operation permits for proposed development projects. For this company, relevant key offices at the national level are Environmental Conservation Department (ECD). Relevant key office at the regional level is Yangon City Development Committee (YCDC), General Administrative Department, Fire Department, General Labor Law Inspection Department and, Public Health Department.

Public consultation carried out after the presentation on the project, followed by questions, answers and discussion. Daw Su Myat Hlaing presented EIA study and findings from Myanwei. Summary of public consultation meeting is presented Table 9-1.

Table 9-1 Summary of public consultation meeting

Time and Date	Friday, 9 September 2022 10:00-12:00
Venue	No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region
Agenda	• Presentation on the Background Information of Project, • Project Description, • Impact Assessment, Environmental Mitigation • Environmental Management Plan and Monitoring Plan • Site survey and performances of Plus World Co.,Ltd • Received and Answer from feedback of participants
Organized by	Myanwei Environmental Solutions Company Limited

After the presentation, the floor opened for questions and answers. Most of the government stakeholders are suggested for good monitoring measure during operation.

Stakeholders	**Adress**	**Opinion and suggestion**
U Zin Ko	Pearl Housing	To control the air emission from the and noise from the project site.
Daw Hnin Su Lwin	Pearl Housing	To Control the traffic from the project site.
U Soe Moe Hlaing (Factory Manager)	Plus World Co.,Ltd	We must be prepared for your suggestion. And we will follow the environmental impact assessment (EIA) report.

Figure 9-2 Public Consultation Meeting Photo

CHAPTER 10
CONCLUSIONS

10.1. CONCLUSIONS

The investment amount of the proposed project is 100,000 MMK. The project is 100% local investment. The proposed factory is located at Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar and the total land area is 3.968 acres. The project will benefit the job opportunities. The project aims to manufacture of purified drinking water.

In terms of the living environment, most of the impacts could be controlled and limited in and around the project area. Major negative impacts such as but not limited to air pollution, surface water/ground water contamination, wastewater generation, solid waste generation, traffic flow are expected for operation and decommissioning phases but their significance levels are low. However, implementation of appropriate mitigation and management plan will minimize these impacts.

In terms of the natural environment, no sensitive ecological protection area is involved. However, implementation of appropriate mitigation measures, such as creating green areas and sodding of public spaces as soon as possible and keeping the existing environmental conditions as much as possible will minimize the impact on the ecosystem.

In terms of the social environment, the existing social infrastructures and services, risks for infectious diseases, occupational health and safety and community health and safety are expected. However, implementation of appropriate mitigation and management plan, during operation phase will minimize these impacts.

On the other hand, some positive impacts of the Project such as increase in job opportunities and improvement of social infrastructure are also expected. There are no land issues for the project and the community living nearby villages are pleased to see the project implementation as early as possible. They would like to get employment in the project.

The residual impacts, effects on watercourses, groundwater contamination, air pollution, dust emission, community health and safety, are expected but their level of significance is minimal and minor. Therefore, no additional research, monitoring, and/or recovery initiatives are considered and these impacts are negligible to the overall baseline status of the resource.

The cumulative impacts typically result from the actions of multiple stakeholders, it is necessary to engage with these stakeholders for effective collaboration and coordination. Therefore, the project developer plans to initiate collaborative engagement in impact management with others including project proponents, government agencies, affected communities, Environmental NGOs, conservation groups, and expert groups for the programs such as collaborative protection and enhancement of regional areas to preserve biodiversity, collaborative engagement in other regional cumulative impact management strategies, and participation in regional monitoring programs to assess the realized cumulative impacts and efficacy of management efforts, wherever applicable.

In consideration of the result of the EIA study for the Project, the Environmental Management Plans (EMPs) including adequate mitigation measures to reduce the negative impacts and Environmental Monitoring Plan including budget allocation are proposed for each phase of the Project: operation and decommissioning phases.

It is confirmed that the environmental, social and health impacts of the Project were assessed, and the Environmental Management Plan formulated properly. In the process of EIA, opportunity of public involvement was ensured and comments from the public and MONREC were reflected into the EIA Report.

REFERENCES

1. "Groundwater Quality of Open Wells and Tube Wells around Amalner Town of Jalgaon District, Maharashtra, India" by V.T. PATIL* and P.R. PATIL, Department of Chemistry, Z.B.Patil College, Dhule 424 002, Maharashtra, India School of Environmental and Earth Sciences, North Maharashtra University Jalgaon-425 001, Maharashtra, India vijaypatil14@rediffmail.com, Received 8 February 2010; Accepted 20 April 2010

2. Environmental Impact Assessment Procedure, Government of the Republic of the Union of Myanmar Ministry of Environmental Conservation and Forestry, Notification No-616/2015, The 3rd Waning Day or Nattaw, 1377 M.E, Naypyitaw (29 December, 2015)

3. https://pdfs.semanticscholar.org/ce4e/874284982e5b7603b0373a554c786c763c8e.pdf

4. National Environmental Quality (Emission) Guidelines, 2015

APPENDIX A
Relevant Official Letters

တိုင်းဒေသကြီးညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး
ရန်ကုန်မြို့

အမှတ် ၁၀ (ဂျူဗလီ) ၅၅လမ်း(ကုန်သည်လမ်းနှင့် ကမ်းနားလမ်းကြား)၊ ဗိုလ်တထောင်မြို့နယ်၊ Post Code-11161
ဖုန်း – ၀၁ ၈၂၀၃၈၃၈၊ ဖက်စ်- ၀၁ ၈၂၀၃၈၃၉၊ အီးမေးလ် - ygnecd.moecaf@gmail.com

စာအမှတ်၊ ရက / EIA / ၅ (၂) (၂၀၆၂ /၂၀၂၂)
ရက်စွဲ၊ ၂၀၂၂ ခုနှစ်၊ ဩဂုတ်လ ၂ ရက်

သို့

မန်နေဂျင်းဒါရိုက်တာ
Plus World Company Limited
မြေကွက်အမှတ် (၄၁၀-ဘီ/ ၇၅-က)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ ဘီ)၊ ပုလဲအိမ်ရာ၊
မင်္ဂလာဒုံမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး

အကြောင်းအရာ။ **Plus World Company Limited ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်း လုပ်ငန်းနှင့်ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအား အတည်ပြုကြောင်း ထပ်ဆင့်အကြောင်းကြားခြင်း**

ရည်ညွှန်းချက်။

(၁) ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၁-၁၀-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ရက/ EIA/ ၅(၃) (၁၉၇၈/ ၂၀၂၁)

(၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ နေပြည်တော်၏ ၂၂-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/၇ အတည်ပြု (SR) (၁၀၇၈/ ၂၀၂၂)

(၃) သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၂၉-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ် (သစ်တော) ၃ (၂)/ ၁၆ (ဃ) (၂၀၇၂/ ၂၀၂၂)

(၄) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ နေပြည်တော်၏ ၁၄-၇-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/၇/အတည်ပြု (SR) (၁၃၄၁/ ၂၀၂၂)

(၅) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ နေပြည်တော်၏ ၁၄-၇-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/၇/အတည်ပြု (SR) (၁၃၄၂/ ၂၀၂၂)

၁။ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ ဘီ)၊ မြေကွက်အမှတ် (၄၁၀-ဘီ/ ၇၅-က)၊ မြေဧရိယာ (၃.၉၆၈) ဧကပေါ်တွင် အကောင်အထည်ဖော်ဆောင်ရွက်လျက်ရှိသည့် Plus World Co.,Ltd. ၏ ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းနှင့်

၂

ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) ကို စိစစ်သုံးသပ်နိုင်ပါရန် ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော် (ရုံးချုပ်) သို့ ရည်ညွှန်း (၁) ပါစာဖြင့် တင်ပြချက်အရ ဦးစီးရုံးချုပ်မှ စိစစ်သုံးသပ်ပြီး အတည်ပြုပြန်ကြားခွင့်ပြုပါရန် ပြည်ထောင်စု ဝန်ကြီးရုံးသို့ ရည်ညွှန်း (၂) ပါစာဖြင့် တင်ပြခဲ့ရာ ပြည်ထောင်စုဝန်ကြီးရုံးမှ ပြန်ကြားခွင့်ပြုကြောင်း ရည်ညွှန်း (၃) ပါစာဖြင့် အကြောင်းကြားလာသဖြင့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအား အတည်ပြုကြောင်း ဆက်လက် အကြောင်းကြားပါရန် ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ ရည်ညွှန်း (၄) နှင့် ရည်ညွှန်း (၅) ပါစာများဖြင့် အကြောင်းကြားလာပါသည်။

၂။ သို့ဖြစ်ပါ၍ Plus World Co.,Ltd. ၏ ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာ (Scoping Report) အား အတည်ပြုပါကြောင်းနှင့် အောက်ပါအတိုင်း ဆက်လက်ဆောင်ရွက်သွားရန် အကြောင်းကြားအပ်ပါသည်-

(က) အဆိုပြုတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာနှင့် ဆောင်ရွက်မည့် လုပ်ငန်းတာဝန်များ (Terms of Referemce – TOR) ကို အခြေခံ၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် (၅၅)၊ (၅၆)၊ (၅၇)၊ (၅၈)၊ (၅၉)၊ (၆၀)၊ (၆၁)၊ (၆၂)၊ (၆၃)၊ (၆၄)၊ (၆၅) ပါ ဖော်ပြချက်များ နှင့်အညီ ပြုစုရေးဆွဲတင်ပြရန်၊

(ခ) အဆိုပါသတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲပြုစုထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသို့ တင်ပြအတည်ပြုချက်ရယူရန်။

(ကျော်ဆန်းနိုင်)
ညွှန်ကြားရေးမှူး

မိတ္တူကို
ရုံးလက်ခံ၊ မျှောစာတွဲ၊ အမှုတွဲချုပ်

ရည်ညွှန်း(၃)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပြည်ထောင်စုဝန်ကြီးရုံး

စာအမှတ်၊(သစ်တော)၃(၂)/၁၆(ဃ)(၂၀၇၂ / ၂၀၂၂)
ရက်စွဲ ၊ ၂၀၂၂ ခုနှစ်၊ ဇွန် လ ၂၉ ရက်

အကြောင်းအရာ။ **Plus World Co., Ltd. မှ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းအတွက် တင်ပြလာသော နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအပေါ် အတည်ပြုနိုင်ပါကြောင်း စိစစ်တင်ပြခြင်းကိစ္စ**

ရည်ညွှန်းချက်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၂၂-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ-၁/ဂ အတည်ပြု(SR)(၁၀၇၈/၂၀၂၂)

Plus World Co., Ltd. မှ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ဘီ)၊ မြေကွက်အမှတ် (၄၁၀-ဘီ/ ဂ၅-က) မြေဧရိယာ ၃.၉၆၈ ကေတွင် အကောင်အထည်ဖော်ဆောင်ရွက်မည့် သောက်ရေသန့် ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းအတွက် တင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာကို အတည်ပြုပြန်ကြားခွင့်ပြုပါရန်နှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာရေးဆွဲ ဆောင်ရွက်ရာတွင် အလေးထားရမည့်အချက်များအား ထည့်သွင်းဆန်းစစ်ဆောင်ရွက်သွားရန် လိုအပ်ပါကြောင်းပြန်ကြားနိုင်ရေး ရည်ညွှန်းပါစာဖြင့် တင်ပြလာခြင်းအပေါ် ပြည်ထောင်စုဝန်ကြီး၏ မိန့်မှတ်ချက်အရ ဥပဒေ၊ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ပြန်ကြားရန်အကြောင်းကြားအပ်ပါသည်။

ပြည်ထောင်စုဝန်ကြီး(ကိုယ်စား)
(လှိုင်မင်းမောင်၊ လက်ထောက်အတွင်းဝန်)

ညွှန်ကြားရေးမှူးချုပ်
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန

ရည်ညွှန်း(၂)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးချုပ်ရုံး

စာအမှတ်၊ အီးအိုင်အေ-၁/ရ အတည်ပြု(SR)(၁၀၅၈ /၂၀၂၂)
ရက်စွဲ ၊ ၂၀၂၂ ခုနှစ် ဇွန်လ ၂၂ ရက်

သို့

ပြည်ထောင်စုဝန်ကြီးရုံး
သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ရုံးအမှတ် (၂၈)

အကြောင်းအရာ။ **Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်း နှင့်ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာအပေါ် အတည်ပြုနိုင်ပါကြောင်း စိစစ်တင်ပြခြင်း**

ရည်ညွှန်းချက်။ (၁) အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာ ပူးပေါင်းလုပ်ငန်းအဖွဲ့၏ ၂၈-၂-၂၀၂၀ ရက်စွဲပါစာအမှတ်၊ ဝဝ၁/MIC(OSS)/ဝ၁ (၁၃/၂၀၂၀)

(၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၁၄-၇-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ- ၂/၄-က(၁၂၂၄/၂၀၂၁)

(၃) ညွှန်ကြားရေးမှူးရုံး၊ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၁-၁၀-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ရက/EIA/ ၅(၃)(၁၉၇၈/ ၂၀၂၁)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ်(၅၃၂/ဘီ)၊ မြေကွက်အမှတ်(၄၁၀-ဘီ/၇၅-က)၊ Plus World Co., Ltd. ၏ မြေဧရိယာ (၃.၉၆၈) ကေအတွင်း ဆောင်ရွက်မည့် ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းအား ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာ ရေးဆွဲဆောင်ရွက်ရန် ရည်ညွှန်း(၁)ပါစာဖြင့် သဘောထားမှတ်ချက်ပြန်ကြားချက်အရ ရည်ညွှန်း(၃)ပါစာဖြင့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ ရေးသားပြုစုတင်ပြလာမှုအပေါ် IEE/ EMP ဌာနတွင်း စိစစ်သုံးသပ်ရေးအဖွဲ့၏ ၁၆/၂၀၂၂ ကြိမ်မြောက် အစည်းအဝေးသို့ တင်ပြဆွေးနွေးခဲ့ပါသည်။

၂။ တင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာအား တတိယအဖွဲ့အစည်းဖြစ်သည့် Myanwei Environmental Solutions Co., Ltd မှ တာဝန်ယူပြုစုရေးသားမည်ဖြစ်ကြောင်း တတိယအဖွဲ့အစည်း ရွေးချယ်တင်ပြလာခြင်းအပေါ် ကန့်ကွက်ရန်မရှိကြောင်း ရည်ညွှန်း(၂)ပါစာဖြင့် သဘောထားပြန်ကြားခဲ့သဖြင့် ရေးဆွဲတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်

J

ခံစာတွင် စီမံကိန်းအကြောင်းအရာအကျဉ်းချုပ်(မြန်မာ-အင်္ဂလိပ်)၊ စီမံကိန်းအကြောင်းအရာ အချက်အလက်များ၊ တတိယအဖွဲ့အစည်းဆိုင်ရာဖော်ပြချက်၊ မူဝါဒ၊ ဥပဒေဆိုင်ရာနှင့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်၊ စီမံကိန်းအကြောင်းအရာနှင့် အခြားနည်းရွေးချယ်ခြင်း၊ လက်ရှိပတ်ဝန်းကျင်အခြေအနေဆိုင်ရာဖော်ပြချက်၊ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာထိခိုက်နိုင်မှုများအား ဆန်းစစ်ဖော်ထုတ်ခြင်းနှင့် လျော့နည်းသက်သာစေမည့် နည်းလမ်းများ၊ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းနှင့် ပတ်သက်၍ အသိပေးသတင်းထုတ်ပြန်ခြင်း၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအဆင့်တွင် ဆန်းစစ်မည့်အချက်အလက်များနှင့် တိုင်းတာမည့်ကာလ သတ်မှတ်ချက်များစသည့် အချက်အလက်များအား အခန်းအလိုက်ဖော်ပြထားပြီး ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် (၄၈၊ ၄၉၊ ၅၀၊ ၅၁၊ ၅၂၊ ၅၃)ပါ အချက်အလက်များနှင့်ကိုက်ညီသဖြင့် အတည်ပြုနိုင်ကြောင်း စိစစ်တွေ့ရှိရပါသည်။

၃။ သို့ဖြစ်ပါ၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ဘီ)၊ မြေကွက်အမှတ်(၄၁၀-ဘီ/၀၅-က)၊ မြေဧရိယာ (၃.၉၆၈) ဧကတွင် အကောင်အထည်ဖော်ဆောင်ရွက်မည့် Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းနှင့် ပတ်သက်၍ တင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာကို အတည်ပြုပြန်ကြားခွင့် ပြုပါရန်နှင့် ပူးတွဲပါအချက်များအားပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာရေးဆွဲ ဆောင်ရွက်ရာတွင် အလေးထားထည့်သွင်းဆန်းစစ်ဆောင်ရွက်သွားရန် လိုအပ်ပါကြောင်း ပြန်ကြားခွင့်ပြုနိုင်ပါရန် လမ်းညွှန်မှုခံယူ တင်ပြအပ်ပါသည်။

(လှမောင်သိန်း)
ညွှန်ကြားရေးမှူးချုပ်

မိတ္တူကို
ရုံးလက်ခံ၊ မျှောစာတွဲ

ရည်ညွှန်း(၁)

တိုင်းဒေသကြီးညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး
ရန်ကုန်မြို့
အမှတ် ၁၅၊ ၅၅ လမ်း(ကုန်သည်လမ်း နှင့် ကမ်းနားလမ်းကြား)၊ ဗိုလ်တထောင်မြို့နယ်၊ Post Code-11161
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စာအမှတ်၊ ရက/ EIA / ၅ (၃) (၁၉၇၈ /၂၀၂၁)
ရက်စွဲ၊ ၂၀၂၁ ခုနှစ်၊ အောက်တိုဘာလ ၁ ရက်

သို့

ညွှန်ကြားရေးမှူးချုပ်
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
နေပြည်တော်

အကြောင်းအရာ။ Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ ရေးဆွဲတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာ (Scoping Report) အပေါ် စိစစ်သဘောထားပြန်ကြားပေးနိုင်ပါရန် အစီရင်ခံတင်ပြခြင်း

ရည်ညွှန်းချက်။ (၁) အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာပူးပေါင်းလုပ်ငန်းအဖွဲ့၏ ၂၈-၂-၂၀၂၀ ရက်စွဲပါစာအမှတ်၊ ၀၀၁/ MIC (OSS)/ ၀၁(၁၃/၂၀၂၀)

(၂) Plus World Co., Ltd. ၏ ၁၆-၆-၂၀၂၁ ရက်စွဲပါတင်ပြစာ

(၃) Plus World Co., Ltd. ၏ ၁၅-၇-၂၀၂၁ ရက်စွဲပါတင်ပြစာ

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ဘီ)၊ မြေကွက်အမှတ် (၄၁၀-ဘီ/၇၅-က) တွင် အကောင်အထည်ဖော်ဆောင်ရွက်လျက်ရှိသော Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (Environmental Impact Assessment – EIA) ရေးဆွဲဆောင်ရွက်ရန် အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာပူးပေါင်းလုပ်ငန်းအဖွဲ့မှ မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်ရုံးသို့ ရည်ညွှန်း (၁) ပါစာဖြင့် သဘောထားမှတ်ချက်ပြန်ကြားခဲ့ပါသည်။

၂။ အဆိုပါကိစ္စနှင့်ပတ်သက်၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (Environmental Impact Assessment – EIA) ကို တတိယအဖွဲ့အစည်းဖြစ်သော Myanwei Environmental Solutions Co., Ltd. ဖြင့် ဌားရမ်းပြီး ရေးဆွဲဆောင်ရွက်နိုင်ရန် ကုမ္ပဏီမှ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ နေပြည်တော်သို့ ရည်ညွှန် (၂) ပါစာဖြင့် တင်ပြခဲ့ပြီး တတိယအဖွဲ့အစည်း

၂

ဖြစ်သည့် Myanwei Environmental Solutions Co., Ltd. မှ Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းအတွက် ရေးဆွဲပြုစုထားသည့် နယ်ပယ်အတိုင်းအတာ သတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) အား ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဦးစီးဌာနသို့ ရည်ညွှန်း (၃) ပါစာဖြင့် တင်ပြလာပါသည်။

၃။ သို့ဖြစ်ပါ၍ Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်းအတွက် တင်ပြလာသော နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) အား ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ နေပြည်တော်မှ လိုအပ်သလို ဆက်လက်ဆောင်ရွက်နိုင်ပါရန် ပေးပို့အစီရင်ခံတင်ပြအပ်ပါသည်။

ပူးတွဲ - နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) စာရွက်စာတမ်း (၁) အုပ်နှင့် ဒီဂျီတယ် ပုံစံ (CD ဖြင့်)၊ Submission Form (၁) စုံ

ခင်သီတာတင်
၁၂/၁၀/၂၀၂၁

(ခင်သီတာတင်)
ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး

မိတ္တူကို

ညွှန်ကြားရေးမှူး၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ရေးဌာန၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီး ဌာန၊ နေပြည်တော်

အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာပူးပေါင်းလုပ်ငန်းအဖွဲ့၊ ရန်ကုန်မြို့

ရုံးလက်ခံ၊ မျှောစာတွဲ၊ အမှုတွဲချုပ်

ရည်ညွှန်း(၄)

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးရုံး
လက်ခံရရှိသည့်နေ့ ၂၁/၃/၂၀၂၂
စာအမှတ် ၂၅၈၉/၂၀၂၂

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးရုံး

စာအမှတ်၊အီးအိုင်အေ-၁/၇/အတည်ပြု(SR)(၁၃၄၁ /၂၀၂၂)
ရက်စွဲ ၊ ၂၀၂၂ ခုနှစ် ဇူလိုင်လ ၁၄ ရက်

သို့

ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး

အကြောင်းအရာ။ **Plus World Co., Ltd. ၏ သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်း လုပ်ငန်းနှင့်ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ အပေါ် အတည်ပြုကြောင်းစာကို ထပ်ဆင့်ပေးပို့ရန် အကြောင်းကြားခြင်း**

ရည်ညွှန်းချက်။ (၁) အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာ ပူးပေါင်းလုပ်ငန်းအဖွဲ့၏ ၂၈-၂-၂၀၂၀ ရက်စွဲပါစာအမှတ်၊ ၀၀၁/MIC(OSS)/၀၁ (၁၃/၂၀၂၀)

(၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၁၄-၇-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ- ၂/၄-က(၁၂၂၄/၂၀၂၁)

(၃) ညွှန်ကြားရေးမှူးရုံး၊ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၁-၁၀-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ရက/EIA/ ၅(၃)(၁၉၇၈/၂၀၂၁)

(၄) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၂-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ- ၁/၇ အတည်ပြု (SR)(၁၀၇၈/၂၀၂၂)

(၅) ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၂၉-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ် (သစ်တော) ၃(၂)/၁၆(ဃ)(၂၀၇၂/၂၀၂၂)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရုပ်ကွက်အမှတ်(၅၃၂/ဘီ)၊ မြေကွက်အမှတ်(၄၁၀-ဘီ/၇၅-က)၊ Plus World Co., Ltd. ၏ မြေဧရိယာ (၃.၉၆၈) ဧကအတွင်း ဆောင်ရွက်မည့် ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းကို ဝန်ထမ်းအင်အား (၄၀)ဦးဖြင့် လုပ်ငန်းဆောင်ရွက်လျက်ရှိပါကြောင်း၊ ထုတ်လုပ်မှုပမာဏမှာ တစ်ရက်လျှင် သောက်ရေသန့် ၇၅၀၀၀ လီတာ ထုတ်လုပ်မည်ဖြစ်ကြောင်း ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။

၂။ အဆိုပြုလုပ်ငန်းအတွက် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာကို Myanwei Environmental Solutions Co., Ltd မှ တာဝန်ယူပြုစုရေးသားပြီး ကုမ္ပဏီမှ စိစစ်ပေးနိုင်ပါရန် ရဲ့ညွှန်း(၃)ပါစာဖြင့် အစီရင်ခံစာတင်ပြလာခြင်းအပေါ် စိစစ်ရာ၌ စီမံကိန်းအကြောင်းအရာ အကျဉ်းချုပ်(မြန်မာ-အင်္ဂလိပ်)၊ စီမံကိန်းအကြောင်းအရာ အချက်အလက်များ၊ တတိယအဖွဲ့အစည်း ဆိုင်ရာဖော်ပြချက်၊ မူဝါဒ၊ ဥပဒေဆိုင်ရာနှင့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်၊ စီမံကိန်းအကြောင်းအရာ နှင့် အခြားနည်းရွေးချယ်ခြင်း၊ လက်ရှိပတ်ဝန်းကျင်အခြေအနေဆိုင်ရာ ဖော်ပြချက်၊ ပတ်ဝန်းကျင် နှင့် လူမှုရေးဆိုင်ရာ ထိခိုက်နိုင်မှုများအား ဆန်းစစ်ဖော်ထုတ်ခြင်းနှင့် လျော့နည်းသက်သာစေမည့် နည်းလမ်းများ၊ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းနှင့်ပတ်သက်၍ အသိပေးသတင်းထုတ်ပြန် ခြင်းနှင့် ဒေသခံပြည်သူထံမှ သဘောထားရယူခြင်း၊ ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းအဆင့် တွင် ဆန်းစစ်မည့် အချက်အလက်များနှင့် တိုင်းတာမည့်ကာလ သတ်မှတ်ချက်များစသည့် အချက်အလက်များအား အခန်းအလိုက် ဖော်ပြထားပြီး ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် (၄၈၊၄၉၊၅၀၊၅၁၊၅၂၊၅၃)ပါ အချက်အလက်များနှင့် ကိုက်ညီသဖြင့် အတည်ပြုနိုင်ကြောင်း စိစစ်တွေ့ရှိရသည့်အတွက် ပြည်ထောင်စုဝန်ကြီးရုံးသို့ ရည်ညွှန်း(၄) ပါစာဖြင့် တင်ပြအတည်ပြုချက်ရယူခဲ့ရာ ရည်ညွှန်း (၅) ပါ စာဖြင့် ပြန်ကြားခွင့်ပြုခဲ့ပါသည်။

၃။ သို့ဖြစ်ပါ၍ ညွှန်ကြားရေးမှူး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ရန်ကုန်တိုင်းဒေသကြီး အနေဖြင့် အောက်ပါတို့ကို ဆက်လက်ဆောင်ရွက်သွားရန် အကြောင်းကြားပါသည်-

(က) Plus World Co., Ltd. မှ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲ အိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ဘီ) ၊ မြေကွက်အမှတ် (၄၁၀-ဘီ/၇၅-က) တွင် အကောင်အထည်ဖော်ဆောင်ရွက်မည့် သောက်ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်း အတွက် တင်ပြလာသော နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) ကို အတည်ပြုကြောင်း "ပူးတွဲပါစာ" အား သက်ဆိုင်ရာ ကုမ္ပဏီလီမိတက်သို့ ဆက်လက်ပေးပို့ရန်နှင့် ဦးစီးရုံးချုပ်သို့ မိတ္တူပေးပို့သွားရန်၊

(ခ) အဆိုပြုတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာနှင့် ဆောင်ရွက်မည့် လုပ်ငန်းတာဝန်များ (Terms of Reference-TOR) ကို အခြေခံ၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ်(၅၅)၊ (၅၆)၊ (၅၇)၊ (၅၈)၊ (၅၉)၊ (၆၀)၊ (၆၁)၊ (၆၂)၊ (၆၃)၊ (၆၄)၊ (၆၅) ပါ ဖော်ပြချက်များနှင့်အညီ ပြုစုရေးဆွဲတင်ပြစေရေး ကြပ်မတ်ဆောင်ရွက်သွားရန်၊

၃

(ဂ) အဆိုပါ သတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲပြုစုထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာကို သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာနသို့ တင်ပြအတည်ပြုချက် ရယူစေရေး ကြပ်မတ်ဆောင်ရွက်သွားရန်။

(လှမောင်သိန်း)
ညွှန်ကြားရေးမှူးချုပ်

မိတ္တူကို
ပြည်ထောင်စုဝန်ကြီးရုံး၊ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊
ရုံးအမှတ်(၂၈)
ရုံးလက်ခံ၊ မျှောစာတွဲ

ရည်ညွှန်း(၅)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးချုပ်ရုံး

စာအမှတ်၊ အီးအိုင်အေ-၁/၇ အတည်ပြု(SR)(၁၃၅၂ /၂၀၂၂)
ရက်စွဲ ၊ ၂၀၂၂ ခုနှစ် ဇူလိုင်လ ၁၈ ရက်

သို့

မန်နေဂျင်းဒါရိုက်တာ
မြေကွက်အမှတ်(၄၁၀-ဘီ/၇၅-က)၊
မြေတိုင်းရပ်ကွက်အမှတ်(၅၃၂/ဘီ)၊
ပုလဲအိမ်ရာ၊ မင်္ဂလာဒုံမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။

အကြောင်းအရာ။ **Plus World Co., Ltd. ၏ ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအပေါ် အတည်ပြုကြောင်း ပြန်ကြားခြင်း**

ရည်ညွှန်းချက်။ (၁) အဖွဲ့ခေါင်းဆောင်(ပတ်ဝန်းကျင်)၊ ရင်းနှီးမြှုပ်နှံမှုဌာနဆိုင်ရာ ပူးပေါင်းလုပ်ငန်းအဖွဲ့၏ ၂၈-၂-၂၀၂၀ ရက်စွဲပါစာအမှတ်၊ ၀၀၁/MIC(OSS)/၀၁ (၁၃/၂၀၂၀)

(၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၁၄-၇-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ- ၂/၄-က(၁၂၂၄/၂၀၂၁)

(၃) ညွှန်ကြားရေးမှူးရုံး၊ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၁-၁၀-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ရက/EIA/ ၅(၃)(၁၉၇၈/၂၀၂၁)

(၄) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၂-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ- ၁/၇ အတည်ပြု (SR)(၁၀၇၈/၂၀၂၂)

(၅) ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၂၉-၆-၂၀၂၂ ရက်စွဲပါစာအမှတ် (သစ်တော) ၃(၂)/၁၆(ဃ)(၂၀၇၂/၂၀၂၂)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ်(၅၃၂/ဘီ)၊ မြေကွက်အမှတ်(၄၁၀-ဘီ/၇၅-က)၊ Plus World Co., Ltd. ၏ မြေရီယာ (၃.၉၆၈) ကေအတွင်း ဆောင်ရွက်မည့် ရေသန့်ထုတ်လုပ်ခြင်းလုပ်ငန်းကို

ဝန်ထမ်းအင်အား (၄၀)ဦးဖြင့် လုပ်ငန်းဆောင်ရွက်လျက်ရှိပါကြောင်း၊ ထုတ်လုပ်မှုပမာဏမှာ တစ်ရက်လျှင် သောက်ရေသန့် ၇၅၀၀၀ လီတာ ထုတ်လုပ်မည်ဖြစ်ကြောင်း ဖော်ပြထားသည်ကို စီစစ်တွေ့ရှိရပါသည်။

၂။ အဆိုပြုလုပ်ငန်းအတွက် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာကို Myanwei Environmental Solutions Co., Ltd မှ တာဝန်ယူပြုစုရေးသားပြီး ကုမ္ပဏီမှ စီစစ်ပေးနိုင်ပါရန် ရည်ညွှန်း(၃)ပါစာဖြင့် အစီရင်ခံစာတင်ပြလာခြင်းအပေါ် စီစစ်ရာ၌ စီမံကိန်းအကြောင်းအရာ အကျဉ်းချုပ် (မြန်မာ-အင်္ဂလိပ်)၊ စီမံကိန်းအကြောင်းအရာအချက်အလက်များ၊ တတိယ အဖွဲ့အစည်း ဆိုင်ရာ ဖော်ပြချက်၊ မူဝါဒ၊ ဥပဒေဆိုင်ရာနှင့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်၊ စီမံကိန်းအကြောင်းအရာ နှင့် အခြားနည်းရွေးချယ်ခြင်း၊ လက်ရှိပတ်ဝန်းကျင်အခြေအနေဆိုင်ရာ ဖော်ပြချက်၊ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ ထိခိုက်နိုင်မှုများအား ဆန်းစစ်ဖော်ထုတ်ခြင်းနှင့် လျော့နည်းသက်သာစေမည့် နည်းလမ်းများ၊ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းနှင့်ပတ်သက်၍ အသိပေးသတင်းထုတ်ပြန် ခြင်းနှင့် ဒေသခံပြည်သူထံမှ သဘောထားရယူခြင်း၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအဆင့်တွင် ဆန်းစစ်မည့် အချက်အလက်များနှင့် တိုင်းတာမည့်ကာလ သတ်မှတ်ချက်များစသည့် အချက် အလက်များအား အခန်းအလိုက် ဖော်ပြထားပြီး ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံး လုပ်နည်း အပိုဒ် (၄၈၊ ၄၉၊ ၅၀၊ ၅၁၊ ၅၂၊ ၅၃)ပါ အချက်အလက်များနှင့် ကိုက်ညီသဖြင့် အတည်ပြုနိုင်ပါကြောင်း စိစစ်တွေ့ရှိရသည့်အတွက် ပြည်ထောင်စုဝန်ကြီးရုံးသို့ ရည်ညွှန်း(၄) ပါစာဖြင့် တင်ပြအတည်ပြုချက်ရယူခဲ့ရာ ရည်ညွှန်း (၅) ပါ စာဖြင့် ပြန်ကြားခွင့်ပြုခဲ့ပါသည်။

၃။ သို့ဖြစ်ပါ၍ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပုလဲအိမ်ရာ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၅၃၂/ဘီ)၊ မြေကွက်အမှတ်(၄၁၀-ဘီ/၇၅-က)၊ Plus World Co., Ltd. ၏ သောက်ရေသန့် ထုတ်လုပ် ခြင်းလုပ်ငန်းနှင့် ပတ်သက်၍ တင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ သည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့် ကိုက်ညီသည့်အတွက် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကော်မရှင်အနေဖြင့် အတည်ပြုကြောင်း၊ လုပ်ငန်းဆောင်ရွက်ခွင့်ပြုမိန့်မှာ သက်ဆိုင်ရာ၏ မူဝါဒ၊ ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်း လမ်းညွှန်ချက်များနှင့်အညီ လိုက်နာဆောင်ရွက်ရန်ဖြစ်ပါကြောင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာ ရေးဆွဲ ဆောင်ရွက်ရာတွင် အောက်ဖော်ပြပါအချက်များကို အလေးထားဆန်းစစ်ဆောင်ရွက်သွားရန် လိုအပ်ကြောင်း ပြန်ကြားအပ်ပါသည်-

(က) ရေသန့်စင်ခြင်းလုပ်ငန်းစဉ်၊ ထုတ်လုပ်ခြင်းလုပ်ငန်းစဉ်နှင့် ရေသန့်ဘူးခွံထုတ်လုပ် ခြင်း လုပ်ငန်းစဉ်များ ဖော်ပြရာ၌ အသေးစိတ် မြင်သာရှင်းလင်းသည့်ပုံစံဖြင့် EIA Stage တွင် ရေးသားဖော်ပြရန်၊

(ခ) စီမံကိန်းတွင် အသုံးပြုမည့် ရေလိုအပ်ချက်အတွက် (tube well) မှ ရယူဆောင်ရွက်သွားမည်ဖြစ် ကြောင်းဖော်ပြထားပြီး စီမံကိန်းတွင် ရေအမြောက်အမြားအသုံးပြုရန် လိုအပ်ကြောင်း စိစစ်သုံးသပ်ချက်အရ အခြားရယူနိုင်မည့်နည်းလမ်းများအား ထည့်သွင်း စဉ်းစား၍ EIA stage တွင် ဆက်လက်ဖော်ပြရန်၊ ထို့အပြင် Ground Water အပေါ် မည်ကဲ့သို့ သက်ရောက်နိုင်ကြောင်း စနစ်တကျ ထည့်သွင်းဖော်ပြရန်၊

(ဂ) စီမံကိန်းတွင် အသုံးပြုမည့်ရေအား treatment လုပ်ရာတွင် အသုံးပြု မည့် ဓါတုပစ္စည်းအမျိုးအစားများ စသည်ဖြင့် ဖော်ပြ၍ ပတ်ဝန်းကျင်အပေါ်ထိခိုက် နိုင်မှုလျော့ပါးစေရေးလုပ်ဆောင်သွားမည့် အစီအစဉ်များအား EIA stage တွင် ဆက်လက်ဖော်ပြရန် ၊

(ဃ) ရေသန့်စင်ခြင်းနှင့် ထုတ်လုပ်ခြင်းလုပ်ငန်းစဉ်များမှ ထွက်ရှိမည့် စွန့်ပစ်ရေနှင့် ပတ်သက်ပြီး EIA stage တွင် စနစ်တကျ ဆန်းစစ်ဖော်ပြရန်၊

(င) ရေသန့်ဘူးခွံထုတ်လုပ်သည့် လုပ်ငန်းစဉ်မှ ထွက်ရှိမည့် အနံ့၊ အခိုးအငွေ့၊ ဆူညံသံနှင့် ပတ်သက်၍ ဆန်းစစ်မှုအား EIA stage တွင် သေချာစွာ ထည့်သွင်းဖော်ပြရန်၊

(စ) ကုန်ကြမ်းသိုလှောင်မည့်အစီအစဉ်နှင့်ပတ်သက်၍ မမျှော်လင့်သော သဘာဝဘေး အန္တရာယ်များ ဖြစ်ပေါ်လာပါက ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မည့် အခြေအနေများကိုပါထည့်သွင်းစဉ်းစား၍ အကောင်အထည်ဖော်ဆောင်ရွက်ရန်၊

(ဆ) လုပ်ငန်းစဉ်တွင် အသုံးပြုမည့် Chemical ပစ္စည်းများ ထားရှိသိုလှောင်ခြင်းကြောင့် လည်းကောင်း၊ သုံးစွဲခြင်းကြောင့်လည်းကောင်း ဖြစ်ပေါ်နိုင်မည့် သက်ရောက်မှုအားလုံးကို ဆန်းစစ်ဖော်ပြပြီး ထိခိုက်မှုလျော့ချရေးနည်းလမ်းများအား EIA Stage တွင် ထည့်သွင်းဖော်ပြရန်၊

(ဇ) Hazardous waste ကိုင်တွယ်စွန့်ပစ်မည့်နည်းစနစ်၊ final dispose facility စသည်ဖြင့် EIA stage တွင် အသေးစိတ်လေ့လာဖော်ပြရန်၊

(ဈ) Construction, Operation and Decommision stage များတွင် အသုံးပြုသွားမည့် စက်ယန္တရားများကြောင့် GHG effect ကို ဖြစ်စေသည့် CO2 အပါအဝင် နိုက်ထရိုဂျင် ပါဝင်သောဓါတ်ငွေ့များ ထွက်ရှိနိုင်ပါကြောင်းကို ထည့်သွင်းဖော်ပြ၍ လျော့ချမည့် နည်းလမ်းများအား EIA stage တွင် ထည့်သွင်းဖော်ပြရန်၊

(ည) စက်ရုံနှင့် ကုန်ကြမ်း၊ ကုန်ချော သယ်ယူပို့ဆောင်ရာ လမ်းကြောင်းတလျောက် ဖြစ်ပေါ်နိုင်သည့် Environmental Issue ၊ Social Issue များအား ထည့်သွင်း စဉ်းစား ဆန်းစစ်ရန်နှင့် သယ်ဆောင်ရာလမ်းတစ်လျှောက်တွင် ၎င်းနှင့် ပတ်သက်သည့် Public Consultation အား EIA stage တွင် သေချာစွာဆောင်ရွက်ရန်၊

(၄) ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် (၅၀)၊ အပိုဒ်ခွဲ (က) ပါ အချက်အလက်များအတိုင်း စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို အများပြည်သူနှင့် လူမှုအဖွဲ့အစည်းများက သိရှိနိုင်ရန် စီမံကိန်း သို့မဟုတ် စီမံကိန်း အဆိုပြုသူ၏ ဝက်ဘ်ဆိုဒ်တွင် တင်ပြခြင်းနှင့် စီမံကိန်းနေရာများတွင် အများပြည်သူ မြင်တွေ့နိုင်သည့် ဆိုင်းဘုတ်များနှင့် ကြော်ငြာသင်ပုန်းများထင်ရှားစွာ စိုက်ထူခြင်း အပါအဝင် ပြည်တွင်းမီဒီယာမှ ထုတ်ဖော်ခြင်းတို့ကို ဆောင်ရွက်ရန်၊

(လှမောင်သိန်း)
ညွှန်ကြားရေးမှူးချုပ်

မိတ္တူကို
ပြည်ထောင်စုဝန်ကြီးရုံး၊ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ရုံးအမှတ်(၂၈)
ရုံးလက်ခံ၊ မျှောစာတွဲ

APPENDIX B
Company Registrations

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

အပေါင်းကမ္ဘာ ကုမ္ပဏီလီမိတက်

PLUS WORLD COMPANY LIMITED

Company Registration No. 103296277

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

အပေါင်းကမ္ဘာ ကုမ္ပဏီလီမိတက်

အား ၂၀၁၆ ခုနှစ် အောက်တိုဘာလ ၆ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

PLUS WORLD COMPANY LIMITED

was incorporated under the Myanmar Companies Act 1914 on 6 October 2016 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

Directorate of Investment and Company Administration

Former Registration No. 3128/2016-2017(YGN)

DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION

Myanmar Companies Online Registry - Company Extract

Company Name (English)
PLUS WORLD COMPANY LIMITED

Company Name (Myanmar)
အပေါင်းကမ္ဘာ ကုမ္ပဏီလီမိတက်

Company Information

Registration Number	Registration Date	Status
103296277	06/10/2016	Registered
Company Type	**Foreign Company**	**Small Company**
Private Company Limited by Shares	No	No
Principal Activity	**Date of Last Annual Return**	**Previous Registration Number**
36 - Water collection, treatment and supply 32 - Other manufacturing	29/03/2019	3128/2016-2017(YGN)

Addresses

Principal Place Of Business In Union	Bagan Street, 410-B / 75-A Mingaladone Township, Pearl Housing Yangon, Myanmar
Registered Office In Union	Industrial Zone (1) Street, South Okkalapa Industrial Zone, No. 77(A) (8) Quarter, South Okkalapa Township Yangon, Myanmar

Officers

Name:	DAW SOE NAN THI	Type:	Director
Date of Appointment:	02/10/2018	Date of Birth:	24/12/1974
Nationality:	Myanmar	N.R.C./Passport:	12/KATATA(N)002019
Gender:	Female	Business Occupation:	-
Name:	U NYI NYI LWIN @ NYI NYI THEIN MYINT	Type:	Director
Date of Appointment:	N/A	Date of Birth:	21/04/1987
Nationality:	Myanmar	N.R.C./Passport:	12/KAMAYA(N)056898
Gender:	Male	Business Occupation:	-
Name:	U THANN HSOE	Type:	Director
Date of Appointment:	N/A	Date of Birth:	15/09/1972
Nationality:	Myanmar	N.R.C./Passport:	12/MAYAKA(N)153885
Gender:	Male	Business Occupation:	-

Ultimate Holding Company

Name of Ultimate Holding Company	Jurisdiction of Incorporation	Registration Number
-	-	-

DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION

Myanmar Companies Online Registry - Company Extract

Company Name (English)
PLUS WORLD COMPANY LIMITED

Company Name (Myanmar)
အပေါင်းကမ္ဘာ ကုမ္ပဏီလီမိတက်

Share Capital Structure

Total Shares Issued by Company
3,500

Currency of Share Capital
MMK

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	3,500	350,000,000.00	0.00

Members

Name: DAW SOE NAN THI
Gender: Female
Nationality: Myanmar
Date of Birth: 24/12/1974
N.R.C./Passport: 12/KATATA(N)002019

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	875	87,500,000.00	0.00

Name: U NYI NYI LWIN @ NYI NYI THEIN MYINT
Gender: Male
Nationality: Myanmar
Date of Birth: 21/04/1987
N.R.C./Passport: 12/KAMAYA(N)056898

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	1,750	175,000,000.00	0.00

Name: U THANN HSOE
Gender: Male
Nationality: Myanmar
Date of Birth: 15/09/1972
N.R.C./Passport: 12/MAYAKA(N)153885

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	875	87,500,000.00	0.00

Mortgages and Charges

Form / Filing Type	Effective Date

No records available

Details about all mortgages and charges can be accessed from the Company Profile Filing History at no charge.

Filing History

Form / Filing Type	Effective Date
C-4 | Notice of change of registered office or principal place of business	12/06/2020

Page 2 of 3
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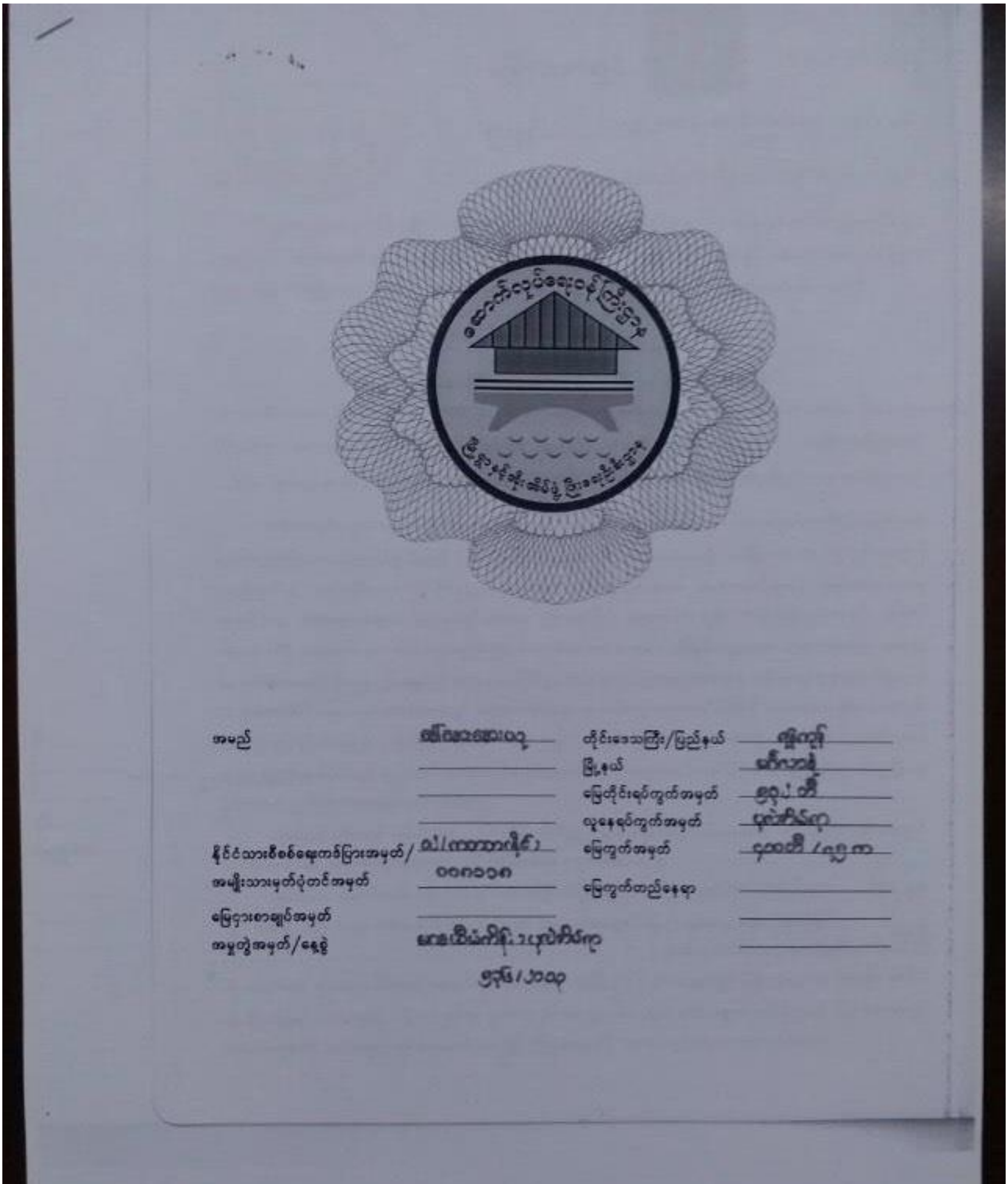
DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION

Myanmar Companies Online Registry - Company Extract

Company Name (English)	Company Name (Myanmar)
PLUS WORLD COMPANY LIMITED	အပေါင်းကမ္ဘာ ကုမ္ပဏီလီမိတက်

C-4 | Notice of change of registered office or principal place of business	27/04/2020
C-3 | Change to share capital or register of members	11/02/2020
C-4 | Notice of change of registered office or principal place of business	05/06/2019
C-3 | Change to share capital or register of members	15/05/2019
D-1 | Particulars of directors and secretary	14/05/2019
AR | Annual Return	29/03/2019
C-3 | Change to share capital or register of members	06/12/2018
D-1 | Particulars of directors and secretary	06/12/2018
C-3 | Change to share capital or register of members	17/11/2018
D-1 | Particulars of directors and secretary	16/11/2018
C-3 | Change to share capital or register of members	09/10/2018
D-1 | Particulars of directors and secretary	02/10/2018
B-1 | Application for re-registration of a private company limited by shares	03/09/2018

APPENDIX C
Land Leasing Agreement



အမည်

တိုင်းဒေသကြီး/ပြည်နယ်

မြို့နယ်

မြေတိုင်းရပ်ကွက်အမှတ်

လူနေရပ်ကွက်အမှတ်

နိုင်ငံသားစိစစ်ရေးကတ်ပြားအမှတ်/
အမျိုးသားမှတ်ပုံတင်အမှတ်

မြေကွက်အမှတ်

မြေကွက်တည်နေရာ

မြေငှားစာချုပ်အမှတ်

အမှုတွဲအမှတ်/နေ့စွဲ

- ၃ -

မြေငှားစာချုပ်

HA 001034

မူရင်း နေ့စွဲ ၂၀၁၃ ခုနှစ် [illegible] လ [illegible] ရက်

မြေငှားစာချုပ်အမှတ်စဉ် .... အမှတ်တွဲအမှတ် [illegible]

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ပြနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန (နောင်တွင် **"အငှားချထားသူ"** ဟုရည်ညွှန်းသည်။ **"အငှားချထားသူ"** ဆိုသည့် စကားရပ်တွင် ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ပြနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာနနှင့် အဆိုပါဌာနတို့ ဆက်ခံသူများ အဆိုပါဌာနက လွှဲအပ်သူများလည်းပါဝင်သည်။)

နှင့်

......ရန်ကုန်... တိုင်းဒေသကြီး/ပြည်နယ် .... မြို့နေ ဦး [illegible] .... ၏ သား/သမီးဖြစ်သော ဦး/ဒေါ် [illegible] .... နိုင်ငံသား/အမျိုးသားမှတ်ပုံတင်အမှတ် [illegible] (နောင်တွင် "အငှားစာချုပ်ရသူ" ဟုရည်ညွှန်းသည်)တို့ ၁၃၇၅ ... ခုနှစ်၊ ..[illegible].. လဆန်း/လပြည့်ကျော် ..[illegible].. ရက်နေ့ ၂၀၁၃ .. ခုနှစ်၊ [illegible] .. လ [illegible] .. ရက်နေ့တွင် အောက်ပါအတိုင်း မြေငှားစာချုပ်ချုပ်ဆိုကြသည်။

အငှားစာချုပ်ရသူက နောက်တွင် သတ်မှတ်ထားသည့် မြေငှားခကို ပေးဆောင်ရန် သဘောတူသောကြောင့်လည်းကောင်း နောက်တွင်ပါရှိသော ပဋိညာဉ်ချက်များကို ပြုသောကြောင့်လည်းကောင်း အောက်ပါဇယား၌ ဖော်ပြထားသော မြေကွက်အားလုံးကို ထိုမြေကွက်နှင့် သက်ဆိုင်သော ပိုင်ဆိုင်ခွင့်များ ဝင်-ထွက်သွားလာနိုင်ခွင့်ရှိသော သက်သာခွင့်များနှင့် အခြားအခွင့်အရေးများနှင့်တကွ အငှားချထားသူက အငှားစာချုပ်ရသူအား ဤစာချုပ်ဖြင့် အငှားချထားသည်။ အဆိုပါမြေကွက်အတွင်း မြေပေါ် မြေအောက်ရှိ သတ္တုတွင်းများ သတ္တုပစ္စည်းများ ကျောက်မျက်ရတနာများ၊ မြေမြှုပ်ဘဏ္ဍာများ ကျောက်မီးသွေး ရေနံနှင့် ကျောက်မိုင်းစသည်တို့သည် ဤစာချုပ်ဖြင့် အငှားချထားခြင်း၌မပါဝင်စေရ။ ထိုသို့ရှာဖွေတူးဖော် ရယူသယ်ဆောင်ရာ၌အဆိုပါမြေကွက်၏ မျက်နှာပြင်ကို နှောင့်ယှက်ပျက်စီးစေခဲ့လျှင် အငှားစာချုပ်ရသူအား သင့်လျော်သောလျော်ကြေးကို အငှားချထားသူက ပေးရမည်။ ထိုလျော်ကြေးနှင့်စပ်လျဉ်း၍ အငြင်းဖြစ်ပွားခဲ့သော် လျော်ကြေးကို တည်ဆဲမြေသိမ်းအက်ဥပဒေ၏ သို့တည်းမဟုတ် စည်းမျဉ်းဥပဒေများ၏ ပြဋ္ဌာန်းချက်နှင့်အညီ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ပြနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန၏ ညွှန်ကြားရေးမှူးချုပ်က ဆုံးဖြတ်ရမည်။

ထို့ကြောင့် ဤစာချုပ် ချုပ်ဆိုသည့် ..[illegible].. နေ့မှစ၍ နှစ်ပေါင်း ခြောက်ဆယ် ကာလအပိုင်းအခြားအတွက် လက်ရှိထားနိုင်ရန် အငှားစာချုပ်ရသူအား အဆိုပါမြေကွက်ကို အငှားချထားသည်။

နှစ်ပေါင်း ခြောက်ဆယ် မြေငှားစာချုပ်ကာလအပိုင်းအခြားတွင် ..[illegible].. ခုနှစ် [illegible] လ ..[illegible].. ရက်နေ့၌ ကုန်ဆုံးသည့် ပထမ တစ်ဆယ့်ငါး နှစ်အတွင်းတွင် သုံးလပတ်အတွက် မြေငှားရမ်းခငွေ ကျပ် [illegible] .... (ကျပ် [illegible]) ကို ဇန်နဝါရီလ၊ ဧပြီလ၊ ဇူလိုင်လနှင့် အောက်တိုဘာလများ၏ လဆန်း (၁) ရက်နေ့များတွင် ကြိုတင်ပေးဆောင်ရမည်။ အဆိုပါ နှစ် ခြောက်ဆယ် ကာလအပိုင်းအခြား၏ ဒုတိယ၊ တတိယ နှင့် စတုတ္ထ တစ်ဆယ့်ငါး နှစ်စီအတွက် အပိုဒ်(၃)တွင် ပြဋ္ဌာန်းထားသည့် နည်းလမ်းအတိုင်း အငှားချထားသူအား သတ်မှတ်သည့် မြေငှားခများကို အငှားစာချုပ်ရသူက ပေးဆောင်ရမည်။

- ၂ -

၃။ အငှားစာချုပ်ရေးသူသည် အငှားချထားသူအား အောက်ပါအတိုင်း ပဋိညာဉ်ခံချက် ပြုလုပ်သည် -

(က) အထက်၌ ဖြေငှားခကို ပေးဆောင်ရန် သတ်မှတ်ထားသည့် နေ့ရက်များတွင် သတ်မှတ်ထားသည့် နည်းလမ်းအတိုင်း အဆိုပါမြေငှားခနှင့် အဆိုပါမြေကွက်ပေါ်၌သော်လည်းကောင်း ထိုမြေကွက်ပေါ်တွင် ဆောက်လုပ်ထားသော အဆောက်အအုံပေါ်၌ သော်လည်းကောင်း အငှားစာချုပ်ရေးသူအပေါ်၌ သော်လည်းကောင်း အဆိုပါ နှစ်ပေါင်း မြောက်ဆယ် ကာလအပိုင်းအခြားအတွင်း စည်းကြပ်ဆဲ စည်းကြပ်လတ္တံ့ဖြစ်သော အခွန်အတုပ်အားလုံးကို ပေးဆောင်ရန်။

(ခ) ဤစာချုပ် ချုပ်ဆိုသည့်နေ့မှ (၆) လအတွင်း စတင်ဆောက်လုပ်၍ နှစ် နှစ်အတွင်းတွင် အဆိုပါမြေကွက်ပေါ်၌ တောင်းမှန်မိုင်ခံသော လူနေအိမ်ကို သက်ဆိုင်ရာဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းချက်များ နှင့် အညီ ပြီးစီးအောင် ဆောက်လုပ်ရန်နှင့် ထိုလူနေအိမ် စသည်တို့ကို အဆိုပါ နှစ်ပေါင်း မြောက်ဆယ် ကာလအပိုင်းအခြား အတွင်း ပြုပြင်မှုမ်းမံထားရှိရန်။

(ဂ) အဆိုပါမြေကွက် တည်ရှိသောရပ်ကွက်၌ သက်ဆိုင်ရာ ဒေသနှရအာဏာပိုင်များက မိလ္လာပိုက်များနှင့် ရေပိုက်များချထားလျှင် ဒေသနှရအာဏာပိုင်နှင့် သက်ဆိုင်သည့် တရားဥပဒေနှင့်အညီ အဆိုပါမြေကွက်ပေါ်၌ ဆောက်လုပ်ထားသော အဆောက်အအုံများကို ထိုမိလ္လာပိုက်၊ ရေပိုက်များနှင့် ဆက်သွယ်ရန်။

(ဃ) သက်ဆိုင်သော ဒေသနှရအာဏာပိုင်ကခွင့်ပြုသော အဆောင်နှုန်း အလုပ်သမားတန်းလျားများမှအပ အဆိုပါ မြေကွက်ပေါ်၌ အဆောက်အအုံတစ်ခုထက်ပို၍ မဆောက်လုပ်ရန်။

(င) အငှားချထားသူ၏ စာဖြင့်သဘောတူညီချက်ကို ကြိုတင်မရရှိဘဲ နှစ်ပေါင်း မြောက်ဆယ် ကာလအပိုင်းအခြား အတွင်း အဆိုပါမြေကွက်ကို လူနေအိမ်ဆောက်လုပ်ရန်အတွက်မှတပါး အခြားကိစ္စအတွက် အသုံးမပြုရန်နှင့် အဆိုပါမြေကွက်ပေါ်တွင် ဆောက်လုပ်သည့်လူနေအိမ်ကို လူနေအိမ်အဖြစ်မှတပါး အခြားနည်းအသုံးမပြုရန်။

(စ) အငှားချထားသူ၏စာဖြင့် ကြိုတင်သဘောတူညီချက်မရရှိဘဲ စာချုပ်ပါမြေကို ခွဲစိတ်ခြင်းမပြုရသည့်အပြင် ငှားမြေ၏ တစ်စိတ်တစ်ဒေသကိုလည်း လွှဲပြောင်းခြင်း၊ တဆင့်ငှားရမ်းခြင်း၊ လက်လွှတ်ခြင်းများ မပြုလုပ်ရ။

(ဆ) ဤ [illegible]နှင့် စပ်လျဉ်း၍ ပေးသည့် ကိစ္စအတွက်ဆို အဆိုပါ မြေကွက် သို့ဖြစ်စေ၊ အဆိုပါ မြေကွက် ပေါ်တွင် ဆောက်လုပ်ထားသော အဆောက်အအုံသို့ဖြစ်စေ၊ နှစ်ပေါင်း မြောက်ဆယ် ကာလ အပိုင်းအခြားတွင် ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်အစိုးရ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ပြနှင့် အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်၏ အမိန့်အရဆောင်ရွက်သူများအား နေ့စဉ်သင့်လျော်သည့်အချိန်များတွင် ဝင်ရောက်ခွင့်ပြုရန်။

(ဇ) ဤစာချုပ်အရ အငှားချထားသည့် နှစ်ပေါင်း မြောက်ဆယ် ကာလ အပိုင်းအခြားကုန်ဆုံးသောအခါ အဆိုပါ မြေကွက် တည်ရှိသည့်အဆောက်အအုံကိုအဆောက်အအုံနှင့် အမြဲတွယ်ကပ်ထားသောပစ္စည်းများ မပါဝင်စေဘဲ အဆိုပါမြေကွက်ကို အငှားချထားသူအား အေးအေးဆေးဆေး ပြန်လည်ပေးအပ်ရန်၊ သို့ရာတွင် အငှားချထားသူက အပိုဒ် (၂) အရ အဆိုပါမြေကွက်ကို ပြန်လည်သိမ်းယူပြီး စာချုပ်ကိုရုပ်စဲလျှင် အဆိုပါမြေကွက်နှင့် ထိုမြေကွက်ပေါ်တွင်တည်ရှိသည့် အဆောက်အအုံ ထိုအဆောက်အအုံနှင့် အမြဲတွယ်ကပ်ထားသော ပစ္စည်းများကို အငှားစာချုပ်ရေးသူက အငှားချထားသူအား အေးအေးဆေးဆေး ပြန်လည်ပေးအပ်ရန်။

-၃-

အပိုပဋိညာဉ်စံချက်များ

ဖော်ပြပါ မြေငှားခန္နီးသည် ယာယီမှုသာဖြစ်၍ ၂၀ ..၁၇......... ခုနှစ် အတွင်းတွင်ဖြစ်စေ၊ ထို့နောက် အချိန်ကာလတွင် ပြန်လည်ပြင်ဆင်သင့်က ပြင်ဆင်စည်းကြပ်ရန် ဖြစ်သည်။

၂။ အဆိုပါမြေငှားခကို တောင်းဆိုသည်ဖြစ်စေ၊ မတောင်းဆိုသည်ဖြစ်စေ၊ ကြိုတင်ပေးဆောင်ရမည့် သုံးလပတ်အတွက်မြေငှားခကို (သို့တည်းမဟုတ်) ၎င်းအစိတ်အပိုင်းကို ထိုသုံးလပတ်၏ ဒုတိယ လဦးပိုင်းတွင် မပေးဆောင်သဖြင့် မြေငှားခမပြေကျန်ရှိနေလျှင်၊ သို့တည်းမဟုတ် အငှားစာချုပ်ရသူသည် အထက်တွင်ဖော်ပြပါရှိသည့် ပဋိညာဉ်ခံချက်များအတိုင်း လိုက်နာဆောင်ရွက်ရန် ပျက်ကွက်လျှင်၊ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန၏ ညွှန်ကြားရေးမှူးချုပ်သည် အဆိုပါမြေငှားခကိုရယူရန် ချက်ချင်းအမှုဖွင့်နိုင်သည်၊ ထို့ပြင် သို့တည်းမဟုတ် ယခင်က ပဋိညာဉ်ခံချက်ပျက်ကွက်ခြင်းအတွက် အရေးယူပိုင်ခွင့်ကိုဖြစ်စေ၊ အဆိုပါမြေကွက်ပြန်လည်သိမ်းယူနိုင်ခွင့်ကိုဖြစ်စေ၊ စွန့်လွှတ်ခဲ့စေကာမူ ဤစာချုပ်ကိုပယ်ဖျက်၍ အဆိုပါမြေကွက်နှင့် ထိုမြေကွက်ပေါ်တွင် တည်ရှိသော အဆောက်အအုံများ၊ ထိုအဆောက်အအုံများနှင့် အမြဲတွယ်ကပ်ထားသော ပစ္စည်းများကို သိမ်းယူနိုင်သည်၊

၃။ အငှားချထားသူသည် အငှားစာချုပ်ရသူအား အောက်ပါအတိုင်း ပဋိညာဉ်ခံချက်ပြုလုပ်သည် –

(က) အပိုဒ် (၂) အရ ဤစာချုပ်ကို ပယ်ဖျက်ကြောင်း နို့တစ်စာကို အငှားချထားသူက မိမိသင့်လျော်သည်ဟု ထင်မြင်သည့် နည်းလမ်းအတိုင်း အငှားစာချုပ်ရသူ၏ နောက်ဆုံးသိရှိရသော လိပ်စာတပ်ပြီး မှတ်ပုံတင်ပြုလုပ်၍ စာပို့တိုက်မှ ပေးပို့နိုင်သည်၊ သို့တည်းမဟုတ် ဆိုခဲ့သည့်အတိုင်း လိပ်စာတပ်၍ နို့တစ်စာကို အဆိုပါမြေကွက်အဆောက်အအုံ စသည့် ပစ္စည်းများ၏ ထင်ရှား၍ လူအများမြင်သာသော နေရာတွင်ကပ်ထားနိုင်သည်၊ အဆိုပါနို့တစ်စာကို ပြဆိုသည့် နည်းလမ်းအတိုင်းပို့ခြင်း၊ ကပ်ထားခြင်း ပြုလုပ်ပြီးနောက် ရက်ပေါင်း (၆၀) အတွင်း အငှားစာချုပ်ရသူက အဆိုပါ ညွှန်ကြားရေးမှူးချုပ်အား မပြေကျန်ရှိနေသေးသော မြေငှားခကို ဤစာချုပ်ပယ်ဖျက်ခြင်း၊ သို့တည်းမဟုတ် အဆိုပါ မြေကွက် ပြန်လည်သိမ်းယူခြင်း သို့တည်းမဟုတ် အဆိုပါမြေကွက်ကို ပြန်လည်အငှားချထားခြင်းနှင့် စပ်လျဉ်း၍ အငှားချထားသူက ကုန်ကျသောစရိတ်အားလုံးနှင့်တကွ အဆိုပါညွှန်ကြားရေးမှူးချုပ်သို့ ပေးဆောင်လျှင်သော်လည်းကောင်း၊ အခြား ပဋိညာဉ်ခံချက် တစ်ခုခုနှင့် စပ်လျဉ်း၍ ပျက်ကွက်သည့်အတွက် နစ်နာမှုကို ပပျောက်စေရန် အဆိုပါ ညွှန်ကြားရေးမှူးချုပ် ကျေနပ်လောက်အောင် ဆောင်ရွက်လျှင်သော်လည်းကောင်း၊ အငှားချထားသူက ဤစာချုပ်ပါ ပဋိညာဉ် ခံချက်များအတိုင်း နှစ်ပေါင်း မြောက်ဆယ် ကာလအပိုင်းအခြား၏ ကျန်ရှိနေသေးသော ကာလအဖို့ အဆိုပါ မြေကွက်နှင့်ပြန်လည်သိမ်းယူသည့် အချိန်တွင် ထိုမြေကွက်ပေါ်၌ တည်ရှိနေသော အဆောက်အအုံ၊ ထိုအဆောက်အအုံနှင့် အမြဲတွယ်ကပ်ထားသော ပစ္စည်းများကို လက်ရှိထားနိုင်စေခြင်းငှာ အငှားစာချုပ်ရသူအား ပြန်လည်ပေးအပ်ရန်၊ သို့ရာတွင် မီးကြောင့်သော်လည်းကောင်း၊ အခြားအကြောင်း တစ်ခုခုကြောင့်သော်လည်းကောင်း ပျက်စီးရသည့် အဆောက်အအုံ သို့တည်းမဟုတ် ထိုအဆောက်အအုံနှင့် အမြဲတွယ်ကပ်ထားသော ပစ္စည်းများကို ပြန်လည်ပေးအပ်ရန် အငှားချထားသူ၌ တာဝန်မရှိသည့်အပြင် ယင်းသို့ပြန်လည်သိမ်းယူသည့်အခါ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် အစိုးရ၊ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန၏ အမှုထမ်းများ သို့တည်းမဟုတ် ကိုယ်စားလှယ်များ၏ ဖျက်လိုဖျက်ဆီးပြုလုပ်မှုကြောင့် ဆုံးရှုံးပျက်စီးခြင်းအတွက်မှတပါး အဆိုပါမြေကွက်ပေါ်တွင်ဖြစ်စေ၊ အထဲတွင်ဖြစ်စေ၊ တည်ရှိသော အဆောက်အအုံနှင့် အခြားပစ္စည်းများ၏တန်ဖိုး ယုတ်လျော့ခြင်း၊ ပြုပြင်မှုကင်းမဲ့ခြင်း၊ သို့တည်းမဟုတ်ပျက်စီးယိုယွင်းခြင်းအတွက် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ၊ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန၌ တာဝန်မရှိစေရ။

- ၄ -

အပိုဒ် (၂) အရ ဤစာချုပ်ကို ပယ်ဖျက်ပြီး မဟုတ်လျှင်သော်လည်းကောင်း အငှားစာချုပ်ရသူက နှစ်ပေါင်း ခြောက်ဆယ် ကာလအပိုင်းအခြား ကုန်ဆုံးသည်အထိ အဆိုပါမြေငှားခကို ပြေလည်အောင် ပေးဆောင်၍ ဤစာချုပ်ပါ စီမံပြုလုပ်သည့် ပဋိညာဉ်ခံချက်များအတိုင်း လိုက်နာဆောင်ရွက်လျှင်သော်လည်းကောင်း အငှားစာချုပ်ရသူသည် အဆိုပါမြေကွက်ပေါ်တွင် တည်ဆောက်တွယ်ကပ်ထားသော အဆောက်အအုံများ၊ ထိုအဆောက်အအုံများနှင့် အမြဲတွယ်ကပ်ထားသော ပစ္စည်းများကို အဆိုပါကာလအပိုင်းအခြား မကုန်မီ (၆) လအတွင်း ဖျက်သိမ်း သယ်ယူခန့်ခွဲနိုင်သည်၊ သို့ရာတွင် ထိုသို့သယ်ယူခြင်းကြောင့် အဆိုပါမြေကွက် ပျက်စီးယိုယွင်းခဲ့လျှင် ထိုမြေကွက်ကို မူလအခြေအနေအတိုင်းရှိအောင် ပြုပြင်ပေးရန်၊

............[illegible]ခုနှစ် [illegible].......လ ...[illegible]... ရက်နေ့မှစ၍ ပထမ တစ်ဆယ့်ငါး နှစ်ကုန်ဆုံးသောအခါ ဒုတိယ တစ်ဆယ့်ငါး နှစ်အတွက် ရန်ကုန်စည်ပင်သာယာရေး မြေနည်းဥပဒေ ၂၄ အရ စည်းကြပ်သော သုံးလပါတ် မြေငှားခကိုလည်းကောင်း၊ ဒုတိယ တစ်ဆယ့်ငါး နှစ်ကုန်ဆုံးသောအခါ တတိယ တစ်ဆယ့်ငါး နှစ်အတွက် အဆိုပါ မြေနည်းဥပဒေ ၂၄ အရစည်းကြပ်သော သုံးလပါတ်မြေငှားခကိုလည်းကောင်း၊ တတိယ တစ်ဆယ့်ငါး နှစ်ကုန်ဆုံးသောအခါ စတုတ္ထ တစ်ဆယ့်ငါး နှစ်အတွက် အဆိုပါ မြေနည်းဥပဒေ ၂၄ အရစည်းကြပ်သော သုံးလပါတ် မြေငှားခကိုလည်းကောင်း၊ အငှားစာချုပ်ရသူက အငှားချထားသူအား ပေးဆောင်ရန်၊ အကယ်၍ အထက်ပါ နည်းလမ်းအတိုင်း မြေငှားခကို ပြန်လည်စည်းကြပ်ခြင်းမပြုလျှင် အငှားစာချုပ်ရသူသည် ဤအပိုဒ်ခွဲတွင် ပြဋ္ဌာန်းထားသည့် နည်းလမ်းအတိုင်း မြေငှားခကို ပြောင်းလဲခြင်းမပြုမီ သတ်မှတ်ထားသည့် စည်းကြပ်ဆဲ သုံးလပါတ် မြေငှားခကို ဆက်လက်ပေးဆောင်ရန်၊

ဤစာချုပ်ပါ အခြားပြဋ္ဌာန်းချက်များတွင် ဆန့်ကျင်လျက်မည်သို့ပင် ပါရှိစေကာမူ ဤစာချုပ်ချုပ်ဆိုသည့် နေ့မှစ၍ ပထမ နှစ်ပေါင်း သုံးဆယ် အတွင်း သတ်မှတ်ထားသော သို့တည်းမဟုတ် ပြန်လည်စည်းကြပ်သော မြေငှားခကို ပြေလည်အောင် ပေးဆောင်ခဲ့သောကြောင့်လည်းကောင်း၊ ပြုလုပ်ထားသည့် ပဋိညာဉ်ခံချက်များကို မပျက်မကွက် လိုက်နာဆောင်ရွက်ခဲ့သောကြောင့်လည်းကောင်း၊ သတ်မှတ်ထားသော သို့တည်းမဟုတ် ပြန်လည်စည်းကြပ်သော သုံးလပါတ် မြေငှားခဖြင့် နောက်ထပ်နှစ်ပေါင်း သုံးဆယ် အတွက် ဆက်လက်၍ အဆိုပါမြေကွက်ကို ငှားရမ်းမြေငှား စာချုပ်အသစ် ချုပ်ဆိုရန်သဘောတူကြောင်း၊ အဆိုပါ ပထမနှစ်ပေါင်း သုံးဆယ် မပြည့်မီ အနည်းဆုံး (၆) လ ကြိုတင်၍ အငှားရသူက အငှားချထားသူအား စာဖြင့်အကြောင်းကြားရမည်၊ အကြောင်းကြားစာနှင့်အတူ ပထမ မြေငှားစာချုပ်ကို ပေးအပ်လျှင် ထိုအကြောင်းကြားစာ ရရှိသည့်နေ့မှ (၆) လအတွင်း နောက်နှစ်ပေါင်း သုံးဆယ် အတွက် ပထမမြေငှားစာချုပ်ပါ ပဋိညာဉ်ခံချက်များနှင့် ဖြစ်နိုင်သမျှတူညီသည့် ပဋိညာဉ်ခံချက်များပါရှိသည့် မြေငှားစာချုပ်အသစ်ကို အငှားစာချုပ်ရသူ၏ စရိတ်ဖြင့် အငှားချထားသူက ထုတ်ပေးရန်၊ အကယ်၍ မြေငှားခကို သတ်မှတ်ခြင်းမရှိသေးလျှင် ပထမမြေငှားစာချုပ်အရ နောက်ဆုံးပေးဆောင်ခဲ့ရသော သုံးလပါတ်မြေငှားခကို အငှားစာချုပ်ရသူက ပေးဆောင်ရန်။

ဤစာချုပ်ပါ စကားရပ်များကို သိရှိနားလည်ကြပြီးဖြစ်သဖြင့် ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်အစိုးရ ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ပြနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန ညွှန်ကြားရေးမှူးချုပ်၊ ဒုတိယညွှန်ကြားရေးမှူးချုပ် နှင့် ညွှန်ကြားရေးမှူး တို့ရှေ့တွင် ဦးစီးဌာနတံဆိပ်ကို ခပ်နှိပ်၍ အဆိုပါ ညွှန်ကြားရေးမှူးချုပ်နှင့် အဆိုပါ...................... ....[illegible]........................သည် ဤစာချုပ်ကိုအထက်၌ဖော်ပြခဲ့သည့် နေ့ရက်တွင် လက်မှတ်ရေးထိုးကြကြောင်း။

- ၇ -

မူရင်း

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန

မြို့ ......[illegible]......

ညွှန်ကြားရေးမှူးချုပ် ....ဦးမင်းထိန်.... ....

ညွှန်ကြားရေးမှူးချုပ်

ဒုတိယ ညွှန်ကြားရေးမှူးချုပ် ....ဦးခင်စိန်.... ....

ဒုတိယညွှန်ကြားရေးမှူးချုပ်

ညွှန်ကြားရေးမှူး ....ဦးရွှေအောင်.... တို့ ....

ညွှန်ကြားရေးမှူး

ရှေ့မှောက်၌ ခပ်နိပ်၍ အဆိုပါ ညွှန်ကြားရေးမှူးချုပ်၊

ဒုတိယညွှန်ကြားရေးမှူးချုပ်နှင့် ညွှန်ကြားရေးမှူးတို့ လက်မှတ်ရေးထိုးသည်။

အသိသက်သေ

ဒုတိယညွှန်ကြားရေးမှူး(မြေနှင့်အခွန်) ....ဦးသက်နိုင်....

အငှားစာချုပ်ရသူ ..[illegible].......က လက်မှတ်ရေးထိုးသည်။ ....

အငှားစာချုပ်ရသူ

အသိသက်သေ

၁။ ...[illegible]...

၂။ ...[illegible]...

လက်ထောက်ညွှန်ကြားရေးမှူး
မြေနှင့်အခွန်ဌာနခွဲ (ရုံးချုပ်)

အထက်တွင် ရည်ညွှန်းထားသည့်ဇယား

နှင့်ပြီး မြေပုံဖြစ်သော လူနေရပ်ကွက်အမှတ် ...[illegible]..........

မြေတိုင်းရပ်ကွက်အမှတ် ....[illegible]..........

ဦးစီး၊ အရာရှိ
မြေနှင့်အခွန်ဌာနခွဲ(ရုံးချုပ်)
မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန

တိုင်းဒေသကြီး/ပြည်နယ်၊ ....[illegible].... ခရိုင်/မြို့နယ် အတွင်းရှိ .... တန်းစား

မြေကွက်အမှတ်[illegible] ဖြစ်သည့် ပူးတွဲပါမြေပုံ၌ မှင်နီဖြင့် ပြထားသော အလျား ..[illegible]............... ပေ

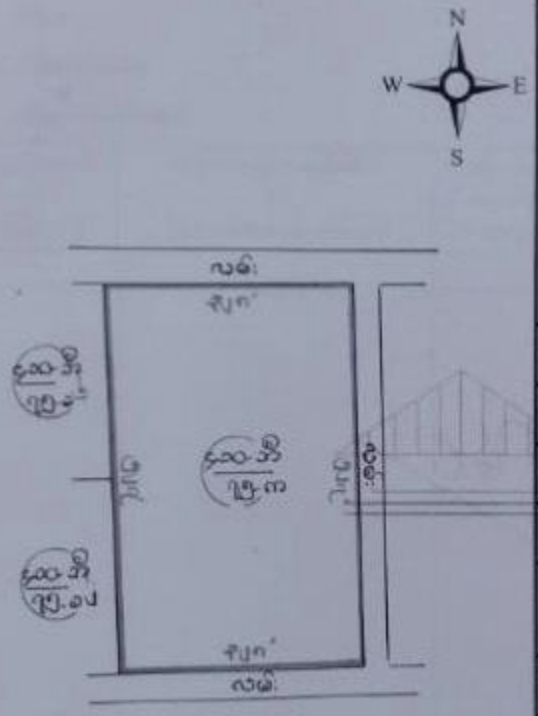
အနံ ..[illegible]............ ပေ၊ ခန့်ရှိသော အလားအလာ -

အရှေ့လားသော်	[illegible]................................
အနောက်လားသော်	[illegible]
တောင်လားသော်	[illegible]................................
မြောက်လားသော်	[illegible]................................

အတွင်းရှိ မြေအားလုံးစေရိယာ ....[illegible]...... ဧက၊ (စတုရန်းပေ ..[illegible].......)

-၆-

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
ဆောက်လုပ်ရေးဝန်ကြီးဌာန၊ မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန



၂၀၁၃ /၁၄ ခုနှစ်သုံး မြေပုံမှ [illegible]
အမည်ပေါက်
မြေတိုင်းရပ်ကွက်အမှတ်
လူနေရပ်ကွက်အမှတ်
မြေကွက်အမှတ်
မြေအမျိုးအစား
အလျား .... အနံ ....
ဧရိယာ .... ဧက
မြို့နယ်
စကေး ၁" = ၁၀၀'
ထုတ်ပေးသည့်အမှတ်တွဲအမှတ်
(တံဆိပ်)
လက်မှတ်

၂၀၁၃ /၁၄ ခုနှစ်သုံး မြေပုံ/မြို့ မြေစာရင်းမှ [illegible]
(မြို့ရွာနှင့်အိုးအိမ်ဖွံ့ဖြိုးရေးဦးစီးဌာန)

APPENDIX D
Environmental & Social Policy of Plus World Co., Ltd.

PLUS WORLD CO., LTD.

000189

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးလုပ်ငန်းများဆောင်ရွက်မည်ဖြစ်ကြောင်းကတိပြုခြင်း

- စက်ရုံဧရိယာနှင့်ဝန်းကျင်အတွင်းအရိပ်ရအပင်များ စိုက်ပျိုးခြင်းနှင့် ရေစီးရေလာ ကောင်းမွန်ရေးရေမြောင်းများ ဖောက်လုပ်သွားမည်ဖြစ်ပါသည်၊
- လူမှုထွက်ရှိသည့် အညစ်အကြေးများအား မြို့၏စည်ပင်သာယာရေးဌာန၏ လုပ်ထုံးလုပ်နည်းလမ်းညွှန်ချက်များအတိုင်းအတိအကျလိုက်နာဆောင်ရွက်စွန့်ပစ်သွားမည် ဖြစ်ကြောင်းတင်ပြအပ်ပါသည်၊
- တည်ဆောက်ရေးလုပ်ငန်းများနှင့် လုပ်ငန်းလည်ပတ်ခြင်းကြောင့် ပတ်ဝန်းကျင်မဖြစ်ပေါ်စေရေးအတွက် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးပညာရှင်များနှင့်တိုင်ပင်ခြင်း၊အကြံဉာဏ်များရယူ၍လိုက်နာဆောင်ရွက်သွားပါမည်၊
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးလုပ်ငန်းများအတွက် C.S.R ရံပုံငွေ၏ ၂ % အားအသုံးပြုဆောင်ရွက်သွားရာတွင် ကျွန်တော်များကုမ္ပဏီသည်အဆိုပြုလုပ်ငန်းဆောင်ရွက်ရာတွင်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့်သစ်တောရေးရာဝန်ကြီးဌာန၏ဥပဒေ၊နည်းဥပဒေလုပ်ထုံးလုပ်နည်းများ ၊စည်းမျဉ်းစည်းကမ်းများနှင့် အညီလိုက်နာကျင့်သုံးဆောင်ရွက်သွားမည်ဖြစ်ကြောင်းကတိပြုပါသည်၊

လေးစားစွာဖြင့်

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မီးဘေးကာကွယ်ရေးစီမံချက်

- စက်ရုံနှင့်ရုံးခန်းသိုလှောင်ခန်းများအတွင်း Smoking Detectore များနှင့် Speaker များတပ်ဆင်ထားမည်ဖြစ်ပြီး မီးလောင်မှုဖြစ်ပွားပါကအချက်ပေးခေါင်းလောင်းများမှသတိပေးခြင်း၊ နှင့်အသံဖြင့် ညွှန်ကြား၍ အလုပ်သမားများအား စက်ရုံအတွင်းမှ ဘေးအန္တရာယ်ကင်းရှင်းစွာထွက်ခွာနိုင်အောင်စီမံတည်ဆောက်ထားပါသည်၊
- Smoking Detectore များမှမီးလောင်ကြောင်း ထောက်လှမ်းသိရှိရသည်နှင့်အချက်ပေးခြင်း၊ ဘေးကင်းလုံခြုံရေးညွှန်ကြားခြင်းများအပြင်မီးအားအလိုအလျောက်ငြိမ်းသတ်နိုင်စေရန်အဆောက်အဦများအတွင်း Sprinkler များတပ်ဆင်ထားမည်ဖြစ်ပါသည်၊
- စက်ရုံအဆောက်အဦလျောက်လမ်းများတွင် Fire Hose Reel များပြည့်စုံတပ်ဆင်ထားရှိမည်ဖြစ်ပါသည်၊
- လျှပ်စစ်ဓါတ်အားအသုံးပြုမှုအားလုံးကို Breaker များဖြင့်ဆက်သွယ်ထားပြီးလျှပ်စစ်ဓါတ်အားမှားယွင်းမှုဖြစ်ပွားပါကလျှပ်စစ်အန္တရာယ်မဖြစ်ပွားစေရန်အတွက်လျှပ်စစ်ဓါတ်အားဖြတ်တောက်ပေးမည်ဖြစ်ပါသည်၊ လျှပ်စစ်သွယ်တန်းသုံးစွဲမှုများအားလျှပ်စစ်ကျွမ်းကျင်ပညာရှင်ခန့်ထားပြီးအစဉ်စစ်ဆေးသွားမည်ဖြစ်ပါ သည်၊
- မြေပေါ်ရေလှောင်ကန်များ၊ နှင့် Over Head Tank များမှလည်းမီးဘေးအန္တရာယ်ဖြစ်ပွားပါကအသုံးပြုသွားနိုင်ရန်စီမံဆောင်ရွက်သွားမည်ဖြစ်ပါသည်၊
- လောင်စာဆီသိုလှောင်မှုကိုဂရုပြုဆောင်ရွက်သွားမည်ဖြစ်ပြီးဝန်ထမ်းများအားမီးငြိမ်းသတ်ခြင်းသင်တန်းများပေးသွားမည် ဖြစ်ပါသည်၊
- အစဉ်အမြဲမီးဘေးမဖြစ်ပွားစေရန်ဂရုပြုဆောင်ရွက်သွားမည်ဖြစ်ပြီးစက်ရုံအဆောက်အဦတွင်မီးသတ်ဆေးဗူးများ အလုံအလောက် တပ်ဆင်သွားမည်ဖြစ်ပြီး မီးသတ်ဦးစီးဌာန၏ လမ်းညွှန်မှုကိုအစဉ်ခံယူ၍လမ်းညွှန်ချက်များအတိုင်းဂရုပြုလိုက်နာဆောင်ရွက်များမည်ဖြစ်ကြောင်းလေးစားစွာတင်ပြအပ်ပါသည်၊

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C.S.R နှင့်စပ်လျဉ်း၍ကတိပြုခြင်း

အဆိုပြုလုပ်ငန်းမှနှစ်စဉ်အမြတ်ငွေ၏ ၂% အား C.S.R ရံပုံငွေအဖြစ်ထားရှိသုံးစွဲသွားမည်ဖြစ်ပြီးအဆိုပါ ရံပုံငွေ၏ ၃၀% အားပညာရေးအတွက် အဓိကထားသုံးစွဲသွားမည်ဖြစ်ပြီး၊ ဒေသအတွင်းရံပုံငွေအားနည်းသည့် ကျောင်းများနှင့် ကျောင်းသား များအတွက်အသုံးစွဲသွားမည်ဖြစ်ပါသည်၊ ထို့ပြင်ရံပုံငွေ၏ ၃၀% အားသေခံပြည်သူများ၊ မိခင်နှင့်ကလေးများ၏ ကျန်းမာရေးလုပ်ငန်းများအတွက်အသုံးပြုသွားမည်ဖြစ်ပါသည်၊၂၀% အား မိမိတို့ဒေသ အတွင်းလမ်းတံတားဖွံ့ဖြိုးရေးအတွက်သုံးစွဲသွားမည်ဖြစ်ပါသည်၊ ကျန် ၂၀% အားလူမှုရေးနှင့်ပတ်ဝန်းကျင်ထိန်းသိမ်း ရေးလုပ်ငန်းများအတွက် နိုင်ငံတော်နှင့် ဒေသအာဏာပိုင်များ၏ လမ်းညွှန်ချက်များအားလိုက်နာဆောင်ရွက်သွားမည် ဖြစ်ပါကြောင်းတင်ပြအပ်ပါသည်၊

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လုပ်သားများ၏ လူမှုဖူလုံရေး သက်သာချောင်ချိရေးအစီအမံများ

(၁) ဝန်ထမ်းများအတွက် သီးသန့် Locker များထားရှိ၍ နားနေဆောင်၊ အဝတ်လဲခန်းများသတ်မှတ်ပေး ထားမည် ဖြစ်ပါသည်။

(၂) ဝန်ထမ်းများအတွက်အဆောင်များဆောက်လုပ်ပေးမည်ဖြစ်ပြီး အဆောင်မနေသောဝန်ထမ်းများအတွက်အကြို အပို့ ကားများ စီစဉ်ပေးမည်ဖြစ်ပါသည်။

(၃) ဝန်ထမ်းများအား သတ်မှတ်ထားသော အလုပ်ချိန်ထက်ကျော်လွန်ပြီး အချိန်ပိုလုပ်ကိုင်ရပါ ကထိုက်သင့်သော အချိန်ပိုကြေးကိုခံစားစေမည် ဖြစ်ပါသည်။

(၄) ဝန်ထမ်းများကို Canteen တွင် သန့်ရှင်းသပ်ရပ်စွာ စားသုံးနိုင်ရန် ထမင်းစားခုံ၊ ကုလားထိုင်၊ ဆပ်ပြာ၊ သန့်ရှင်း ရေးသုံးပစ္စည်းများ စနစ်တကျထားရှိပေးမည်ဖြစ်ပါသည်။

(၅) စက်ရုံတွင်နေထိုင်သော ဝန်ထမ်းများအတွက် မနက်၊နေ့လည်၊ည စာများစီစဉ်ပေးမည်ဖြစ်ပါသည်။

(၆) ဝန်ထမ်းအမျိုးသားနှင့် အမျိုးသမီးများအတွက် ရေချိုးခန်း အိမ်သာများကိုလည်း အလုံအလောက် သီးသန့်စီ ခွဲထားပေးမည်ဖြစ်ပါသည်။

(၇) ဝန်ထမ်းများ ဗဟုသုတတိုးပွားစေရန်အတွက် သီးသန့်ခန်းတစ်ခန်းတွင် သတင်းစာ၊ စာစောင် နှင့် အခြားဖတ်သင့်သော စာအုပ်၊ စာစောင်များ ဝယ်ထားရှိပေးမည်ဖြစ်ပါသည်။

(၈) ဝန်ထမ်းများအတွက် ကျန်းမာရေးစောင့်ရှောက်မှုနှင့် ပဏာမ ကုသမှုများပြုလုပ်နိုင်ရန် အတွက် ကျန်းမာရေး ဆေးခန်းကိုစီစဉ်ပေးမည်ဖြစ်ပါသည်။

ထို့ပြင် ဤကုမ္ပဏီ အနေဖြင့် အလုပ်သမားများကို ဥပဒေနှင့်အညီဆောင်ရွက်စေပြီး တည့်ဆဲဥပဒေများကို လိုက်နာစေရန် စီစဉ်ဆောင်ရွက်မည်ဖြစ်ပါကြောင်းတင်ပြအပ်ပါသည်။

Nyi Nyi Lwin
Managing Director
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APPENDIX E
Environmental Monitoring Result

Air Quality Result

MYANWEI
ENVIRONMENTAL SOLUTIONS
Plot No. (36, 38), Room No. 9A, 9th floor, Grand Myay Nu Condominium, Myay Nu Street, Sanchaung Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 1 526574, Mobile: (+95) 9775405118, 9792528677, 9449251888; Website: www.myanweiconsulting .com

Project Name:	Plus World Company Limited
Project Location:	Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar.
Sampling Date:	December 15, 2020
Sampling Time:	9:00 AM to 9:00 AM
Sampling Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
HAZSCANNER	PM, NO_2, SO_2, CO, CO_2 Detector	1 second to 21 weeks	Operation Area (Outdoor)

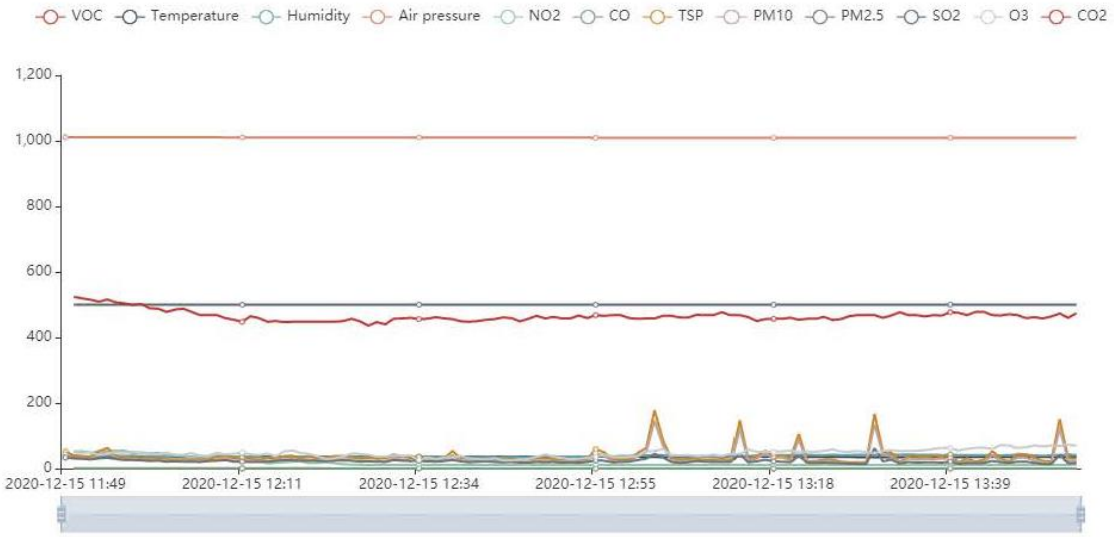
National Environmental Quality (Emission) Guideline

Parameter	Averaging period	Guideline value	Unit
PM_{10}[a]	1-year 24-hour	20 50	($\mu g/m^3$)
$PM_{2.5}$[a]	1-year 24-hour	10 25	($\mu g/m^3$)
O_3[a]	8-hour	100	($\mu g/m^3$)
NO_2[a]	1-year 1-hour	40 200	($\mu g/m^3$)
SO_2[a]	24-hour 10-min	20 500	($\mu g/m^3$)

a. Values from air quality guidelines-global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide.

Monitoring Result

Parameters	Observed value	Guideline value	Unit	Organization	Period
PM_{10}	30.397	50	$\mu g/m^3$	NEQG	24 hours
$PM_{2.5}$	22.471	25	$\mu g/m^3$	NEQG	24 hours
SO_2	20.8	20	$\mu g/m^3$	NEQG	24 hours
NO_2	17.617	200	$\mu g/m^3$	NEQG	1 hours
CO	0.389	NG	ppm	NEQG	24 hours
O_3	46.125	100	ppm	NEQG	8 hours



LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

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Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	Plus World Co.,Ltd.
Project Location:	Project Site
Sampling Date:	6 – 7 September, 2022
Sampling Time:	10:00 am to 10:00 pm
Sampling Condition:	Moderate
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
OCEANUS-AQM-09	PM, O_3, NO_2, SO_2, CO, CO_2 Detector	0-999.9 (µg/m^3)	Operation Area (Outdoor)

National Environmental Quality (Emission) Guideline

Parameter	Averaging Period	Guideline Value	Unit
PM_{10}[a]	1-year 24-hour	20 50	(µg/m^3)
$PM_{2.5}$[a]	1-year 24-hour	10 25	(µg/m^3)
O_3[a]	8-hour	100	(µg/m^3)
NO_2[a]	1-year 1-hour	40 200	(µg/m^3)
SO_2[a]	24-hour 10-min	20 500	(µg/m^3)

a. Values from air quality guidelines-global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide.

Monitoring Result

Parameters	Observed Value	Guideline Value	Unit	Organization	Period
TSP	19.81	-	µg/m^3	-	24 hours
PM_{10}	15.70	50	µg/m^3	NEQG	24 hours
$PM_{2.5}$	10.75	25	µg/m^3	NEQG	24 hours
SO_2	1.21	20	µg/m^3	NEQG	24 hours
NO_2	25.73	200	µg/m^3	NEQG	1 hour
CO_2	4.16	-	µg/m^3	-	8 hours
CO	0.30	-	ppm	-	24 hours
VOC	0.01	-	ppm	-	24 hours
O_3	3.86	-	ppm	-	24 hours

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED.

MYANWEI ENVIRONMENTAL SOLUTIONS
No, 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	Plus World Co.,Ltd.
Project Location:	Shwe Kyar Nyo Kan Monastery
Sampling Date:	7 – 8 September, 2022
Sampling Time:	10:30 am to 10:30 pm
Sampling Condition:	Moderate
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
OCEANUS-AQM-09	PM, O_3, NO_2, SO_2, CO, CO_2 Detector	0-999.9 (µg/m^3)	Operation Area (Outdoor)

National Environmental Quality (Emission) Guideline

Parameter	Averaging Period	Guideline Value	Unit
PM_{10}[a]	1-year 24-hour	20 50	(µg/m^3)
$PM_{2.5}$[a]	1-year 24-hour	10 25	(µg/m^3)
O_3[a]	8-hour	100	(µg/m^3)
NO_2[a]	1-year 1-hour	40 200	(µg/m^3)
SO_2[a]	24-hour 10-min	20 500	(µg/m^3)

a. Values from air quality guidelines-global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide.

Monitoring Result

Parameters	Observed Value	Guideline Value	Unit	Organization	Period
TSP	20.62	-	µg/m^3	-	24 hours
PM_{10}	16.48	50	µg/m^3	NEQG	24 hours
PM $_{2.5}$	10.95	25	µg/m^3	NEQG	24 hours
SO_2	2.17	20	µg/m^3	NEQG	24 hours
NO_2	20.42	200	µg/m^3	NEQG	1 hour
CO_2	1.10	-	µg/m^3	-	8 hours
CO	0.28	-	ppm	-	24 hours
VOC	0.01	-	ppm	-	24 hours
O_3	3.00	-	ppm	-	24 hours

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

Water Quality 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 1 of 1

W0220 161

WATER QUALITY TEST RESULTS FORM

Client: U Soe Moe
Nature of Water: Well Water (1)
Location: ပုလဲမြို့
Date and Time of collection: 6.2.2020
Date and Time of arrival at Laboratory: 6.2.2020
Date and Time of commencing examination: 7.2.2020
Date and Time of completing: 9.2.2020

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
pH	7.7		6.5 - 8.5
Colour (True)	5	TCU	15 TCU
Turbidity	8	NTU	5 NTU
Conductivity	184	micro S/cm	
Total Hardness	34	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	24	mg/l as $CaCO_3$	
Magnesium Hardness	10	mg/l as $CaCO_3$	
Total Alkalinity	84	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	Nil	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nil	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	84	mg/l as $CaCO_3$	
Iron	0.46	mg/l	0.3 mg/l
Chloride (as CL)	4	mg/l	250 mg/l
Sodium chloride (as NaCL)	7	mg/l	
Sulphate (as SO_4)	12	mg/l	500 mg/l
Total Solids	104	mg/l	1500 mg/l
Total Suspended Solids	12	mg/l	
Total Dissolved Solids	92	mg/l	1000 mg/l
Manganese	Nil	mg/l	0.05 mg/l
Phosphate	Nil	mg/l	
Phenolphthalein Acidity	2	mg/l	
Methyl Orange Acidity	Nil	mg/l	
Salinity	0.1	ppt	

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

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 1 of 1

W0121 657

WATER QUALITY TEST RESULTS FORM

Client	Wave Plus
Nature of Water	Tube Well Water - 1
Location	Pale
Date and Time of collection	21.1.2021
Date and Time of arrival at Laboratory	27.1.2021
Date and Time of commencing examination	28.1.2021
Date and Time of completing	30.1.2021

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)		°C	
Fluoride (F)		mg/l	1.5 mg/l
Lead (as Pb)	Nil	mg/l	0.01 mg/l
Arsenic (As)	Nil	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)		mg/l	50 mg/l
Chlorine (Residual)		mg/l	
Ammonia Nitrogen (NH_3)		mg/l	
Ammonium Nitrogen (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)		mg/l	
Cyanide (CN)	Nil	mg/l	0.07 mg/l
Zinc (Zn)	Nil	mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)		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: Bos 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

Noise Result

MYANWEI
ENVIRONMENTAL SOLUTIONS
Plot No. (36, 38), Room No. 9A, 9th floor, Grand Myay Nu Condominium, Myay Nu Street, Sanchaung Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 1 526574, Mobile: (+95) 9775405118, 9792528677, 9449251888; Website: www.myanweiconsulting .com

Project Name:	Plus World Company Limited
Project Location:	Myay Taing (532/B), No.(410-B/75(Ka) Pearl Housing, Zagawar Street, Mingalardon Township, Yangon Region, Myanmar.
Sampling Date:	December 15, 2020
Sampling Time:	10:00 AM to 4:00 PM
Sampling Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Digital Sound Level Meter	GM 1356 USB	30 -130 dB	16°58'13.37"N 96° 8'39.63"E

No	Place	Unit	Result	Standard	Remark
1	Operation Area	dBA	80.5	70 dBA	Slightly High

National Environmental Quality (Emission) Guideline

Receptor	One Hour Laeq (dBA)	Guideline value
	Daytime	Nighttime
	7:00 – 22:00 (10:00 – 22:00 for Public holidays)	22:00 – 07:00 (22:00 – 10:00 for Public holidays)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

MYANWEI
ENVIRONMENTAL SOLUTIONS
No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	Wave Plus Co.,Ltd
Project Location:	Project Site
Sampling Date:	6 - 7 September, 2022
Sampling Time:	10:00am -10:00 am
Sampling Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Digital Sound Level Meter	GM 1356 USB	30 -130 dB	16°49' 09" N 96°15' 54" E

National Environmental Quality (Emission) Guideline

Date and Time	Location	GPS value	Result value	NEQ Guideline	Receptor
6th September 2022 - 7th September 2022 (10:00 AM to 10:00 AM)	Project Site Area (NL -1)	16°49' 09" N 96°15' 54" E	62.40 dBA	70 dBA	Industrial, Commercial

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Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	Wave Plus Co., Ltd.
Project Location:	Shwe Kyar Nyo Kan Monastery
Sampling Date:	7 - 8 September, 2022
Sampling Time:	10:30am -10:30 am
Sampling Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Digital Sound Level Meter	GM 1356 USB	30 -130 dB	16°49' 09" N 96°15' 54" E

National Environmental Quality (Emission) Guideline

Date and Time	Location	GPS value	Result value	NEQ Guideline	Receptor
7th September 2022 - 8th September 2022 (10:00 AM to 10:00 AM)	Shwe Kyar Nyo Kan Monastery (NL -2)	16°49' 09" N 96°15' 54" E	58.32 dBA	70 dBA	Industrial, Commercial

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

Traffic Counting

Plus World Co., Ltd

D/M/Y - 6th, September 2022 TC -1 From – Project Site To – No. (3) Main Road

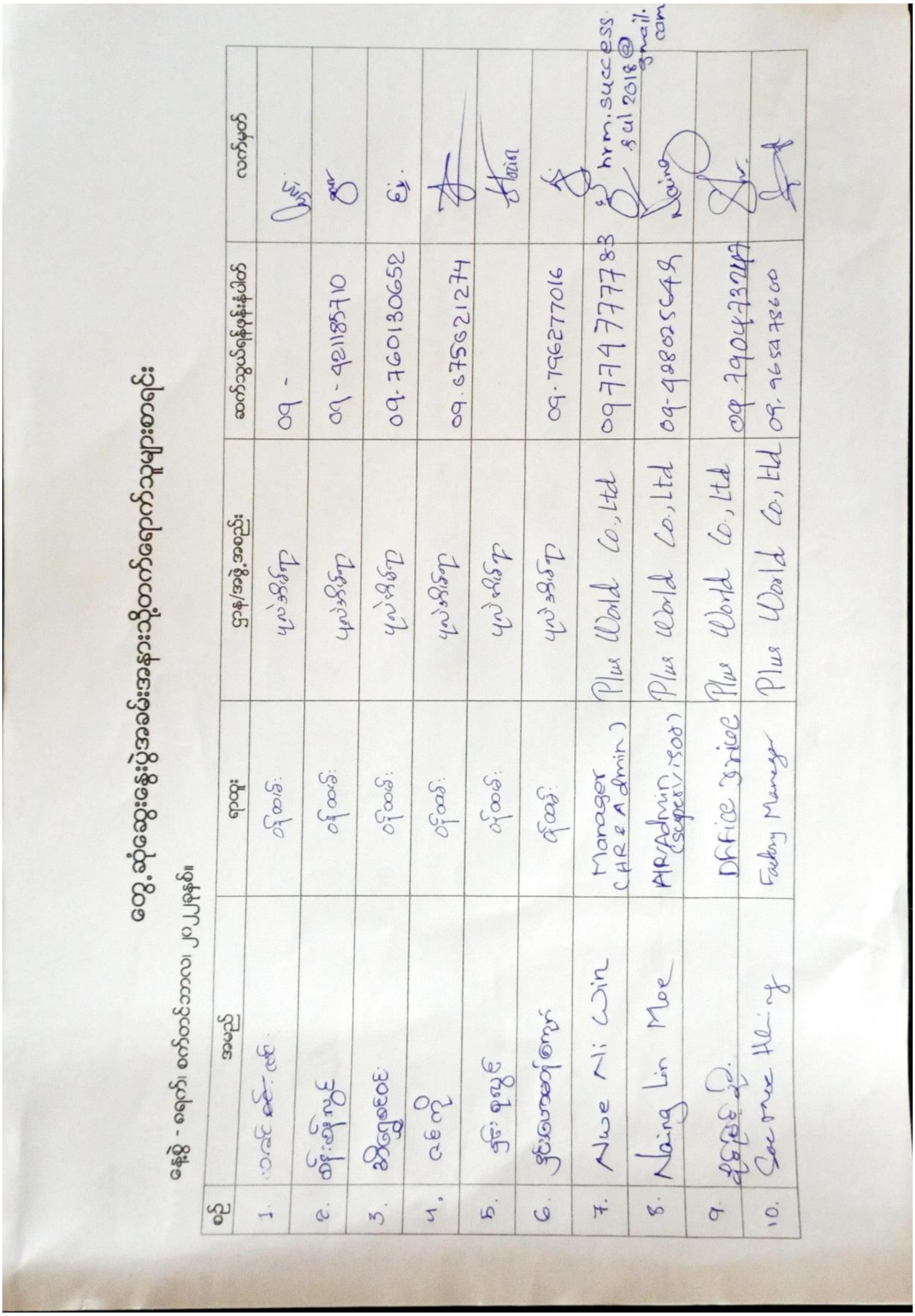
Vehicle Name	11:00 AM – 12:00 Pm	12:00 PM – 1:00 PM	1:00 PM – 2:00PM
Bicycle/ Tricycle	10	15	8
Motorcycle	35	20	28
Motor-tricycle	2	4	1
Passenger Car Taxi	7	5	11
Light Truck	7	10	8
Light Bus	-	-	-
Medium Bus	-	-	-
Medium Truck	1	3	1
Heavy Bus	-	-	-
Heavy Truck	-	-	-

Plus World Co., Ltd

D/M/Y - 7th, September 2022 TC -2 From – Aung Min Ga Lar To – High Way Road

Vehicle Name	11:00 AM – 12:00 Pm	12:00 PM – 1:00 PM	1:00 PM – 2:00PM
Bicycle/ Tricycle	10	12	9
Motorcycle	75	92	70
Motor-tricycle	5	22	10
Passenger Car Taxi	423	520	489
Light Truck	210	242	190
Light Bus	18	36	20
Medium Bus	20	22	18
Medium Truck	62	48	58
Heavy Bus	28	56	22
Heavy Truck	37	40	42

APPENDIX F
Public Consultation Presentation Slide and Attendance List



တွေ့ဆုံဆွေးနွေးပွဲအခမ်းအနားသို့တက်ရောက်သူများစာရင်း

နေ့စွဲ - ၈ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂ခုနှစ်။

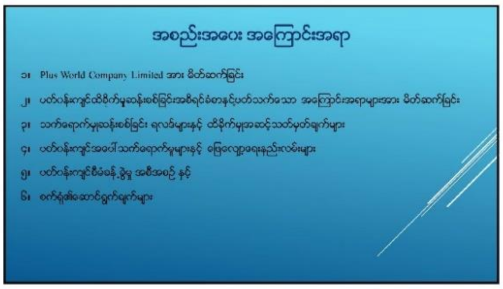
စဉ်	အမည်	ရာထူး	ဌာန/အဖွဲ့အစည်း	ဆက်သွယ်ရန်ဖုန်းနံပါတ်	လက်မှတ်
1.	[illegible]	ဝန်ထမ်း	[illegible]	09 -	
၉.	[illegible]	ဝန်ထမ်း	[illegible]	09 - 421185710	
3.	[illegible]	ဝန်ထမ်း	[illegible]	09 - 760130652	
4.	ဇင်ကို	ဝန်ထမ်း	[illegible]	09. 675621274	
5.	[illegible]	ဝန်ထမ်း	[illegible]		
6.	[illegible]	ဝန်ထမ်း	[illegible]	09 - 796277016	
7.	Nwe Ni Win	Manager (HR & Admin)	Plus World Co., Ltd	09774777783	hrm.success8ul2018@gmail.com
8.	Naing Lin Moe	HR/Admin (Supervisor)	Plus World Co., Ltd	09-428025648	
9.	[illegible]	Office [illegible]	Plus World Co., Ltd	09 790473[illegible]	
10.	Soe Moe Hling	Factory Manager	Plus World Co., Ltd	09. 965478600	

တွေ့ဆုံဆွေးနွေးပွဲအခမ်းအနားသို့တက်ရောက်သူများစာရင်း

နေ့စွဲ - ၈ရက်၊ စက်တင်ဘာလ၊ ၂၀၂၂ခုနှစ်။

စဉ်	အမည်	ရာထူး	ဌာန/အဖွဲ့အစည်း	ဆက်သွယ်ရန်ဖုန်းနံပါတ်	လက်မှတ်
11.	ဆုမြတ်ကျိုင်	Env: Engr	Myanwei Environmental Solutions Co., Ltd	09-767135084	
12	ထွန်းလင်းကျော်	Env. Scientists	Myanwei Environmental Solutions Co., Ltd	09-448841090	
13.	ကောင်းဆက်လွင်	Env. Scientists	Myanwei Environmental Solutions Co., Ltd	09.787939673	
14.	မိုးစေဂွလင်း	Env. Scientists	Myanwei Environmental Solutions Co., Ltd	09.797941577	

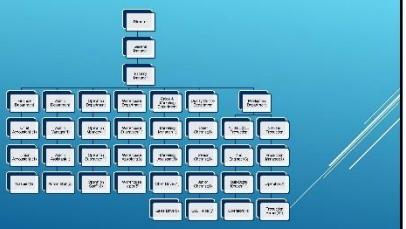

PLUS WORLD COMPANY LIMITED ၏
သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်း
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာ
အတွက်ဆွေးနွေးခြင်း
Prepared By
Myanwei Environmental Solutions Co., Ltd
MYANWEI


အစည်းအဝေး အကြောင်းအရာ
၁။ Plus World Company Limited အား မိတ်ဆက်ခြင်း
၂။ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာနှင့်ပတ်သက်သော အကြောင်းအရာများအား မိတ်ဆက်ခြင်း
၃။ သက်ရောက်မှုဆန်းစစ်ခြင်း ရလဒ်များနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ
၄။ ပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများနှင့် ဖြေလျှော့ရေးနည်းလမ်းများ
၅။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် နှင့်
၆။ စက်ရုံ၏ဆောင်ရွက်ချက်များ


Plus World Company Limited ၏စက်ရုံတည်နေရာ
Project Location
Residential Area


Plus World Company Limited ၏ဝေဟင်မြင်ကွင်း

PLUS WORLD COMPANY LIMITED ၏ ဖွဲ့စည်းပုံ



PLUS WORLD COMPANY LIMITED

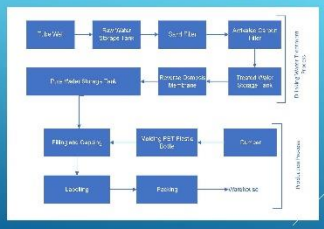
လုပ်ငန်းအမျိုးအစား	သောက်ရေသန့်ထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်း။
DICA မှတ်ပုံတင်အမှတ်	103296277(6/10/2016)
ခွင့်ပြုမိန့်အမှတ်	Permit No. (269/2020) ၂၀၂၀ ခုနှစ်၊ ဇွန်လ၊ ၂၆ရက်။
ရင်းနှီးမြှုပ်နှံမှု	၁၀၀% မြန်မာနိုင်ငံသားရင်းနှီးမြှုပ်နှံမှု
မြေဧရိယာ	မြေဧရိယာစုစုပေါင်း = ၃.၉၆၈ ဧက (၁၀၁.၂၇ စတုရန်းပေတာ)
ရင်းနှီးမြှုပ်နှံသည့်ကာလ	၃၀ နှစ်
စက်ရုံလိပ်စာ	မြေတိုင်းရပ်ကွက်အမှတ်- ၅၃၂/ဘီ၊ မြောက်အမှတ် ၄၀၀ ဘီ/ ဂ၅-က၊ ပုလဲအိမ်ယာ၊ မင်္ဂလာဒုံမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။

လုပ်ငန်းလည်ပတ်ရန်အခြေခံလိုအပ်ချက်များ

ရေအသုံးပြုမှုအခြေအနေ	
ရေအရင်းအမြစ်	အပီစီတွင်းရေ (၆ တွင်း)
အဓိကလိုအပ်ချက်	
လက်ရှိလူဦးရေ	နိုင်ငံသား (ပြည်တွင်း) လုပ်သား (၃၆၅) ဦး
အစိုကကုန်ကြမ်း	Preform, Cap, Label, Shrink etc.,
နှစ်စဉ်ထုတ်ကုန်ပစ္စည်းပမာဏ	နှစ်စဉ် မျှမ်းမျှအရေအတွက် ပထမနှစ်မှ ၃ နှစ်အတွင်း 1 Liter ၃၆,၆၆၃,၀၀၀ မှ ၅၃,၀၄၄,၁၆၀ 0.3 Liter ၃၆,၈၆၄,၀၀၀ မှ ၅၃,၀၄၄,၁၆၀ 0.6 Liter ၄၆,၀၈၀, ၀၀၀ မှ ၆၆,၃၅၅,၂၀၀

PLUS WORLD COMPANY LIMITED ၏ထုတ်လုပ်မှုအလိုက်နေရာပြမြေပုံ

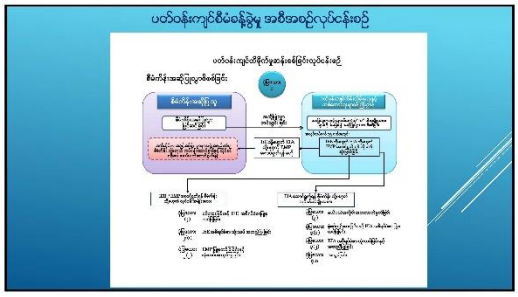
PLUS WORLD COMPANY LIMITED ၏ထုတ်လုပ်ပုံအဆင့်ဆင့်

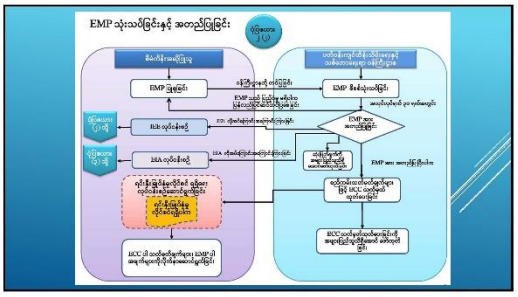


PLUS WORLD COMPANY LIMITED ၏ထုတ်လုပ်ပုံများ

Plus World Company Limited ၏ ထုတ်ကုန်ပစ္စည်းများ

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်အား မိတ်ဆက်ခြင်း


ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်လုပ်ငန်းစဉ်


EMP သုံးသပ်ခြင်းနှင့် အတည်ပြုခြင်း


COMPANY REGISTRATIONS OF PLUS WORLD COMPANY LIMITED


သက်ရောက်မှုဆန်းစစ်ခြင်းရလာဒ်များနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ

စီမံကိန်းပတ်ဝန်းကျင်အနေအထား

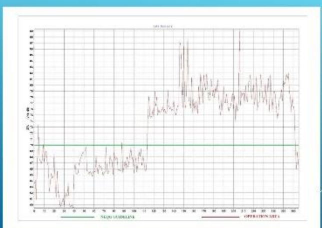
စဉ်	အကြောင်းအရာ	ဖော်ပြချက်
၁။	ကိုဩဒိနိတ်အမှတ်	မြောက်လတ္တီကျု 16°58'12"နှင့် အရှေ့လောင်ဂျီကျု 96°08'39"
၂။	ရာသီဥတုအခြေအနေ	မင်္ဂလာဒုံမြို့နယ် နှစ်စဉ်ပျမ်းမျှအမြင့်ဆုံးအပူချိန် 39°C၊ အနိမ့်ဆုံးအပူအချိန် 15°C စုစုပေါင်း မိုးရေချိန်လက်မ 2681 လက်မ
၃။	စက်ရုံနေရာတွင်မြေအသုံးချမှု	စက်မှုလုပ်ငန်းနှင့်သက်ဆိုင်သောမြေအသုံးချမှုပုံစံ
၄။	လမ်းပန်းဆက်သွယ်ရေး	အမှတ် (၃)လမ်းမကြီး
၅။	အနီးဆုံးရေအရင်းအမြစ်	မရှိ
၆။	သစ်တောဧရိယာ	မရှိ
၇။	ကန့်သတ်ကာကွယ်ထားသော ဧရိယာ	မရှိ
၈။	တိုင်းတာမှုရလဒ်	☐ ဆူညံသံ တိုင်းတာခြင်း ☐ အလင်းရောင် တိုင်းတာခြင်း ☐ လေထုအရည်အသွေး တိုင်းတာခြင်း ☐ အပူချိန် နှင့် စိုထိုင်းမှု အရည်အသွေး တိုင်းတာခြင်း

ဆူညံသံတိုင်းတာမှု

Date and Time	Location	GPS value	Result value	NEQ Guideline
15 December 2020 (10:00 am to 4:00 pm)	Construction area	16°58'13.37"N 96° 8'39.63"E	80.5 dBA	70 dBA

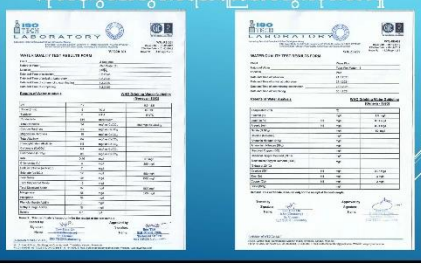
အထက်ဖော်ပြပါ ဆူညံသံတိုင်းတာမှုရလဒ်များအရ
Plus World Company Limited ၏ဆူညံသံမှာ National Emission Quality Guideline ထက် အနည်းငယ် ကျော်လွန်နေသည်ကို ဆန်းစစ်တွေ့ရှိရပါသည်။

PLUS WORLD COMPANY LIMITED ၏ဆူညံသံတိုင်းတာမှုပြ ဂရပ်



စက်ရုံတွင်းဆူညံသံတိုင်းတာမှု

လုပ်ငန်းခွင်အတွင်းရေအာရည်အသွေးတိုင်းတာမှု

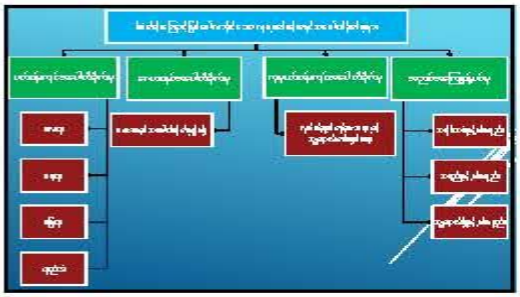


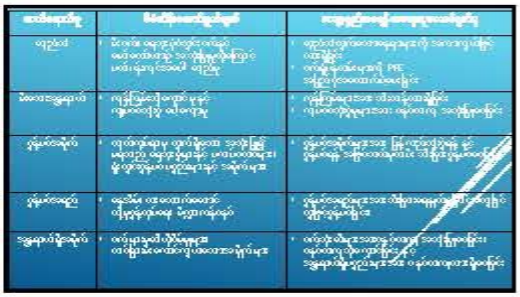
ပတ်ဝန်းကျင်လေထုတိုင်းတာမှု

Parameters	Observed value	Guideline value	Unit	Organization	Averaging period
$PM_{2.5}$	22.47	0 25	$\mu g/m^3$	NLCG	24 hrs year
PM_{10}	30.397	50 20	$\mu g/m^3$	NECG	24 hrs year
SO_2	20.8	500 20	$\mu g/m^3$	NLCG	10 minutes 24 hrs
NO_2	17.617	200 40	$\mu g/m^3$	NECG	1 hrs year
O_3	46.125	100	ppm	NAAQS	8 hrs maximum
CO	0.369	10	ppm	ACGIH	24 hrs

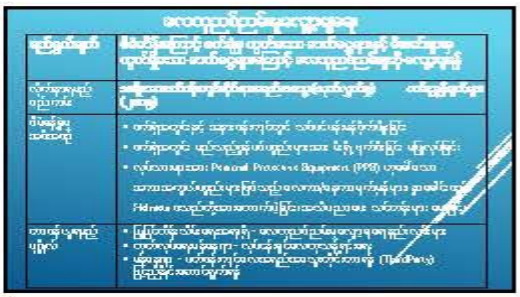
ပတ်ဝန်းကျင်လေထုတိုင်းတာမှု

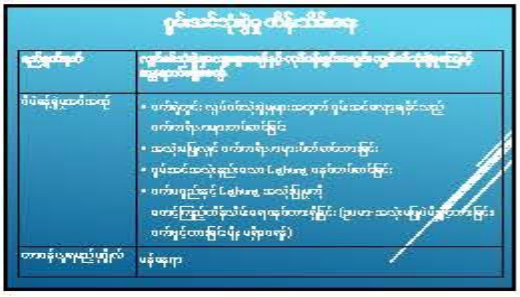
ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုများနှင့် ဖြေလျှော့ရေးနည်းလမ်းများ



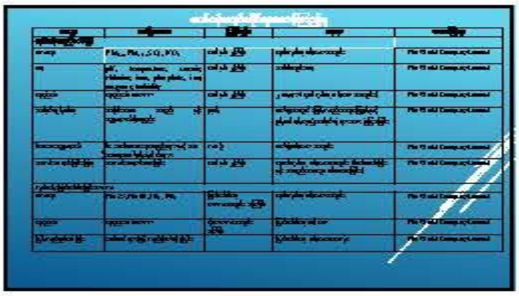



ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်






The Underground Water Act (1930)
(Third Party)

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I

လူမှုအကျိုးတူယူးပေါင်း ပါဝင်မှု

ကျန်းမာရေး	ဝန်ထမ်းများ ကျန်းမာရေး စောင့်ရှောက်မှု	၀.၅ %
ပညာရေး	ပညာရေးကဏ္ဍ မြှင့်တင်ရေးနှင့် လူအစွင့်အရေး အသိပညာပေးခြင်း	၀.၅ %
နယ်မြေဖွံ့ဖြိုးတိုးတက်ရေး	ဒေသတွင်း လိုအပ်သကဲ့သို့ လှူဒါန်းခြင်း	၁ %

Plus World Company Limited တွင် CSR အတွက် အမြတ်မှ၏ ၂% ကို ကျန်းမာရေး ပညာရေးနှင့် နယ်မြေဖွံ့ဖြိုးတိုးတက်ရေးတို့ အတွက် အသုံးပြုသွားမည် ဖြစ်ပါသည်။

စက်ရုံ၏ဆောင်ရွက်ချက်များ

Plus World Company Limited
ဝန်ထမ်းများအတွက်သောက်သုံးရေပြင်ဆင်ထားရှိမှု

Plus World Company Limited ၏ လျှပ်စစ်သုံးစွဲမှု