EMP REPORT

BEST GARMENT (MYANMAR) Co., Ltd.

Garment Factory on CMP basis

Prepared by

HRD Environmental Training and Services Co., Ltd.

Environmental Management Plan (EMP)

For
BEST GARMENT (MYANMAR) Co., Ltd
Garment Factory on CMP basis

Prepared by

HRD Environmental Training and Services Co., Ltd.
Human Resource Development Environmental Training and Services
Room.3, Bdg.2, Quarter 3, Insein Road, Mayangon Township, Yangon, Myanmar

September, 2021

ဝန်ခံကတိပြုလွှာ

(က) ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို တိကျခိုင်မာမှုများနှင့်ပြည့်စုံစွာ ဆောင်ရွက်ထားပါသည်။

(ခ) ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများအပါအဝင် သက်ဆိုင်ရာ ဥပဒေများကို တိကျစွာလိုက်နာ၍ ပတ်ဝန်းကျင် စီမံခန့် ခွဲမှု အစီအစဉ်များကို ရေးဆွဲထား ပါသည်။

(ဂ) စီမံကိန်းသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ပါ ကတိကဝတ်၊ ပတ်ဝန်းကျင်ထိခိုက်မှု လျော့ချရေး လုပ်ငန်းများနှင့် အစီအစဉ်များကို အပြည့်အဝ အစဉ်အမြဲ လိုက်နာဆောင်ရွက် သွားမည် ဖြစ်ကြောင်း ကတိကဝတ်ပြုပါသည်။

(ဃ) လုပ်ငန်းလည်ပတ်ဆောင်ရွက်နေသည့် ကာလအတွင်း အတည်ပြုထားသည့် ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်အား တိုးတက်နေသည့် နည်းပညာများ၊ စနစ်များနှင့် လုပ်ငန်းလိုအပ်ချက် အပေါ်မူတည်၍ ပိုမိုကောင်းမွန်သည့် ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ် ဖြစ်စေရန်အတွက် ပြင်ဆင်ဖြည့်စွက်ရန် ညွှန်ကြားချက်ရှိလာပါက လိုက်နာဆောင်ရွက်မည်ဖြစ်ကြောင်းနှင့် လုပ်ငန်း ဆောင်ရွက်သူမှ ပြင်ဆင်ဖြည့်စွက်လိုပါက တင်ပြအတည်ပြုချက် ရယူ၍ ပြင်ဆင်ဆောင်ရွက်မည် ဖြစ်ကြောင်း၊

(င) စီမံကိန်းပိတ်သိမ်းချိန်တွင် လူမှုဝန်းကျင်အား ထိခိုက်မှုအနည်းဆုံးဖြစ်စေရန် စီမံဆောင်ရွက်ပေး မည် ဖြစ်ပြီး ထိခိုက်မှုများ ရှိလာပါက မူလအခြေအနေသို့ ရောက်ရှိစေရန် ဆောင်ရွက်ပေးမည် ဖြစ်ပါသည်။

(လက်မှတ်)

Director
Best Garment (Myanmar) Co., Ltd.

HRD Environmental Training and Services Co., Ltd.
Human Resource Development Environmental Training and Services
Register Address: Room.3, Bdg.2,Quarter 3, Insein Road, Mayangon Township,Yangon
Phone : +95 49201658, +95 9256036414
Email :, hrd.environment2019@gmail.com

အကြံပေးအဖွဲ့ အစည်း၏ဝန်ခံချက်

ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ဆိုင်ရာ အစီရင်ခံစာသည် တိကျခိုင်မာ၍ပြည့်စုံ မှန်ကန်ကြောင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပါအဝင် သက်ဆိုင်ရာ ဥပဒေများကို တိကျစွာလိုက်နာ၍ မိမိတို့၏ ကျွမ်းကျင်မှုနယ်ပယ်အလိုက် တာဝန်ယူ ဆောင်ရွက်ခဲ့ကြသည်မှာ မှန်ကန်ကြောင်း ဝန်ခံကတိပြုပါသည်။

Prof. Dr. Aung Lay Tin
(Professor and Head of Mining Engineering Department, Yangon Technological University)
Senior ESIA Team Leader
HRD Environmental Training and Services Co., Ltd
Email.aunglaytin@gamil.com
Phone.09256036414

Table of Content

List of Table

List of Figure

ABBREVIATION/ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
°C	Degree Celsius
CMP	Cutting-Making-Packing
CSR	Corporate Social Responsibility
CV	Curriculum Vitae
ECD	Environmental Conservation Department
EHS	Environmental Health and Safety
EMP	Environmental Management Plan
EIA	Environmental Impact Assessment
EPAS	Environmental Perimeter Air Station
EPC	Electric Power Enterprise
HR	Human Resource
HRD	Human Resource Development
IFC	International Finance Corporation
MIC	Myanmar Investment Commission
MONREC	Ministry of Natural Resources and Environmental Conservation
NEQEG	National Emission Quality Guideline
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
PM	Particulate Matter
PPE	Personal Protective Equipment
QTY	Quantity
USD	United States Dollar
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WHO	World Health Organization
YCDC	Yangon City Development Committee

၁။ အကျဉ်းချုပ် အစီရင်ခံစာ

၁.၁။ နိဒါန်း

ရန်ကုန်တိုင်းဒေသကြီး ၊ရွှေပြည်သာမြို့နယ်၊ လူနေရပ်ကွက်အမှတ် ကရင်ချောင်းကွင်း၊ မြေတိုင်းရပ်ကွက်အမှတ်-၅၆၁၊ ဂရန်အမှတ်-(ရပသ/ဂရသ-၃၃၀/၁၉)၊ ၃၊ ၄၊ ၆၊ ၃၄၊ ၃၅(က)+ ၃၆(က)+ ၃၇(က)+ ၃၈(က)+ ၃၉(က)+ ၄၀(က)+ ၅၅(က)+ ၅၈(က)+ ၅၉(က)+ ၆၀(က)+ ၆၁(က)+ ၆၄(က)+ ၆၇(က)+ ၆၈(က)+ ရ၀(က)+ ရ၁(က)/H မြေ (၈ ဧက)ပေါ်တွင် Best Garment (Myanmar) Co., Ltd. မှ CMP စနစ်ဖြင့် အဝတ်အထည်အမျိုးမျိုး ချုပ်လုပ်ခြင်းလုပ်ငန်း အကောင်အထည်ဖော် ဆောင်ရွက်မည် ဖြစ်ပါသည်။ ဤစီမံကိန်း လုပ်ငန်းအတွက် ပတ်ဝန်းကျင် ထိခိုက်မှုစီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အား HRD Environmental Training and Service Co., Ltd က ၂၀၂၁ ခုနှစ်၊ ဇူလိုင်လတွင် စတင် ဆောင်ရွက်ခဲ့ပြီး လုပ်ငန်းများကို ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး ဥပဒေ (၂၀၁၂)၊ ပတ်ဝန်းကျင် ထိန်းသိမ်ရေး နည်းဥပဒေ (၂၀၁၄)၊ မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှုဥပဒေနှင့် ပတ်ဝန်းကျင် ထိခိုက်ဆန်းစစ်ခြင်း လုပ်ထုံးလုပ်နည်း (၂၀၁၅)ပါ ပြဋ္ဌာန်းချက်များအတိုင်း လိုက်နာဆောင်ရွက်ထားပါသည်။

၁.၂ မူဝါဒနှင့်ကြိုးကြပ်ရေးမူဘောင်

စီမံကိန်းကို အမျိုးသားအဆင့်နှင့်ဒေသအဆင့် စံသတ်မှတ်ချက်များ၊ ဥပဒေနှင့် နည်းဥပဒေများတို့နှင့်အညီ ဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့်စပ်လျဉ်း၍ ပြည်တွင်းစံချိန် စံညွှန်းများနှင့် ဥပဒေများဖြစ်သော ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂)၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၄)၊ ပတ်ဝန်းကျင်ထိုက်ခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း(၂၀၁၅) ထို့အပြင် Component အလိုက်လိုက်နာဆောင်ရွက်မည့်စံချိန်စံညွှန်းအဖြစ် အမျိုးသားပတ်ဝန်းကျင်အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်များ (NEQEG) (၂၀၁၅)၊ အပြည်ပြည်ဆိုင်ရာ ဘဏ္ဍာရေး ကော်ပိုးရေးရှင်း (IFC)၏ အထွေထွေ ပတ်ဝန်းကျင်၊ ကျန်းမာရေးနှင့်ဘေးကင်းရေး(EHS)လမ်းညွှန်များ (၂၀၀၇)၊ စက်မှုလုပ်ငန်းကဏ္ဍအတွက် ပတ်ဝန်းကျင်၊ ကျန်းမာရေးနှင့်ဘေးကင်းရေး(EHS)လမ်းညွှန်များ (၂၀၁၆) စသည့် စံညွှန်းများအတိုင်း ဆောင်ရွက်သွားမည်ဖြစ်ပြီး အသေးစိတ်အား ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ဆိုင်ရာ အစီရင်ခံစာ အခန်း(၃)တွင် ဖော်ပြထားပါသည်။

၁.၃။ စီမံကိန်းအကြောင်းအရာ

အဆိုပြု အထည်ချုပ်စက်ရုံသည် CMP စနစ်ဖြင့် အဝတ်အထည်များချုပ်လုပ်၍ ပြည်ပသို့တင်ပို့ မည့်စက်ရုံဖြစ်ပါသည်။ စီမံကိန်းနှင့်သက်ဆိုင်သည့် အကြောင်းအရာအကျဉ်းဖော်ပြချက်များမှာ အောက်ပါ အတိုင်း ဖြစ်ပါသည်။

စီမံကိန်းအကြောင်းအရာဖော်ပြချက်များ	
စီမံကိန်းအဆိုပြုသူ	Best Garment (Myanmar) Co., Ltd.
စီမံကိန်းလုပ်ငန်းအမည်	အထည်ချုပ်စက်ရုံ
စီမံကိန်းတည်နေရာ	ဂရန်အမှတ်-(ရပသ/ဂရသ-၃၃၀/၁၉)၊ မြေတိုင်း ရပ်ကွက်အမှတ်-၅၆၁၊ လူနေရပ်ကွက်အမှတ် ကရင်ချောင်းကွင်း၊ရွှေပြည်သာမြို့နယ်၊

	ရန်ကုန်တိုင်းဒေသကြီး။
လုပ်ငန်းဖော်ဆောင်သူ	Ms.Gao Peina (Chinese) email. – anna.gao@chinabeide.com
ရင်းနှီးမြုပ်နှံမှုအမျိုးအစား	၁၀၀% နိုင်ငံခြားရင်းနှီးမြုပ်နှံမှု
ရင်းနှီးမြုပ်နှံမှုပမာဏ	US $ 11,000,000
ရင်းနှီးမြုပ်နှံမည့်အချိန်	၅၀နှစ်နှင့်နောက်ထပ်၁၀နှစ်၂ကြိမ်
ထုတ်လုပ်နိုင်စွမ်း	တစ်နှစ်လျှင် အစုံ (၇,၄၄၀,၀၀၀) ခန့်
လိုအပ်သောကုန်ကြမ်းပစ္စည်းများ	နိုင်ငံခြားမှတင်သွင်းသော အထည်လိပ်များနှင့် ချုပ်လုပ်မှုဆိုင်ရာ ဆက်စပ်ပစ္စည်းများ (ကုန်ကြမ်းပစ္စည်းများစာရင်းအား အခန်း ၄ တွင် ဖော်ပြထားပါသည်)
စီမံကိန်း၏အကျယ်အဝန်း	(၈ ဇက) ၃၂၃၇၄.၉၈ စတုရန်းမီတာ
စီမံကိန်းလက်ရှိအခြေအနေ	တည်ဆောက်ရေးလုပ်ငန်းကာလ
ရေစွန့်ထုတ်မှုစနစ်	စက်ရုံတွင်းရေမြောင်းစနစ် အသုံးပြု၍ လူသုံးစွန့်ပစ် ရေများနှင့် မိုးရေများကိုသာစွန့်ထုတ်မည်။အထည်ချုပ်စက်ရုံတွင်လုပ်ငန်းသုံးရေ ဆိုးစွန့်ထုတ် ခြင်းမရှိပါ။
အမှိုက်စွန့်ပစ်မှုစနစ်	စက်ရုံမှ ထွက်ရှိလာမည့် စွန့်ပစ်အမှိုက် သရိုက်များအား မြို့နယ် စည်ပင် သာယာရေး ကော်မတီနှင့် စက်မှုဇုန် ကြီးကြပ်ရေး ကော်မတီ တို့မှချမှတ်ထားသော အိမ်သုံးအမှိုက် စွန့်ပစ်ခြင်းဆိုင်ရာ နည်းလမ်းများ အတိုင်း စွန့်ပစ်ပါမည်။ အထည်ဖြတ်ရာမှ ထွက်ရှိလာသော ဖြတ်စများ အား အမှိုက်များနှင့် အတူ စွန့်ပစ်ပါမည်။
အလုပ်သမားဦးရေ	နိုင်ငံခြားသား - ၄၆ မြန်မာနိုင်ငံသား - ၂၁၀၃ စုစုပေါင်း ၂၁၄၉

လုပ်ငန်းစဉ်အကျဉ်း

အထည်ချုပ်စက်ရုံ၏ လုပ်ငန်း လျာထားထုတ်လုပ်ဆောင်ရွက်ပုံ အဆင့်ဆင့်မှာ ပထမဦးစွာ ရရှိလာသော ကုန်ကြမ်းများကို သိုလှောင်ရုံသို့ စစ်ဆေးရန် ပို့ဆောင်ပါမည်။ မှာယူထားသည့် အဝတ်အထည်ပုံစံကို ဒီဇိုင်းရေးဆွဲဌာနတွင် ရေးဆွဲပြီး ရေးဆွဲထားသည့်အတိုင်းအတာနှင့် ပုံစံအတိုင်း သေချာစွာစစ်ဆေးပြီး စက်ဖြတ်လိုင်းတွင် ဖြတ်ပါမည်။ ထို့နောက် စက်ချုပ်လိုင်းသို့ ပို့ဆောင်ပြီး လိုအပ်သလို တွဲဆက် ချုပ်ခြင်းများကို ဆက်လက်လုပ်ဆောင်ပါမည်။ စက်ချုပ်လိုင်းမှထွက်ရှိလာသော အထည်များကို အရည် အသွေး ကောင်းမွန်မှုရှိမရှိ စစ်ဆေးပါမည်။ ထို့နောက် လျှော်ဖွတ်ခြင်းများနှင့် မီးပူတိုက် အခြောက် ခံခြင်းများကို ဆောင်ရွက်ပါမည်။ ထိုမှတဆင့် ထုပ်ပိုးဌာနတွင် ထုပ်ပိုး၍ သက်ဆိုင်ရာအမျိုးအစားအလိုက် တံဆိပ်များကပ်ပြီးနောက် ကုန်ချော သိုလှောင်ရုံသို့ ပို့ဆောင်ရပါသည်။ ထုတ်လုပ်မှုအဆင့်ဆင့်ကိုလည်း အောက်ပုံတွင် ဖော်ပြထားပါသည်။

အထည်ထုတ်လုပ်ခြင်းလုပ်ငန်းအဆင့်ဆင့်

၁.၄။ အနီးပတ်ဝန်းကျင်အကြောင်းအရာဖော်ပြချက်

အဆိုပြုစီမံကိန်း ဇရိယာအကျယ်မှာ (၈ ဇက) ၃၂၃၇၄.၉၈ စတုရန်းမီတာ ရှိ၍ ကရင်ချောင်းကွင်း၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးအတွင်းတွင် တည်ရှိပါသည်။ စီမံကိန်းလုပ်ကွက်ဇရိယာ၏ အရေပြုသဘာဝ မြေမျက်နှာ သွင်ပြင်၊ ပတ်ဝန်းကျင်၊ လူမှုစီးပွား၊ ယဉ်ကျေးမှုနှင့် မြင်ကွင်းဆိုင်ရာ လက္ခဏာ တို့ကို ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီရင်ခံစာအခန်း(၅)တွင်ဖော်ပြထားပါသည်။ ဤအခန်းတွင် တင်ပြထားသည့် တဆင့်ခံအချက်အလက်များ (secondary data)ကို ထုတ်ဝေပြီးသော သတင်းအချက်အလက်များ၊ လုပ်ငန်ဖော်ဆောင်သူထံမှရရှိသော အချက်အလက်များနှင့် ရွှေပြည်သာမြို့နယ် အထွေထွေအုပ်ချုပ်ရေး ဦးစီးဌာနမှ ပြဌာန်းထားသော မြို့နယ်ဆိုင်ရာ အချက်အလက်များမှ ရယူထားပါသည်။ မူလလူမှုဆိုင်ရာ နှင့် ပတ်ဝန်းကျင်အခြေခံအချက်အလက်များ(primary data)ဖြစ်သည့် ဆူညံမှုတိုင်းတာခြင်း၊ လေထုအရည်အသွေးတိုင်းတာခြင်းတို့ကို ၂၀၂၁ခုနှစ် ဩဂုတ်လအတွင်း ကွင်းဆင်းဆောင်ရွက်ခဲ့ပါသည်။

၁.၅။ သက်ရောက်မှုဖော်ထုတ်ဆန်းစစ်ခြင်းနှင့် ကုစားရန်နည်းလမ်းများ

ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီရင်ခံစာသည် စီမံကိန်း၏ တည်ဆောက်ရေးနှင့် လည်ပတ်ရေးတို့နှင့် ဆက်နွယ်သည့် ဖြစ်ပေါ်လာနိုင်သော သက်ရောက်များကို အလေးပေးဖော်ထုတ်ခဲ့ပါသည်။
(အခန်း ၆ တွင် အသေးစိတ်ကြည့်ရှုရန်)

၁.၅.၁. တည်ဆောက်ရေးကာလ

(က) လေထုအရည်အသွေး အပေါ်သက်ရောက်မှု

တည်ဆောက်ရေးကာလအတွင်း လေထုအရည်အသွေးအပေါ် သက်ရောက်မှုသည် ယာယီ သက်ရောက်မှုများသာ ဖြစ်ပေါ်နိုင်ပါသည်။ အဓိကသက်ရောက်မှုအားဖြင့် ဆောက်လုပ်ရေး လုပ်ငန်းခွင်မှ ဖုန်မှုန့်များ ထွက်ရှိပြီး ပတ်ဝန်းကျင် လေထုအပေါ် ယာယီသက်ရောက်မှု ဖြစ်ပေါ်စေပါသည်။ အခြားယာယီ

သက်ရောက်မှုများအနေဖြင့် ဆောက်လုပ်ရေး ယန္တရားများနှင့် လုပ်ငန်းသုံး ယာဉ်များမှ ထုတ်လုပ်မှုများ ရှိမည် ဖြစ်ပါသည်။

(ခ) ဆူညံမှု

အဓိကအားဖြင့် တည်ဆောက်ရေးကာလတွင် ဆူညံမှု ဖြစ်ပေါ်စေသောအရာများမှာ စီမံကိန်းအတွင်း အသုံးပြုသော ယာဉ်ယန္တရားများနှင့် ဆောက်လုပ်ရေးကိရိယာများမှ ဖြစ်ပါသည်။ လုပ်ငန်းတည်ဆောက်ပြီးစီးပြီးချိန်နှင့် အထည်ချုပ်စက်ကိရိယာများ တပ်ဆင်ချိန်တွင်မူ ဆူညံသံထုတ်လွှတ်မှုများမှာ သိသိသာသာ လျော့နည်းမည် ဖြစ်ပါသည်။

(ဂ) ရေအရည်အသွေး အပေါ် သက်ရောက်မှု

တည်ဆောက်ရေးကာလအတွင်းလုပ်သားများမှ မိလ္လာရေစွန့်ထုတ်မှုများ၊ အမှိုက်နှင့်စွန့်ပစ်ပစ္စည်းများ ထားသိုခြင်း၊ ဓာတုပစ္စည်းများ မတော်တဆ ယိုဖိတ်မှုများ နှင့် စိမ့်ထွက်မှုများရှိမည်ဖြစ်ပြီး စနစ်တကျ လုပ်ဆောင်မှုမရှိပါက ပတ်ဝန်းကျင်ရေအရည်အသွေး ညစ်ညမ်းမှုများ ဖြစ်ပေါ်စေနိုင်ပါသည်။

(ဃ) စွန့်ပစ်ပစ္စည်း စီမံခန့်ခွဲမှု

တည်ဆောက်ရေးကာလတွင် ဆောက်လုပ်ရေးလုပ်ငန်းခွင်မှ နေ့စဉ်ဆောက်လုပ်ရေး စွန့်ပစ်ပစ္စည်းများ ထွက်ရှိမည်ဖြစ်ပါသည်။ အန္တရာယ်မရှိသော စွန့်ပစ်ပစ္စည်း အများစုထွက်ရှိမည် ဖြစ်ပြီး အန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများ (ဥပမာ - စက်ဆီ၊ ချောဆီ၊ အဆောက်ဦးသုတ်ဆေး၊) အစရှိသည်တို့လည်း ထွက်ရှိနိုင်ပါသည်။ အမှိုက်နှင့်စွန့်ပစ်ပစ္စည်းများအား မြို့နယ်စည်ပင်သာယာရေး ကော်မတီနှင့် စက်ရုံကြီးကြပ်ရေးကော်မတီတို့မှ ချမှတ်ထားသော အိမ်သုံးအမှိုက် စွန့်ပစ်ခြင်းဆိုင်ရာ နည်းလမ်းများ အတိုင်း စွန့်ပစ်ပါမည်။

(င) လူမှုစီးပွားရေး

စီမံကိန်းစက်ရုံ တည်ဆောက်ရေးကာလတွင် ဒေသခံပြည်သူများမှာ အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိမည်ဖြစ်သောကြောင့် မိသားစုဝင်ငွေများ တိုးတက်ရရှိလာမည် ဖြစ်ပြီး လူနေမှု အဆင့်အတန်းလည်း မြင့်တက်လာမည်ဖြစ်ပါသည်။

(စ)ကျန်းမာရေးနှင့် လုပ်ငန်းခွင် ဘေးအန္တရာယ် ကင်းရှင်းရေး

အဆောက်အဦတည်ဆောက်ခြင်းလုပ်ငန်းခွင်နှင့် ဆောက်လုပ်ရေးလုပ်ငန်းသုံး ယာဉ်များသွားလာမှုများမှ မတော်တဆ ဘေးအန္တရာယ်များ ဖြစ်ပေါ်နိုင်သောကြောင့် လုပ်သားများနှင့် ဒေသခံများအပေါ် အန္တရာယ်ရှိနိုင်ပါသည်။ ထို့အပြင် လုပ်သားများမှတဆင့် ကူးစက်သော ရောဂါများလည်း ပြန့်ပွားခြင်းများ ဖြစ်နိုင်ပါသည်။ အထက်ပါအန္တရာယ်များအတွက် စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်များကိုစနစ်တကျ ရေးဆွဲပြီး အကောင်အထည်ဖော် ဆောင်ရွက်မည် ဖြစ်ပါသည်။

၁.၅.၂. လုပ်ငန်းလည်ပတ်စဉ်ကာလ

(က) လေထုအရည်အသွေး အပေါ်သက်ရောက်မှု

လုပ်ငန်းလည်ပတ်ရေးကာလတွင်ဓာတ်ငွေ့ပါသော ထုတ်လွှတ်ခြင်းများမရှိပါ။ သို့သော် လုပ်ငန်းခွင်သုံး ပစ္စည်းများနှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်ရေးအတွက် အသုံးပြုသော ယာဉ်များ၊ အရန်မီးစက်နှင့် ဘွိုင်လာတို့မှ ထုတ်လွှတ်မှုများ ရှိနိုင်ပါသည်။

(ခ) ဆူညံမှု

လုပ်ငန်းလည်ပတ်ရေးကာလတွင် စီမံကိန်းစက်ရုံမှ လွန်ကဲသော ဆူညံသံ ထုတ်လွှတ်မှုများ ရှိနိုင်မည် မဟုတ်ပါ။ အဝတ်ချုပ်လိုင်း ကိရိယာများနှင့် မီးစက်များမှ ဆူညံသံများ ထွက်ရှိနိုင်သော်လည်း တိုင်းတာမှု ရလဒ်များအရ လမ်းညွှန်ချက်တန်ဖိုးအတွင်းတွင် တည်ရှိပြီး အရေးမပါသော ဆူညံမှုများအဖြစ် သတ်မှတ်နိုင်ပါသည်။

(ဂ) ရေအရည်အသွေး အပေါ်သက်ရောက်မှု

လုပ်ငန်းလည်ပတ်ရေးကာလတွင် အလုပ်သမားများ၏ သန့်စင်ခန်းများ ထွက်ရှိလာသော မိလ္လာစွန့်ပစ်ရေများ၊ ကိုယ်လက်ဆေးရေများ၊ စားကြွင်းစားကျန်များ၊ ဓာတုပစ္စည်း မတော်တဆ ယိုဖိတ်မှုများနှင့် စွန့်ပစ်ပစ္စည်းများ သိုလှောင်ထားခြင်း စသည်လုပ်ငန်းများအား စနစ်တကျ မလုပ်ဆောင်ပါက ရေအရည်အသွေး ညစ်ညမ်းမှုများ ဖြစ်ပေါ်စေနိုင်ပါသည်။

လုပ်ငန်း လည်ပတ်ရေး လုပ်ငန်းများကြောင့် ပတ်ဝန်းကျင်ရှိ ရေထုများကို ထိခိုက်မှုများ မဖြစ်ပေါ်စေရန်အတွက် သင့်တင့်သော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု များကို ဆောင်ရွက်မည် ဖြစ်ပြီး စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်များကို ရေးဆွဲ ဖော်ဆောင် သွားမည် ဖြစ်ပါသည်။

(ဃ) စွန့်ပစ်ပစ္စည်း စီမံခန့်ခွဲမှု

အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများကို မြို့နယ်စည်ပင်သာယာရေး ကော်မတီ၏လမ်းညွှန်ချက် နှင့်အညီ စီမံကိန်းစက်ရုံထုတ်လုပ်ရေးမှ ထွက်ရှိသော ပိတ်ဖြတ်စများနှင့် ဝန်ထမ်းများမှ စွန့်ထုတ်သော အမှိုက်များကို စွန့်ပစ်ပါမည်။ စီမံကိန်းစက်ရုံတွင်လည်း စည်ပင်အမှိုက်ပုံးများကို အလုံအလောက် ထားရှိပါမည်။ စက်ရုံတွင်းရေမြောင်းစနစ် အသုံးပြု၍ လူသုံးစွန့်ပစ် ရေများအား စက်မှုဇုန် ရေမြောင်းထဲသို့ စွန့်ပစ်ပါမည်။ အထည်ချုပ်စက်ရုံတွင်လုပ်ငန်းသုံးရေဆိုးစွန့်ထုတ် ခြင်းမရှိပါ။

(င) လူမှုစီးပွားရေး

စီမံကိန်းစက်ရုံလည်ပတ်ရေးကာလတွင် ဒေသခံပြည်သူလူထုများအတွက် အလုပ်အကိုင် အခွင့်အရေးများ ဖန်တီးပေးမည် ဖြစ်ပါသည်။ အလုပ်သမားအားလုံးကိုလည်း မြန်မာနိုင်ငံအလုပ်သမား ဥပဒေနှင့် အညီ စီမံအုပ်ချုပ်သွားမည် ဖြစ်ပါသည်။

(စ) ကျန်းမာရေးနှင့် လုပ်ငန်းခွင် ဘေးအန္တရာယ် ကင်းရှင်းရေး

စီမံကိန်းစက်ရုံလည်ပတ်ရေးကာလတွင် ဖြစ်ပေါ်လာနိုင်သော ကျန်းမာရေး နှင့် ဘေးအန္တရာယ် သက်ရောက်မှုများမှာ လုပ်ငန်းခွင်သုံး ဓာတုပစ္စည်းများအသုံးပြုမှု၊ စက်ပစ္စည်း ကိရိယာများ အသုံးပြုမှု၊ ဓာတုပစ္စည်းနှင့် လောင်စာဆီများ သိုလှောင်ထားရှိမှုများနှင့် လုပ်ငန်းခွင်သုံး ယာဉ်များမှ ဖြစ်ပေါ်စေနိုင်ပါသည်။ အဆိုပါ မတော်တဆမှုများအတွက် သင့်တော်သော အရေးပေါ် စီမံခန့်ခွဲမှုများ ရေးဆွဲဖော်ဆောင်ထားမည် ဖြစ်ပါသည်။ ထို့အပြင် (၁၉-၄-၂၀၂၀)ရက်စွဲပါ စက်ရုံ၊ အလုပ်ရုံလုပ်ငန်းခွင်များ

အတွက် ကျန်းမာရေးနှင့် အားကစားရေးရာ ဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားသော (COVID-19) ရောဂါ ကာကွယ်ရေးနှင့် ထိမ်းချုပ်ရေးနည်းလမ်းများအတိုင်း တိကျစွာ လိုက်နာဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။

သက်ရောက်မှု မြှင့်တင်ရန် နည်းလမ်းများ

အဆိုပြုစက်ရုံလည်ပတ်ရေးကာလအတွင်း အောက်ပါ သက်ရောက်မှု မြှင့်တင်ရန် နည်းလမ်းများအား လုပ်ဆောင်သွားမည်ဖြစ်ပါသည်။

(၁) အလုပ်ခန့်ထားရန်၊ ခန့်အပ်ရန် လိုအပ်ပါက မြို့နယ်အုပ်ချုပ်ရေး၊ ရပ်ကွက် အုပ်ချုပ်ရေးမှူးများ ချိတ်ဆက်ကာ အလုပ်သမားခန့်အပ်နိုင်ရေး စီစဉ်ဆောင်ရွက်ရန်

(၂) အလုပ်သမား ခန့်အပ်ရာတွင် ဒေသခံများကို ဦးစားပေးစနစ်ဖြင့် ခန့်အပ်နိုင်ရေး ဆောင်ရွက်သွားရန်

(၃) အလုပ်အကိုင်နှင့် ကျွမ်းကျင်မှုနှင့်ဖွံ့ဖြိုးတိုးတက်ရေး ဥပဒေပါ ပြဋ္ဌာန်းချက်များနှင့်အညီ အလုပ်သမား ခန့်ထားမှုဆိုင်ရာ စာချုပ်ချုပ်ဆိုခြင်းများ ပြုလုပ်ရန်

(၄) ၁၉၅၁ အလုပ်ရုံသမား အက်ဥပဒေပါ ကျန်းမာရေး၊ ဘေးရန်ကင်းရှင်းမှု၊ သက်သာချောင်ချိရေး၊ အလုပ်လုပ်ချိန်၊ နားချိန် များကို စနစ်တကျ ဆောင်ရွက်ထားရှိရန်

(၅) အနည်းဆုံးလုပ်ခလစားများကို သတ်မှတ်ပေးခြင်းများကို ဆောင်ရွက်ရန်

(၆) အလုပ်အကိုင်နှင့်တည်ဆဲဥပဒေများနှင့်အညီ ဆောင်ရွက်ရန်

(၇) နှာခေါင်းစည်းများ ၊ နေကာ လေကာ မျက်မှန်များ ထားရန်ရှိရန်၊ ဆေးဝါးများ ထားရှိရန်

(၈) မီးဘေးနှင့် သဘာဝဘေးအန္တရာယ် ကြိုတင်ကာကွယ်ခြင်းများ ပြုလုပ်စီမံဆောင်ရွက်ထားရန်

(၉) အရေးပေါ် ရေမီးကယ်ဆယ်ရေး ကာကွယ်ရေးအတွက် ကြိုတင်ပြင်ဆင်ထားရှိစေခြင်း

(၁၀) ဆက်သွယ်ရေးစနစ်ကောင်းမွန်အောင် စီမံထားရှိရန်၊ အီးမေးလ်တယ်လီဖုန်း၊ လက်ကိုင်စကားပြောစက်များ စသည်များ

(၁၁) ဝန်ထမ်းများ သက်သာချောင်ချိရေးနှင့် သာယာပျော်ရွှင်ရေးအတွက် ရက်မှန်ကြေး၊ အချိန်ပိုကြေးနှင့် နှစ်သစ်ကူးကာလများတွင် ဝန်ထမ်းများလူူဒါန်းသုံးစွဲနိုင်ရေးအတွက် နှစ်သစ်ကူးအပိုဆုကြေးများ ထုတ်ပေးခြင်းများ ဆောင်ရွက်ပေးရန်

(၁၂) ကားဖယ်ရီများစီစဉ်ပေးပြီး ကားခများကိုလည်း အားလုံးအဆင်ပြေသော နှုန်းထားများဖြစ်နိုင်အောင် ကူညီဆောင်ရွက်ပေးရန်

၁.၆။ ဒေသခံပြည်သူများနှင့်တွေ့ဆုံဆွေးနွေးခြင်း

ယခု(EMP) ရေးဆွဲချိန် ကာလတွင် အဆိုပြုစက်ရုံမှာ တည်ဆောက်ရေးလုပ်ငန်းများဆောင်ရွက်နေပြီး အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးခြင်းအတွက် စီမံကိန်းအတွင်းရှိကဏ္ဍအသီးသီးတွင် လုပ်ကိုင်နေ သော အလုပ်သမားများနှင့် ဆွေးနွေးမေးမြန်းမှုများဆောင်ရွက်ခဲ့ပါသည်။ ယခု ကာလတွင် ကိုရိုနာဗိုင်းရပ်စ်ရောဂါ (COVID-19) ဘေးကြောင့် အနီးရှိဒေသခံပြည်သူများ၊ ဌာနဆိုင်ရာအဖွဲ့အစည်းများပါဝင်သော လူထုတွေ့ဆုံပွဲအား လုပ်ဆောင်နိုင်ခြင်း မရှိသေးပါ။ နောင်တွင်ဆက်လက်လုပ်ဆောင်ရမည်ဖြစ်ပါသည်။

တွေ့ဆုံဆွေးနွေးမှုများမှ ဆွေးနွေးချက်များ

- အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိ၍ ကျေနပ်ပါသည်။
- လိုအပ်ချက်များရှိလာလျှင်လဲ တာဝန်ရှိသူများနှင့်တိုင်ပင် အကြောင်းကြားသွားမည်။
- အထွေထူးပြောစရာ မရှိသူများသာ များလှသည်။

၁.၇။ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ စီမံခန့်ခွဲမှု အကျဉ်းချုပ်

EMPသည် စီမံကိန်းအား သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ရေရှည်တည်တံ့ခိုင်မြဲစေရေးအတွက် သေချာစီမံထားသော အစီအစဉ်တစ်ခု ဖြစ်ပါသည်။ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ စီမံခန့်ခွဲမှုလုပ်ငန်းများ လုပ်ကိုင် နိုင်ရန်အတွက် ရန်ပုံငွေ ထားရှိရန်လိုအပ်ပြီး ပတ်ဝန်းကျင်နှင့် လူမှုရေးလုပ်ငန်းများကို စောင့်ကြပ် ကြည့်ရှုရေးအဖွဲ့အစည်း နှင့်အတူ တိုင်ပင်ဆွေးနွေးကာ ပူးပေါင်းဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။

၁.၇.၁ ။ လူမှုစီးပွားတာဝန်သိ အစီအစဉ် (CSR)

အဆိုပြုလုပ်ငန်း မှ နှစ်စဉ်အမြတ်ငွေ၏ ၂%အား CSR ရံပုံငွေအဖြစ် ထားရှိသုံးစွဲမည်ဖြစ်ပါသည်။ အဆိုပါ CSR ရန်ပုံငွေ၏ ၃၀ % အား ပညာရေးအတွက်လည်းကောင်း၊ ၂၅% အား ကျန်းမာရေးအတွက် လည်းကောင်း၊ ၂၀ % အား လမ်းပန်းဆက်သွယ်ရေး အတွက်လည်းကောင်း နှင့် ကျန် ၂၅% အား လူမှုရေးနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးလုပ်ငန်းများအတွက် သုံးစွဲရန် လျာထားပါကြောင်း တင်ပြ အပ်ပါသည်။ အဆိုပါလုပ်ငန်းများ စနစ်တကျ အကောင်ထည်ဖော် ဆောင်ရွက်နိုင်ရန်အတွက် မြို့နယ်အုပ်ချုပ်ရေးမှူး၊ မြို့နယ်ပညာရေးမှူး၊ မြို့နယ်ကျန်းမာရေးမှူးများနှင့် ဒေသအုပ်ချုပ်ရေး၊ ရပ်မိ ရပ်ဖများဖြင့် ဆွေးနွေးတိုင်ပင်ကာ ပွင့်လင်းမြင်သာ လူသိရှင်ကြား ဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။

၁.၇.၂။ ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြပ်ကြည့်ရှုရေးအဖွဲ့

လုပ်ငန်းအတွက် စီမံခန့်ခွဲမှု (Environmental Management Plan) ကို အောင်မြင်စွာ အကောင်အထည်ဖော် ဆောင်ရွက်နိုင်ရန် အတွက် ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြပ်ကြည့်ရှုရေး အဖွဲ့ကို ဖွဲ့စည်းရန် လိုအပ်မည်ဖြစ်ပါသည်။ စောင့်ကြပ်ကြည့်ရှုရေးအဖွဲ့တွင် ဌာနဆိုင်ရာ ကိုယ်စားလှယ်များ၊ ဒေသခံ ကိုယ်စားလှယ်များနှင့် စီမံကိန်း လုပ်ငန်းရှင်ကိုယ်စားလှယ်များ ပါဝင်သင့်ပါသည်။ ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်ကို အပြည့်အဝအကောင်အထည်ဖော်ဆောင်ရွက်ရန် လုပ်ငန်းရှင်တွင် တာဝန် ရှိပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်၏ အစိတ်အပိုင်းတစ်ရပ်ဖြစ်သော ပတ်ဝန်းကျင် ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ် (Environmental Monitoring Programme) ကို လုပ်ငန်းရှင်က လိုက်နာဆောင်ရွက်ကာ တိုင်းတာတွေ့ရှိချက် အစီရင်ခံစာများကို ပတ်ဝန်းကျင် ရေးရာ စောင့်ကြည့်အဖွဲ့မှ အဖွဲ့ဝင် ကိုယ်စားလှယ်များသို့ မိတ္တူပေးပို့ရမည် ဖြစ်ပါသည်။ လူမှုစီးပွား တာဝန်သိ အစီအစဉ် (Corporate Social Responsibility) အနေဖြင့် စီမံကိန်းက ဒေသခံများအတွက် ပေးအပ်သော ကူညီထောက်ပံ့မှုများကို လေ့လာစောင့်ကြည့်ရေး အဖွဲ့ ကိုယ်စားလှယ်များမှ တဆင့် ဒေသခံများသို့ ပေးအပ်ရမည် ဖြစ်ပါသည်။ ပတ်ဝန်းကျင်ရေးရာနှင့် စပ်ဆိုင်သော အကြောင်းတစ်စုံ တစ်ရာ ပေါ်ပေါက်ပါက ဒေသခံများ အနေဖြင့် စောင့်ကြည့်အဖွဲ့မှ အဖွဲ့ဝင်ဒေသခံကိုယ်စားလှယ်များမှတစ်ဆင့် စီမံကိန်းနှင့်ဆက်သွယ်ဆောင်ရွက် နိုင်မည် ဖြစ်ပါသည်။

အဆိုပြု ရန်ပုံငွေ- ပတ်ဝန်းကျင်စောင့်ကြပ်ရေး တိုင်းတာစစ်ဆေးခြင်းအတွက် အဆိုပြုရန်ပုံငွေကို တစ်နစ်လျှင် ၃၅ သိန်းခန့်မျှ လျာထားဆောင်ရွက်မည်ဖြစ်ပြီး လိုအပ်ပါက ထပ်မံဖြည့်တင်းဆောင်ရွက်သွား မည်ဖြစ်ပါသည်။

(က) ရည်ရွယ်ချက်

- စီမံကိန်း၏ ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှု အစီအစဉ်များအား လိုက်နာဆောင်ရွက်မှု အခြေအနေ များကို ဒေသခံများ စဉ်ဆက် မပြတ် သိရှိနိုင်ရန်

- ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြည့် တိုင်းတာရေး အစီအစဉ် တိုင်းတာတွေ့ရှိချက် အစီရင်ခံစာများကို ဒေသခံများ သိရှိနိုင်ရန်
- ပတ်ဝန်းကျင်ရေးရာနှင့် စပ်ဆိုင်သော အကြောင်းကိစ္စများအတွက် အပြန်အလှန် ဆက်သွယ်ဆောင်ရွက်နိုင်ရန်
- လူမှုစီးပွား တာဝန်သိ အစီအစဉ်အရ ပေးအပ်သည့် ကူညီ ထောက်ပံ့မှုများကို စနစ်တကျ စီမံခန့်ခွဲမှုများအား စောင့်ကြည့် ထိန်းကြောင်းနိုင်ရန်

(ခ) ပတ်ဝန်းကျင်ရေးရာစောင့်ကြပ်ကြည့်ရှုရေးအဖွဲ့.ဖွဲ့.စည်းပုံ

ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြပ်ကြည့်ရှုရေးအဖွဲ့.တွင် အဓိကအားဖြင့် သက်ဆိုင်ရာ အစိုးရဌာနများ၊ စီမံကိန်းမှ တာဝန်ရှိသူများနှင့် ဒေသခံကိုယ်စားလှယ်များဟူ၍ အဖွဲ့. (၃) ဖွဲ့. ပါရှိပါသည်။ ဒေသခံကိုယ်စားလှယ်များကို သက်ဆိုက်ရာ ကျေးရွာရပ်ကွက်များက အများသဘောတူညီချက်နှင့်အညီ ရွေးကောက်ထားသော ရပ်မိရပ်ဖများဖြင့် ဖွဲ့.စည်းရမည် ဖြစ်ပါသည်။ အဆိုပြု ကိုယ်စားလှယ် ပါဝင်မှု လူဦးရေအချိုးအစားမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြပ်ကြည့်ရှုရေးအဖွဲ့. ကိုယ်စားလှယ်ဦးရေပြဇယား

စဉ်	ကိုယ်စားလှယ်	ဦးရေ
အစိုးရဌာနများ		
၁*	မြို့နယ် အထွေထွေအုပ်ချုပ်ရေး ဦးစီးဌာန	၁
၂*	မြို့နယ်ပတ်ဂန်းကျင်ထိမ်းသိမ်းရေးဦးစီးဌာန (သို့မဟုတ်) စက်မှုဇုန်ကြီးကြပ်ရေးကော်မတီ	၁
၃*	မြို့နယ် ကျန်းမာရေး ဦးစီးဌာန	၁
စီမံကိန်းမှ တာဝန်ရှိသူများ		
၁	စီမံကိန်းမန်နေဂျာ	၁
၂	ပတ်ဝန်းကျင်ထိမ်းသိမ်းရေး (သို့မဟုတ်)လူမှုဆက်ဆံရေး တာဝန်ခံ	၁
ဒေသခံကိုယ်စားလှယ်များ		
၁*	ရပ်ကွက်အုပ်ချုပ်ရေးမှူး	၁
၂**	ရပ်မိရပ်ဖများ	၂

* အစိုးရဌာနများတွင် လက်ရှိတာဝန်ထမ်းဆောင်နေသူများ

** မိမိတို့ မြို့နယ်ရပ်ကွက်အလိုက် အများသဘောတူ ရွေးကောက်တင်မြှောက်ထားသူများ၊ မိမိတို့မြို့နယ်အလိုက် အများသဘောတူညီအလျောက် လွှဲပြောင်းခြင်း၊ ခန့်အပ်ခြင်းများ ပြုလုပ်နိုင်သည်

(ဂ) တာဝန်များ

(က) စီမံကိန်းနှင့် ဒေသခံများကြား ပတ်ဝန်းကျင်ကိစ္စများ ဆောင်ရွက်ရာတွင် ကြားနေအဖြစ် ဆောင်ရွက်ပေးရန်

(ခ) စီမံကိန်းမှ လျှုဒါန်းသော အလှူငွေများကို ဒေသခံများသို့ ကြားမှတဆင့်လက်ခံပြီး ဆောင်ရွက်ပေးရန်

(ဂ) စီမံကိန်းမှ စောင့်ကြည့်တိုင်းတာမှုများကို ဒေသခံများအား သိရှိနိုင်ရန် စာရွက်စာတမ်းများ ဖြန့်ဝေကာ ဒေသခံများ သိရှိနိုင်အောင် ဆောင်ရွက်ရန်

(ဃ) စီမံကိန်းမှ အလုပ်သမားများ ခန့်ထားရေးဆိုင်ရာ ကိစ္စရပ် များအတွက် ဒေသခံကိုယ်စားလှယ်များ၏ အကူအညီဖြင့် ဒေသခံများ သိရှိနိုင်အောင် ဆောင်ရွက်ရန်

(c) ဒေသခံများ၏ လူမှုရေး၊ ဘာသာရေးနှင့် ယဉ်ကျေးမှုဆိုင်ရာ ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများတွင် စီမံကိန်းမှ ပူးပေါင်း ပါဝင်ဆောင်ရွက်နိုင်ရေးအတွက် တာဝန်ရှိသူများနှင့် ပူးပေါင်း ဆောင်ရွက်ရန်
(စ) ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့်အဖွဲ့ကို စီမံကိန်း အကောင်အထည် ဆောင်ရွက်သော တာဝန်ရှိသူများက တာဝန်ယူကာ ဖွဲ့စည်းရန်

၁.၈။ နိဂုံး

ဤစီမံကိန်းလုပ်ငန်းအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) လုပ်ငန်းများကို ၂၀၂၁ ခုနှစ်၊ ဇူလိုင်လတွင် စတင်ဆောင်ရွက်ခဲ့ပြီး လုပ်ငန်းများကို ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး ဥပဒေ ၂၀၁၂၊ ပတ်ဝန်းကျင်ထိန်းသိမ်ရေးနည်းဥပဒေ (၂၀၁၄)နှင့် ပတ်ဝန်းကျင်ထိခိုက်ဆန်းစစ်ခြင်း လုပ်ထုံးလုပ်နည်းပါ ပြဌာန်းချက်များအတိုင်း လိုက်နာဆောင်ရွက်ထားပါသည်။
စီမံကိန်း အကောင်အထည် ဖော်ဆောင်ရွက်သူသည် ပတ်ဝန်းကျင်စီခန့်ခွဲမှုအစီအစဉ် အစီအရင်ခံစာတွင် ပါရှိသည့် ပတ်ဝန်းကျင်ဆိုင်ရာ စီခန့်ခွဲမှု အလေ့အကျင့်များ၊ ပတ်ဝန်းကျင်ထိခိုက်မှု လျော့နည်းစေရေး အစီအမံအချက်များ၊ လိုက်နာဆောင်ရွက်ကျင့်သုံးရန် တာဝန်များနှင့် လုပ်ငန်းစဉ်များအတိုင်း အပြည့်အဝ လိုက်နာဆောင်ရွက် အကောင်အထည်ဖော်ဆောင်မည်ဖြစ်ကြောင်း၊ ဒေသတွင်း လူမှုစီးပွားရေး တိုးတက် ဖွံ့ဖြိုးစေမည်ဖြစ်ကြောင်းနှင့် နိုင်ငံတော်အတွက် အခွန်ဘဏ္ဍာများ တိုးတက်ရရှိစေမည်ဖြစ်ကြောင်း တင်ပြ အပ်ပါသည်။

1. EXECUTIVE SUMMARY

1.1 Introduction

The project proponent, Best Garment (Myanmar) Co., Ltd has retained HRD Environmental Training and Services Co., Ltd to conduct the Environmental Management Plan (EMP) study for the proposed project. The proposed Factory is located in Plot No. (YaPaTa/GayaTa-330/19) 3, 4, 6, 34, 35(A), 36(A), 37(A), 38(A), 39(A), 40(A), 55(A), 57(A), 58(A), 59(A), 60(A), 63(A), 64(A), 67(A), 68(A), 70(A) 71(A)/H, Block No. 561, KaYinChaungKwin ward, Shwepyitha Township, Yangon Region. It is a manufacturing of various kinds of clothes on CMP basis factory. The EMP study for the proposed project was started in August, 2021 and compliance with the Environmental Conservation Law (2012) and Environmental Impact Assessment Procedures (2015).

1.2. Policy and Regulatory Framework

The Project will be undertaken in line with a number of national and local standards and laws. Local laws relating to EMP include but not limited to Environmental Conservation Law (2012), Environmental Conservation Rules (2014), and Environmental Impact Assessment Procedure (2015). Moreover guidelines for the project component which will also be considered in preparing the EMP include National Environmental Quality (Emission) Guidelines (2015); International Finance Corporation (IFC) General Health and Safety (EHS) guideline (2007) and EHS Guidelines for Environmental, Health and Safety Guidelines for Industrial Sector (2016) and detail informations are mentioned in Chapter 3.

1.3. Project Description

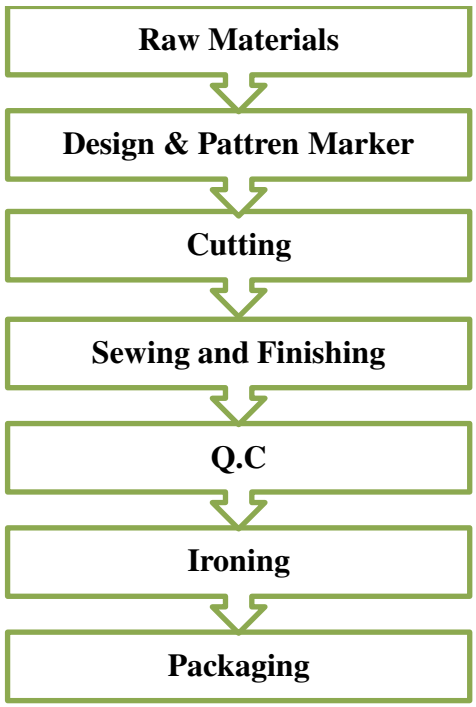
The proposed garment factory is manufacture of various kinds of clothes on CMP basis and exported to foregin country. The followings are the brief descriptions of proposed project.

Project Descriptions	
Project proponent	Best Garment (Myanmar) Co., Ltd.
Type of project	Garment factory
Location	Plot No. (YaPaTa/GayaTa-330/19) 3, 4, 6, 34, 35(A), 36(A), 37(A), 38(A), 39(A), 40(A), 55(A), 57(A), 58(A), 59(A), 60(A), 63(A), 64(A), 67(A), 68(A), 70(A) 71(A)/H, Block No. 561, KayinChaungKwin ward, Shwepyitha Township, Yangon Region.
Type of investment	Foreign owned investment
Amount of Investment	US $ 11,000,000
Investment period	(50) Years and extension of 10 years(2)times
Production Capacity	(7,4400,000 pcs/year)
Raw material	Fabrics and garments accessories
Project area	32374.98 sq. m (8 acre)
Current situation	Construction phase

Effluent	Domestic effluent; Sewage treatment facilities will be provided for all sewage generated on site. Factory effluent; no process water effluent
Solid waste management system	Recyclable domestic waste will be recycled. Other domestic waste will be disposed of in a domestic waste disposal site as directed by Township CDC.
No. of Workers Used	Foreigner -46, local -2103 workers

Production Process

Proposed production processes of the factory are firstly, the received raw material of fabric is relaxing and inspected in warehouse. After the fabric has been relaxed, it is transferred to the spreading and cutting area. The fabric is spread and lay to cut the fabric properly. The fabric is first to cut into uniform plies and then spread either manually or using a computer-controlled system in preparation for the cutting process. Fabrics are cut according to design, sizes at cutting lines, and then send to sewing line. All parts of a garment are joined to the sewing section to make a complete garment. After a garment is fully sewn and assembled, inspection will be done for quality control and it is transferred to the ironing section of the facility for final pressing. Complete products are folded, tagged, sized, and packaged according to customer specifications. Final products are stored in the warehouse and ready to ship the products to the buyer. Component process of flow chat is shown in figure below.



Production Process of Proposed Factory

1.4. Description of the Surrounding Environment

The Project area is (32,374.98) sq.m and located at Block No. 561, KaYinChaungKwin ward, Shwepyitha Township, Yangon Region. The baseline components of the project area including physical, biological, socio-economic, cultural and visual are described in the Section-5 of this report. The information provided in this section is based on data collected from primary and secondary sources. Secondary sources include a desktop review of published information, supplemented with information provided by project proponent and township profiles from official township data of Shwepyitha Township. Primary environmental and social data were collected by onsite measurements analysis for air quality and noise level at proposed project site in August, 2021.

1.5. Key Potential Impact and Proposed Mitigation

The EMP focused on the potential impacts associated with the construction and operation of the proposed project. (See details in chapter 6)

1.5.1. Construction Phase

(a) Impact on Air Quality

Potential impact on air quality during construction is likely to be temporary. Main impacts on air quality are dust generation from the construction activities. Moreover, emissions from vehicles and other construction equipment are likely to impact the air quality in short term.

(b) Noise

Generation of highest noise level comes from the vehicle and construction equipment. During installation of facilities and equipment for factory, the noise generation will be relatively lower.

(c) Water Quality

The following activities can deteriorate the water quality during construction phase such as site clearance activities, wastewater from septic tank, waste storage, leakage of fuel and chemical, if they are not properly managed.

(d) Waste management

Daily construction waste will be generated during construction phase. Most of the wastes are non-hazardous but some may be hazardous such as paint, oils, used batteries, etc. All the waste is disposed in a domestic waste disposal site as directed by Township CDC.

(e) Social Impacts

There will be more job opportunities for local people during construction phase. Due to the potential job opportunities, there will be more income that will improve their standard of living.

(f) Health and Safety

Health and safety of the workers can impact from the vehicle traffic as well as from the various construction activities. All staffs will have to wear the relevant PPE whenever they are in construction site. Moreover, the communicable diseases are expected to transmit on both workers and local community. The appropriate monitoring plan will be implemented systematically for health and safety issues.

1.5.2. Operation Phase

(a) Air Quality

There are no gaseous emissions from factory process during operation phase. But operation of boiler and infrequently used of generator, vehicles and other transportation materials possibly generate emissions.

(b) Noise

There will be less significant noise emission during operation phase. There will be some negligible noise from the sewing and cutting machine as well as from generators.

(c) Water Quality

The following activities can deteriorate the water quality during operation phase such as workplace clearance activities, wastewater from septic tank and washing process, leakage of fuel and chemical, storm water discharge, if they are not properly managed. Relevant environmental management plan including monitoring measures will be implemented to control the negative impacts on the environment.

(d) Waste management

The solid waste during operation phase is mainly from the cutting section and domestic waste from the workers. The generated solid wastes are collected by waste management system directed by Township CDC. Based on the study, no process water effluent from factory and the domestic wastewater is directly discharged to the factory drainage to municipal drainage.

(e) Social Impacts

There will be more job opportunities for local people during operation phase. Due to the potential job opportunities, there will be more income that will improve their standard of living. All the workers will have to work under the Myanmar Labor Law.

(f) Health and Safety

The impacts to health and safety issues to workers and community are quite similar to the construction phase. Furthermore, there will be potential to expose some chemicals such as ethanol used for hand washing and use of heavy machine, storage of chemicals and fuel. The above-mentioned issues will be prevented by appropriate environmental management plan. In addition, the proposed factory must follow the "Guideline for Prevention and Control of Coronavirus Disease 2019 (COVID-19), In factories, workplaces and construction sites" release date (19-4-2020) by the Ministry of Health and Sports.

1.6. Public Consultation and Public Participation

Current state of project implementation is construction phase. The consultative meeting was organized with the representation from stakeholders and local people. Currently, we have not been able to hold a public meeting due to the COVID-19 disease. The Public meeting will be held on the time after the risk of COVID-19 disease. Therefore, HRD social team interviewed the workers who are representative from every section of factory as the focus group discussion at the project site.

Key Findings during worker interviews

- No special problem
- A little noise impact
- To get on job training if available
- Little effect on dust dispersion in working area

1.7. Environmental Management Plan

EMP is a site specific plan developed to ensure that the project is implemented in an environmental sustainable manner. Funding will be required to carry out environmental and social management activities and will be carried out in consultation with environmental and social monitoring organizations.

1.7.1. Corporate Social Responsibility Plan

The proposed project approves to contribute about 2% of net profit as CSR fund. Proposed allocated percent of CSR budget are 30% for Education, 25% on Health care facilities, 20% on local community development and 25% is social welfare development. The implementation of these activities will be cooperated with representative from local community.

1.7.2. Environmental Monitoring Team

An Environmental Monitoring Team must be established for successful implementation of the environmental management plan. The project proponent is responsible for complete implementation of the EMP. Proponent will carry out environmental monitoring programme which is part of the EMP and the monitoring report will be distributed to the participants of the monitoring team. Implementation of CSR programme will also be facilitated with the participation of the monitoring team. Local community could communicate with the project for environmental affairs through the monitoring team. The objectives of the Environmental Monitoring Team are as follows:

(a) To release information on the implementation of EMP for local community continuously

(b) To distribute information on environmental monitoring to local community

(c) To create a proper communication channel between the project and local community relating to environmental affairs

(d) To insert a check and balance action for the management of fund and aids provided by the CSR programme .The team mainly consists of representatives from government departments, the project and local communities. The representatives from local communities must be elected by respective local communities by themselves.

Table 1.1 Proposed Environmental Monitoring Team

Sr.	Representative	Number
Governmental Departments		
1	Township General Administration Department	1
2	Yangon Environmental Conservation Department (or) Industrial Zone Management Committees	1
3	Township Health Department	1
Project Management		
1	Project Manager	1
2	Environmental/ Public Relation Officer	1
Local Community		
1	Village/Ward Administrator	1
2	Representative from Elected Villages/Ward	2

Roles and Responsibilities

- Proponent will provide aids from CSR programme through the local representatives from the team
- Proponent must disseminate monitoring report to local community through representatives from government departments and local communities
- The team will coordinate between local representatives and the project so that the project could participate in social, cultural and religious events of local community

The Environmental Monitoring team will act as a communication channel between the project and local community

1.8. Conclusion

The EMP study for the proposed project was started in August, 2021 and compliance with the Environmental Conservation Law (2012) and Environmental Impact Assessment Procedures (2015).

The Project Proponent will fully follow the environmental management practices, procedures and responsibilities, commitments, mitigation measures according to this EMP. Moreover, due to this project, the livelihood of the local community will be more developed as well as resulting in government revenues.

2. INTRODUCTION

Best Garment (Myanmar) Company Limited was established in 2018 according to the Certificate of Directorate of Investment and Company Administration. The type of business of the proponent is a 100% foreign investment established under the Myanmar Companies Act. The project proponent requested HRD Environmental Training and Services Co., Ltd. (HRD) (the Consultant) to complete the Environmental Management Plan (EMP) for the proposed Project.

The Project is a factory that manufactures various kinds of clothes. It is primarily set up for cut, make, pack (CMP) contract manufacturing and exported to Korea, China, Japan and Europe. This factory is situated at Block No. 561, KaYinChaungKwin ward, Shwepyitha Township, Yangon Region, Republic of the Union of Myanmar. The designated area for the factory will occupy 8 acres in total. The surrounding area is sparsely populated and designated specially for industrial development.

The EMP covers current Environmental and Social conditions nearby, to develop adequate mitigation measures and to keep residual impacts of the garment factory within acceptable limits in order to ensure successful operations, and Environment and Social Management Plan for the factory.

2.1 Proposed Schedule for Implementation

The proposed schedule of project implementation is as follows:

- Period of capital to be brought in: within one year as soon as approval from Myanmar Investment Commission (MIC).
- Proposed Duration of Investment : 50 years
- Total lease period : 50+10+10 years
- Construction Period: 2 years and extention 1 year

2.2 Category of Project

The Department of Environmental Conservation under the Ministry of Natural Resources and Environmental Conservation (MONREC) has categorized the industries based on the nature of the industry and the volume of the waste disposed into four categories:

1) No environmental assessment is required,
2) Only Environmental Management Plan (EMP) is required,
3) Initial Environmental Examination (IEE) and Environmental Management Plan (EMP) are required, and
4) Detailed Environmental Impact Assessment and Environmental Management Plan (EMP) are required.

So, That Project is Category No (2). According to the ECD law and regulation.

2.3. Brief of the Project Proponent

The followings are the brief of project proponent.

Project Developer	Ms.Gao Peina Chinese Pp.No.E33872126 Email- anna.gao@chinabeide.com
Adress	Plot No. (YaPaTa/GayaTa-330/19) 3, 4, 6, 34, 35(A), 36(A), 37(A), 38(A), 39(A), 40(A), 55(A), 57(A), 58(A), 59(A), 60(A), 63(A), 64(A), 67(A), 68(A), 70(A) 71(A)/H, Block No. 561, KayinChaungKwin ward, Shwepyitha Township, Yangon Region.
Company Name	Best Garment (Myanmar) Co., Ltd.
Type of Project	Garment factory
Investment types	Foreign owned investment
Investment Period	(50) Years and extension of 10 years(2)times
Contact person	Mr. XU, WEILIANG (Director) Email- helibin0100@besthubo.com

List of shareholders in Best Garment (Myanmar) Co., Ltd.

No.	Name of shareholder	Citizenship	Share percentage
1.	Jiangsu Best Fashion Dress Co;Ltd (incorporated in China) Represented By: Ms. Gao, PEINA Room No.401,No.88, Huanxi Road, Zhutang Town ,JiangyinCity,Juangsu China	Chinese	70%
2.	Jiangsu Best HK International Co;Ltd (incorporated in Hong Kong) Represented By: Mr. HUANG,GUOLIAN Room No, 301,No.88, Huanxi Road, Zhutang Town ,JiangyinCity,Juangsu China	Chinese	30%

2.4. Brief of the Environmental Assessment Practitioner

Below is the background information on HRD Environmental Training and Service Co., Ltd., (Third party) who will conduct the ESIA.

HRD Environmental Training and Service Co., Ltd.	
Company Name	HRD Environmental Training and Service Co., Ltd.

Company Registration Number	117441881 3633/2016-2017 (Ygn)
Contact Address	Room.3, Bdg.2, Quarter 3, Insein Road, Mayangon Township,Yangon
Telephone Number	+95 49201658, +95 9256036414
E-mail	hrd.environment2019@gmail.com, aunglaytin@gamil.com
Contact person	Prof. Dr. Aung Lay Tin Senior ESIA Team Leader 09256036414

Study Team

This EMP for the Best Garment (Myanmar) Co., Ltd. by HRD Environmental Training and Service Co., Ltd. The environmental study was carried out by the project listed below and following is a summary of team member's responsibilities during the study period. This EMP report represents the objectives, methodology and outcomes of in line with the Environmental Impact Assessment (EIA) Procedure. Below Table presents key team members for the preparation of this EMP.

Sr.	Name	Position	Responsibility
1	Dr.AungLay Tin	Team Leader BE,ME (Mining, YTU), Ph.D (Mining(Env,YTU)	Management and Others/ Air and Noise
2.	Dr.Myo Min Htun	Ph.D (Metallurgy)	EMP and Waste Management, Hazard
3.	Mr. Tint Naing Zaw	Team Members , B.Sc. (Forestry) LL.B. P.G.Dip.(Environmental Impact Assessment and Environmental Management System)	Legal requirement Public consultation
4.	Mg Kaung Set	BA(Geo) not finised	Air, Noise, HAZ operator
5.	U Si Thu	Team Members ,	Public Consultations

2.5 Methodology

The study on existing environmental resources in the project area focused on two main resources-physical and socio-economic resources. The physical resources such as quality of

air, noise and water surround the project area are called the primary data which is collected from existing information during site visit in June 2019. This data collection was done by direct observation, interviews, and environmental quality assessment surveys. Meanwhile, the socio-economic data was collected from interviews.

Additionally, the secondary data are obtained from relevant ministries/bodies and research institutions as reference material for the preparation of the formulation of the EMP report.

2.6 Scope of the EMP

The principal objective of this EMP is to satisfy local regulatory requirements, in particular, the requirements related to the project (the garment factory) in the EIA Procedure (2015). The EMP covers

- Description of the project activities;
- Provisions of the relevant environmental laws;
- The baseline environmental conditions of the study area;
- Identification and discussion of any adverse impacts to the environment anticipated from the project;
- Appropriate mitigation measures; and
- Provision of an Environmental Management Plan outline.

2.7 Purpose of the EMP

This EMP aims to provide environmental and social management frameworks, management measures and monitoring programs. The purpose of the EMP is to:

- Integrate management and mitigation measures in order to reduce potential environmental and social impacts,
- Establish monitoring and mitigation system in order to meet statutory and compliance standards.
- Demonstrate compliance with the relevant Myanmar environmental legislation and best win Myanmar company policies and management systems.

3. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1. Relevant Environmental Laws and Regulations in Myanmar

Myanmar has promulgated several laws and regulations concerning protection of the environment. The relevant laws that promote environmental management in Myanmar have been adequately reviewed and applied by the EMP study team (see in Table below).

Table 3.1. Myanmar Legislation and Relevance to Project

Law and Regulations	Years	Purposes
National Environmental Policy	2019	To establish sound environmental policies in the utilization of water, land, forest, mineral resources and other natural resources in order to conserve the environment and prevent its degradation.
Underground Water Act	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 Myanmar. 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.
Factory Act	1951	To make effective arrangements in every factory for disposal of waste and effluent, and matters on health, cleanliness and precaution against danger.
Environmental Conservation Law	2012	To conserve and protect the water resources and rivers system for beneficial utilization by the public; to prevent environmental impact
Foreign Investment Law	2012	Section 8 (a) To support the primary objectives of the national economic development plan, and for businesses that cannot yet be run by the State and citizens or businesses that have insufficient funds and technology. (b) Development of employment activities (l) Protection and conservation of the environment. (q) Appearing the required modern services for the Union and citizens.
		Section 9 (b) To carry out a joint venture between a foreigner and a

		citizen or the relevant Government department and organization.
		Section 17 (a) To abide by the existing laws of the Republic of the Union of Myanmar. (b) To carry out the business by forming a company under the existing laws of Myanmar by the investor. (h) To carry out not to cause environmental pollution or damage in accord with existing laws in respect of investment business. (k) To carry out the systematic transfer of high technology relating to the business which are carried out by the investor to the relevant enterprises, departments or organizations in accord with the contract.
Prevention from Danger of Chemical and Associated Material Law	2013	The objectives of this law are: a) to prevent damage to environmental resources and living organisms due to chemicals and associated materials b) to provide for the systematic control of businesses using chemicals and associated materials in accordance with government approvals c) to carry out data gathering and to undertake education and research regarding the safe and systematic utilization of chemicals and associated materials d) to achieve continuous improvements in worksite safety, health and environmental conservation
The Environmental Conservation Rules	2014	Rule 69 (a)Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants 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 to damage the ecosystem and the natural environment which is changing due to such system, except for carrying out with the permission of the Ministry for the interest of the people.
EIA Procedure	2015	The EIA Procedure sets out the procedures for completing an IEE, EIA and/or EMP in Myanmar. This includes information on project categorisation, responsibilities of project developers and ministries, EIA review, monitoring and auditing, among other issues.
Myanmar Investment Law	2016	The objectives of this Law are as follows: (a) To develop responsible investment businesses which do

		not cause harm to the natural environment and the society for the benefit of the Union and its citizens; (b) To protect the investors and their investments in accordance with the law; (c) To create job opportunities for the people; (d) To develop human resources; (e) To develop high functioning production, service, and trading sectors. (f) To develop technology and the agriculture, livestock and industrial sectors; (g) To develop various professional fields including infrastructure across the Union; (h) To enable the citizens to be able to work alongside with the international community; and (i) To develop businesses and investments that meet international standards.
Myanmar Investment Rules (Rule No.202, 203,206,212)	2017	To develop responsible investment businesses which do not cause harm to the natural environment and the society for the benefit of the Union and its citizens
Myanmar Fire Force Law,	2015	-To take precautionary and preventive measure and loss of state own property, private property, cultural heritage and the lives and property of public due to fire and other natural disasters -To organize fire brigade systemically and to train the fire brigade -To prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs -To educate, organize an inside extensively so as to achieve public corporation -To participate if in need for national security, peace for the citizens and law and order
Labour Organization Law, (Law No. 1,7 to 11)	2011	This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labour organizations systematically and independently
The Settlement of Labour Dispute Law, (Law No. 38, 39, 40, 51)	2012	The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace.
Employment and Skill Development Law, (Law No. 5, 14,	2013	- To facilitate employment which is appropriate to the age and ability of the job seeker - To help workers obtain employment and to provide stability of employment and skills development for

30(a,b))		employees - To help employers obtain appropriate employees
The Leave and Holiday Act, 1951 (Law Amended July, 2014)	2014	- To allow worker for leave and holiday allowances, religious or social activities with earn allowance, and benefits for Health allowances. - Concerned workers: Daily wage workers/ temporary workers/permanent workers.
Minimum Wages Law (Law No. 12, 13 (a to g)	2013	This Law was enacted to meet with the essential needs of the workers, and their families, who are working at the commercial, production and service, agricultural and livestock breeding businesses and with the purpose of increasing the capacity of the workers and for the development of competitiveness,
Payment of Wages Act (Law No. 3,4, 5, 14, 8 with 7,10)	2016	(a) Pay in local currency or foreign currency recognized by the Central Bank of Myanmar. This may be in cash, check or deposit into the bank account of Employee. (b) Moreover, pay can be in the means of… (1) Totally in cash OR half the cash and half in things set according to the local price to those employees working in trade, manufacturing and service sectors. (2) Totally in cash OR half the cash and half in things set as local price according to local traditions or common agreement to those working in agriculture and livestock sectors. But, this must be for the sake of the employees and their families. And, it also must be reasonable/fair. (3) An employee shall receive the payment for 60 days when he/she is in Alternative Civil Service.
The Myanmar Insurance Law (Law No. 15, 16)	1993	(a) to overcome financial difficulties by effecting mutual agreement of insurance against 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 resources 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.
The Social Security Law (Law No. 11(a), 15(a), 18(b), 48, 49, 75)	2012	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.
Workman Compensation Act	1923	To protect personal injury caused to a workman by accident arising out of and in the course of his employment and to compensate in accordance with the provisions of Workman Compensation Act
Law Amending the Factories Act 1951	2016	To make effective arrangements in every factory for disposal of waste and effluent, and matters on health,

(Pyidaungsu Hluttaw Law No. 12/2016)		cleanliness and precaution against danger.
Myanmar Public Health Law (Law No. 3, 5)	1972	To promote and safeguard public health and to take necessary measures in respect of environmental health.
Private Industrial Enterprise Law (No. 4, 13(b)(f) (g), 15(a)(b))	1990	To narrow down the gap between rural development and urban development by the development and improvement of industrial enterprises; to avoid or reduce the use of technical know-how which cause environmental pollution; to cause the use of energy in the most economical manner.
Forest Law	1992	To implement forest policy and environmental conservation policy, to promote public cooperation in implementing these policies, to develop the economy of the State, to prevent destruction of forest and biodiversity, to carry out conservation of natural forests and establishment of forest plantations and to contribute towards the fuel requirement of the country.
Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law	1994	To protect wildlife, wild plants and conserve natural areas, to contribute towards works of natural scientific research, and to establish zoological gardens and botanical gardens.
Protection and Preservation of Cultural Heritage Regions Laws (Law No. 13,15, 16)	2019	To implement the protection and preservation policy with respect to perpetuation of cultural heritage that has existed for many years; to protect and preserve the cultural heritage regions and the cultural heritage.
Prevention and Control of Communicable Diseases Law (Law No. 3(a)(e), 4, 11)	1995	To prevent the outbreak of Communicable Diseases, by implementing following project activities:- (a) immunization of children by injection or orally; (b) immunization of those who have attained majority, by injection or orally, when necessary; (c) carrying out health educative activities relating to Communicable Disease.
The Control of Smoking and Consumption of Tobacco Product Law (Law No. 9)	2006	-To convince the public that health can be adversely affected due to smoking and consumption of tobacco product and to cause refraining from the use of the same; -To protect from the danger which affects public health adversely by creating tobacco smoke-free environment; -To obtain a healthy living style of the public including child and youth by preventing the habit of smoking and consumption of tobacco product;
Conservation of Water Resources and Rivers Law (Law No. 8(a), 11, 19, 21(b), 22,24(b))	2006	To conserve and protect the water resources and rivers system for beneficial utilization by the public; to prevent environmental impact.
the Prevention of Hazard from	2013	- Performing the sticking pictogram for being least the health impacts and accident injuries in the occupational

Chemical and Related Substances Rules (Law No. 8,15,16,17, 20, 22, 23, 27)		area according to the prescribed standards and norms of the Globally Harmonized System GHS); - Making the necessary arrangements to be safety of the occupational area and issuing orders and directives for preventing and decreasing the accident; - Laying down the proliferation plans on knowledge, and safety of chemical and related substances to administrators, license holders, public and workers; - Cooperating with local and foreign governmental departments, organizations and non-governmental organizations in respect of safety management for chemicals hazard.
The Protection of rights of National Race Law, (Law No. 5)	2015	Consists of four bills, as submitted to the legislature; Buddhist Women's Special Marriage Bill, Religious Conversion Bill, Monogamy Bill and Population Control Bill.
Myanmar Petroleum and Petroleum Products Law (No. 9(a)(e),10(e),11)	2017	▪ To carry out the petroleum and petroleum product businesses activities systematically in accordance with the provisions of the law, stipulated standards, procedures and conditions; ▪ To enable the petroleum and petroleum product business activities to carry out safely without environmental impact; ▪ To establish free and fair competition in carrying out petroleum and petroleum product business activities; ▪ To secure energy requirement and energy security of the Union;
Trademark Law	2019	- To seek protection for their products, companies can consider emphasizing trade mark protection in Myanmar to protect their brand reputation and goodwill from illegal action related to their business.
Patent Law	2019	- To protect the right of inventors for their new innovations.
Automobile Law Pyidaungsu Hluttaw Law No. 55/2015	2015	- For the safe driving of motor vehicles in public areas through registration according to official rules and regulations. - To provide driving licenses for driving particular types of motorized vehicles after qualification checks. - For the easy flow of road users and for the protection against road risks and vehicle perils. - To avoid traffic congestion and to use high technology transportation systems efficiently in order to implement protection against road risks and vehicle perils. - To reduce environmental pollution caused by motor vehicles.
Industerial Design Law	2019	- To protect rights over the external visual design of objects (i.e. the aesthetic design, rather than the practical). It will be implemented through administrative bodies (particularly the Intellectual Property Office) and enabling legislation that will be established and implemented in due course.
The Myanmar	2013	- To uphold and upgrade the dignity, ethics and quality of

Engineering Council Law (Law No. 20,24,25, 31(a), 34, 37)		the Myanmar citizen engineers, graduate technicians and technicians who are practicing engineering works; - To explore using engineering technology and information technology combined the good methods, research and development activities by which the natural resources and human resources of the State may be beneficially applied with least impact environment; - To carry out guidance and supervision, and to take necessary actions for fulfillment of the requirements of stipulated technical standard, proper method, free from danger, keeping ethic and being dutiful in the fields of engineering and technology education, researches and services; - To service engineering and technology related functions and duties beneficial for the State assigned by the relevant Ministry and relevant organizations.
National Environmental Quality (Emission) Guidelines	2015	These national Environmental Quality (Emission) Guidelines (hereafter referred to as Guidelines) 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.
Occupational Health and Safety Law	2019	- To provide employment and a place of employment that is free from recognized hazards to health or safety.
Boiler Law (Law No. 3,4,13)	2015	To obtain boilers in compliance with Myanmar Standards or InternationalStandards To prevent the country and citizens from hazards caused by boiler accidents To use boilers in compliance with Myanmar Standards or International Standards within the country To develop boiler technology and to produce experts capable of manufacturing, handling, repair, and maintenance of boilers To optimize the use of boilers through effective utilization of fuel energy To reduce the environmental, social and health impacts through long-lasting use of boilers.
The Export and Import Law (Section 5,6)	2012	To enable to implement the economic principles of the State successfully. To enable to lay down the policies relating to export and import that supports the development of the State. To cause the policies relating to export and import of the State and activities are to be in conformity with the international trade standards. To cause to be streamlined and speedy in carrying out the matters relating to export and import.
Yangon City Development Committee Law	2018	It has stated that the committee has the right to: To corporate for the inspection with the concerning authority and

		To stipulate orders for the carriage, storage of chemical and related substances for not harming to public health and life To manage the waste regarding for the hazardous. There it has been prohibited for disposing chemical and its related substances in areas, which are not being allowed in the City Development area and mentioned offenses and penalties. - The Project Proponent commits to comply the stipulations and undertake the necessary proceeding as per this law and notification issued by the committee.

3.2. International Agreements and Conventions

In addition to the domestic laws listed above, Myanmar is also a signatory to the following international conventions, and these may have relevance to the proposed survey activities. Refer to the following table.

Table 3.2. International Agreements and Conventions Relevant to the Proposed Project

International Agreements and Conventions	Status	Purposes
Vienna Convention for the Protection of the Ozone Layer, 1985	1998	Aims at the protection of the ozone layer, including requirements for limiting the production and use of ozone depleting substances.
Montreal Protocol on Substances that Deplete the Ozone Layer, 1989	1993	Aims at the protection of the ozone layer, including requirements for limiting the production and use of ozone depleting substances.
Basel Convention, 1989	2015	The Convention regulates the transboundary movements of hazardous wastes and provides obligations to its parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.
United Nations Framework Convention on Climate Change (UNFCCC), New York, 1992 and Kyoto Protocol 1997	1995 and 2005	Provide a framework for intergovernmental efforts to tackle climate change. Recognises that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases.
Convention on Biological Diversity, Rio de Janeiro, 1992	1994	Aims to promote national policies for the conservation of wild flora, fauna and habitat that needs to be included in planning policies. The three main goals are: (1) the conservation of the biological diversity; (2) the sustainable use of its components; (3) fair and equitable sharing of the benefits.
Asia Least Cost	1998	Develop national and regional capacity for preparation

Greenhouse Gas Abatement Strategy (1998 ALGAS)		of GHG inventories. Assist in identifying GHG abatement options and preparation of a portfolio of abatement projects for each country.
United Nations Agenda 21	1997	Formed by the National Commission for Environmental Affairs (NCEA) in Myanmar. Provides a framework of programmes and actions for achieving sustainable development in the country. Building on the National Environment Policy of Myanmar, takes into account principles contained in the Global Agenda 21. Myanmar Agenda 21 also aims at strengthening and promoting systematic environmentalmanagement in the country.
Relevant ILO Conventions in force in Myanmar • C14 Weekly Rest (Industry) • C17 Workmen's Compensation (Accidents) • C19 Equality of Treatment (Accident Compensation) • C26 Minimum Wage Fixing Machinery • C29 Forced Labour Convention • C42 Workmen's Compensation • C52 Holidays with Pay		Sets out legal instruments drawn up by the ILO's constituents (governments, employers and workers) and setting out basic principles and rights for workers.
Workmen's Compensation (Accidents) Convention, 1925	1956	Entered in force 16 February 1956 The Project has risks to occupational health and safety.
Workmen's Compensation (Occupational Diseases) Convention 1925 and its Revision 1934	2016	Entered in force 30 Sept 1927; Revision entered in force 17 May 2016 The Project has risks to occupational health and safety.

3.3. Government of Myanmar Requirements

For establishments requiring licenses, IEE/ EIA report must be prepared and submitted to the Ministry of Natural Resources and Environmental Conservation (MNREC) for reviews. Once MNREC has approved the project, a license to continue the project can be issued. No additional environmental or social clearances are required other than the EIA approval to proceed the project activities. The law requires that any new project should comply with all the relevant articles pertinent to environmental attributes, which could e impacted form project activities. As a reference practice, environmental impact assessments for proposed power plant projects typically have a scope and organization similar to Asia Development Bank(ADB) environmental assessment. In addition to environmental impact assessment requirements, the EIA team has prepared air pollution and water pollution limits applicable to the gas engine power plant project. Most of the limits are based on World Bank Pollution Standards (1998) and EPA Standards.

3.4. Environmental Policy

National Capital Regional Planning Board (NCRPB) will continually strive to ensure and enhance effective environmental management practices in all its operations". This is aimed to achieve through:

• Minimizing negative environmental (including health & safety) impacts in its operations and risks to the environment (particularly eco-sensitive areas and culturally important areas) and people who may be affected through formulating and implementing commensurate plans.

• Ensuring that environmental safeguards - defined as requirements of applicable Indian environmental legislation and multilateral / bilateral funding agencies - are being adequately integrated by the project proponent / IA in the planning, design, construction prior to its financing and in its implementation during the operational phase.

• Ensuring that compliance to all applicable national and local environmental legislation.

• Encouraging that public and stakeholder consultation be carried out by the project proponent /

EIA and disclosing the required information in all stages of the project cycle.

• Integrating environmental risk into its overall internal risk management Analysis.

• Including environmental management considerations in all aspects of operations and interactions with the project proponent / IAs in all stages of the project cycle.

This policy statement emphasizes NCRPB's sensitivity, concern and commitment to environmental safeguards. NCRPB will strive to ensure that the projects that it supports meets government policies and as well as of the bilateral/multilateral agencies such as ADB.

3.5 International Policies, Guidelines and Standards

Good International Industry Practice Guidelines

The proposed project will undertake the impact assessment study and project activities in a manner guided by good international industry practice (GIIP). Applicable guidelines which GTIG will consider in preparing the EIA include:

- International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012); and

- IFC Environmental, Health and Safety (EHS) guidelines, including:
  - General EHS Guidelines (2007); and
  - EHS Guidelines for Environmental, Health and Safety Guidelines for Industrial Sector (2016).

National Environmental Quality (Emission) Guidelines

The guideline is stipulated by former MONREC by the provision of Paragraph (42), Sub-paragraph (b) of the Environmental Conservation Law 2012. The objective of the guidelines is to control noise and vibration, emissions and effluents in order to prevent the pollutions for the protection of human health and ecosystem.

In addition, the following guidelines and standards may be applicable:

- WHO Drinking Water Quality
- FAO Soil Bulletin 65 and Dutch Intervention Values for Soil Quality; and
- Occupational Health and Safety Administration (OHSA) standards – United States Department of Labor;

3.6. Commitments of Project Developer

Best Garment (Myanmar) Co., Ltd commit to strictly comply with the laws, regulations, and guidelines listed in this EMP Report.

4. PROJECT DESCRIPTION

4.1. Type of Project

The proposed factory is the 100% foreign investment by Best Garment (Myanmar) Co., Ltd. with an estimated foreign capital US $ 11 Million. The factory aims to not only manufacture various kinds of clothes but also export to other foreign countries using the Cut-Make-Pack System (CMP System). The factory construction shall commence once the company receives permission from Myanmar Investment Commission (MIC).

4.2 Location of the factory

The factory is located Plot No. (YaPaTa/GayaTa-330/19) 3, 4, 6, 34, 35(A), 36(A), 37(A), 38(A), 39(A), 40(A), 55(A), 57(A), 58(A), 59(A), 60(A), 63(A), 64(A), 67(A), 68(A), 70(A) 71(A)/H, Block No. 561, KayinChaungKwin ward, Shwepyitha Township, Yangon Region, Republic of the Union of Myanmar, comprising the land area of 8 acres. It is situated at the coordinates of 17° 0'27.31"N Latitude and 96° 4'31.67"E Longitude.

A- 17° 0'23.23"N, 96° 4'27.56"E C- 17° 0'30.11"N, 96° 4'36.13"E
B- 17° 0'27.49"N, 96° 4'26.42"E D- 17° 0'26.18"N, 96° 4'37.11"E

Figure 4.1. Project Boundary Coordinate Points

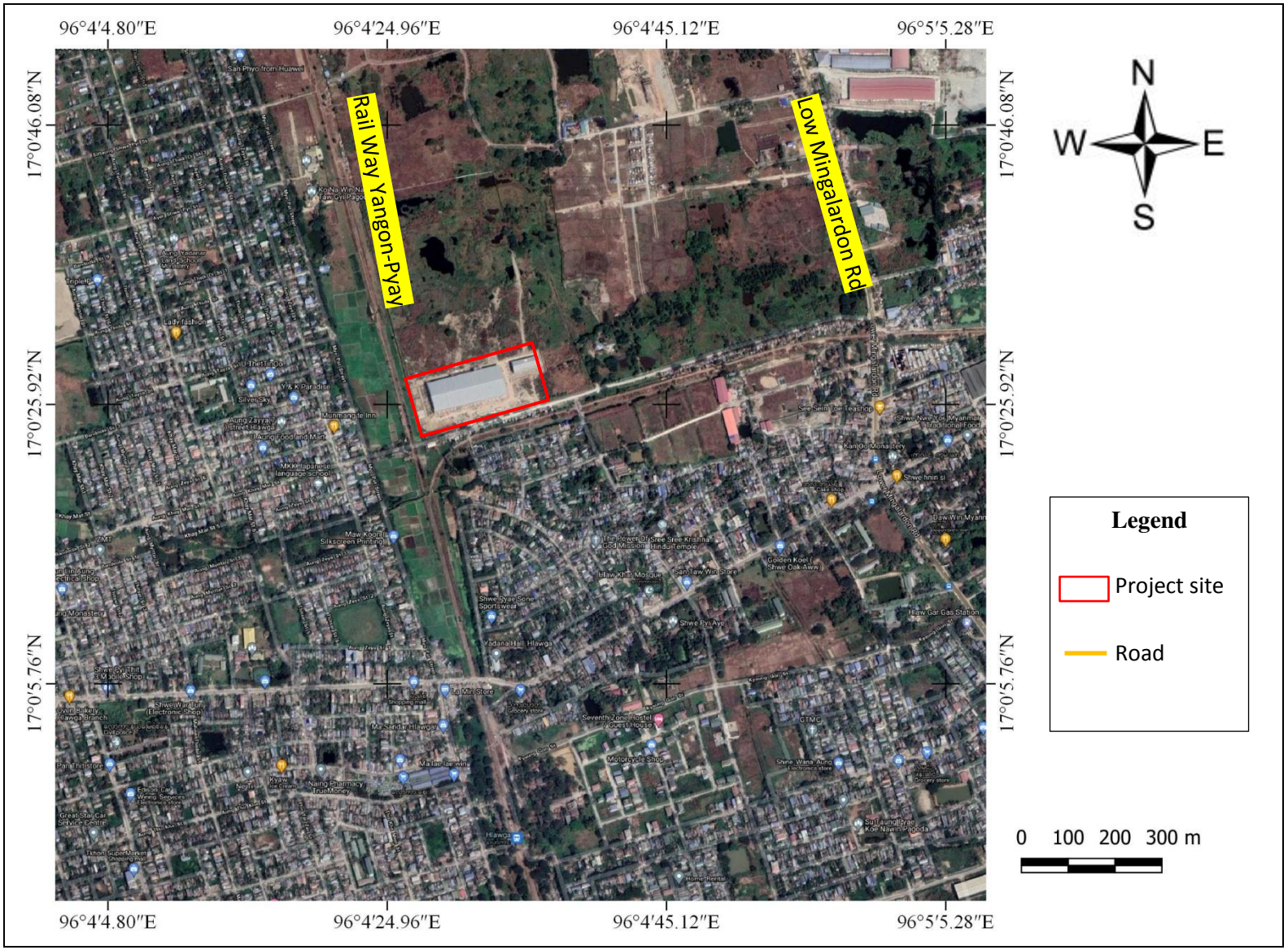
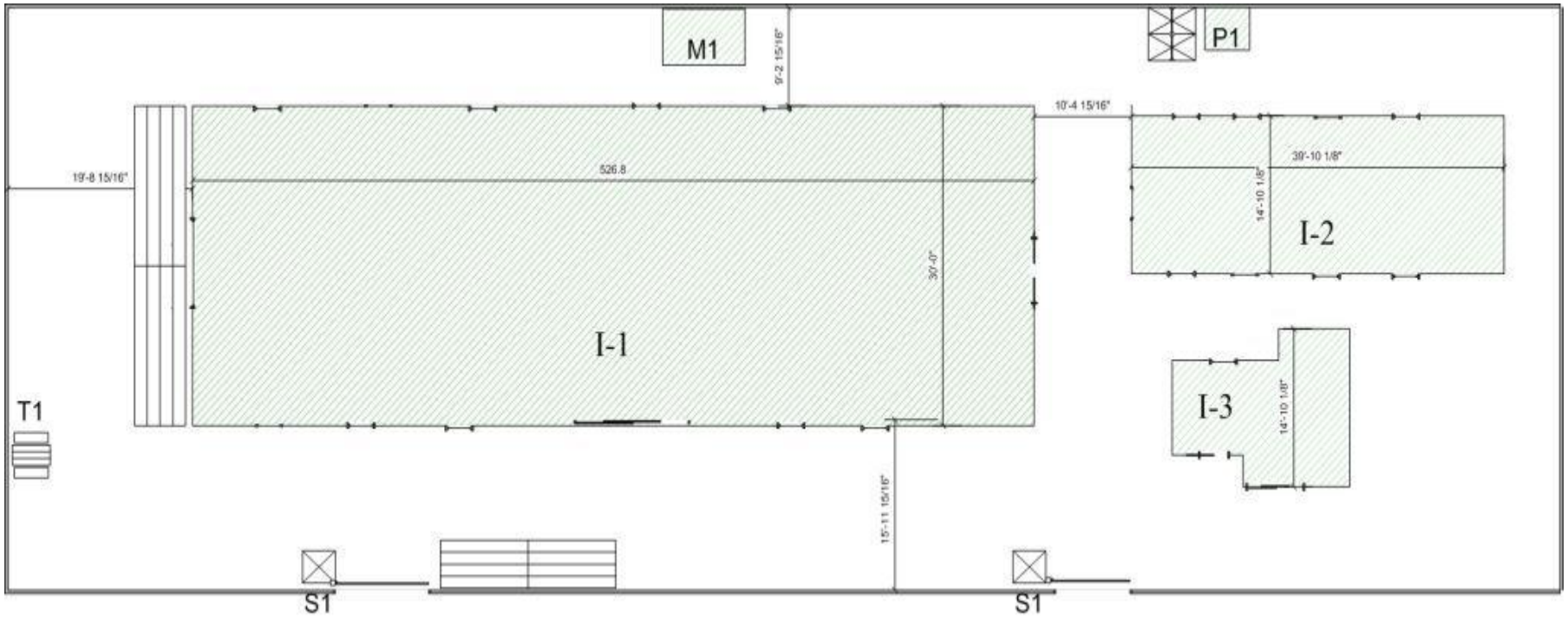


Figure 4.2. Location of the Factory



LayOut Plan
Not to Scale

No	ITEM	STRUCTURE TYPE	No. FLOOR	SIZE
I-1	Main Factory	Steel	02	526.8 ft x 233ft
I-2	Dormitory	Steel	03	190 ft x 110ft
I-3	Office	Steel	03	190ft x 63.4ft
M1	Electric House and M&E	RCC	01	20ft x 12ft
P1	Water tower	Steel		
T1	Transformer			
S1	Guard House	Steel	01	10ft x12ft

APPLICANT	PROJECT
Best Garment (Myanmar) Co., Ltd	
BLOCK No	LAND 2.05 Acres
SHEET NO M-0.2	SPT TS

Figure 4.3 Layout Plan of the Proposed Project

4.3 Project Components

Production process (Cutting, Sewing and Packaging) will be carried out in the main production building. Both raw materials and finished goods will be stored in the area made by using partition in the main building. The layout plan of project area and main factory are shown in above Figure 4.3.

Size and Number of buildings in proposed project

Building Category	Size	Unit
Factory	(526.8 x 233 x 2 floor)	ft
Dormitory	(190 x 110 x 3 floor)	ft
Office	(190 x 63.4 x 3 floor)	ft

4.4 Project Construction and Implementation Schedule

The duration of project construction is estimated to be within 3 years. The project construction and implementation schedule of proposed project is shown in the following figure;

Best Garment (Myanmar) Co., Ltd (Garment Factory Project)
526.8 ft x 233ft =1units (2) Storeyed Factory Building Time Schedule

Item No	Description	Time Schedule Month																																						Remark
		1				2				3				4				5				6				7				8				9				10				11				12				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
A	Sub-Structure Work																																																
1	Site preparations (Soil Text)																																																
2	Earth Work & Foundation Work																																																
B	Structure Work																																																
1	Column for Footing to Ground Floor with Ground Beam																																																
2	Ground Floor Concrete work																																																
	(Including M8E Piping work)																																																
3	Steel Structure work (Product & Fixing)																																																
4	Column Concrete Work for Ground to 1st Roor																																																
5	1st Floor Slab Concrete work																																																
	(Including M & E Piping work)																																																
6	Column Concrete Work for 1 st Floor to 2nd Roor																																																
C	Brick Work & Chowket Install																																																
1	Ground Floor																																																
2	1 st Floor																																																
D	Wall Piping Work for MAE																																																
1	Ground Floor																																																
2	1 st Floor																																																
E	Plaster Work For Internal Wall																																																
1	Ground Floor																																																
2	*1* st Floor																																																
F	Plaster Work For External Wall & Scaffolding work																																																
	Scaffolding Work																																																
	Plastering Work																																																
G	Roof Truss & Roofing work																																																
	Column . Truss .Rafter . Purlin																																																
	OSB . Asian Theat																																																
H	Floor Topping, Painting Work																																																
1	Ground Floor																																																
2	1 st Floor																																																
I	Aluminum Door & window Install																																																
1	Ground Floor																																																
2	1 st Floor																																																
J	M&E Fitting Install																																																
1	Ground Floor																																																
2	1 st Floor																																																
K	Install Machine Equipment																																																
1	Ground Floor																																																
2	1 st Floor																																																

Figure 4.4- Construction Implementation Schedule for Proposed Project

4.5. Proposed Project at a Glance

Particular	Descriptions
Target products	Various kind of clothes
Capacity	(7,4400,000 pcs/year)
Water Requirement	Approx.: 8,120,000 gal/year
Source of Water	Underground (Tube Well),
Power Requirement	Approx- 120,000kW/year
Source of Electrical Power	MEPE
Auxiliary Power	Diesel Generator (0.5MW) (1 Nos. × 500 kVA)
fossil fuels	Approx- 8,800 gal/year
Effluent	Domestic effluent; Sewage treatment facilities will be provided for all sewage generated on site. Factory effluent; no process water effluent
Solid waste management system	Recyclable domestic waste will be recycled. Other domestic waste will be disposed of in a domestic waste disposal site as directed by Township CDC
No. of Workers Used	Foreigner -46, local -2103 workers
No. of Working Days	290 days per year

4.6 Production Process

The factory uses Cutting, Making and Packing (CMP) system. The CMP system is a form of production on consignment in which the raw materials are imported or bought from China, then cut, sewn and packed in domestic factories, after which all of the finished products are exported.

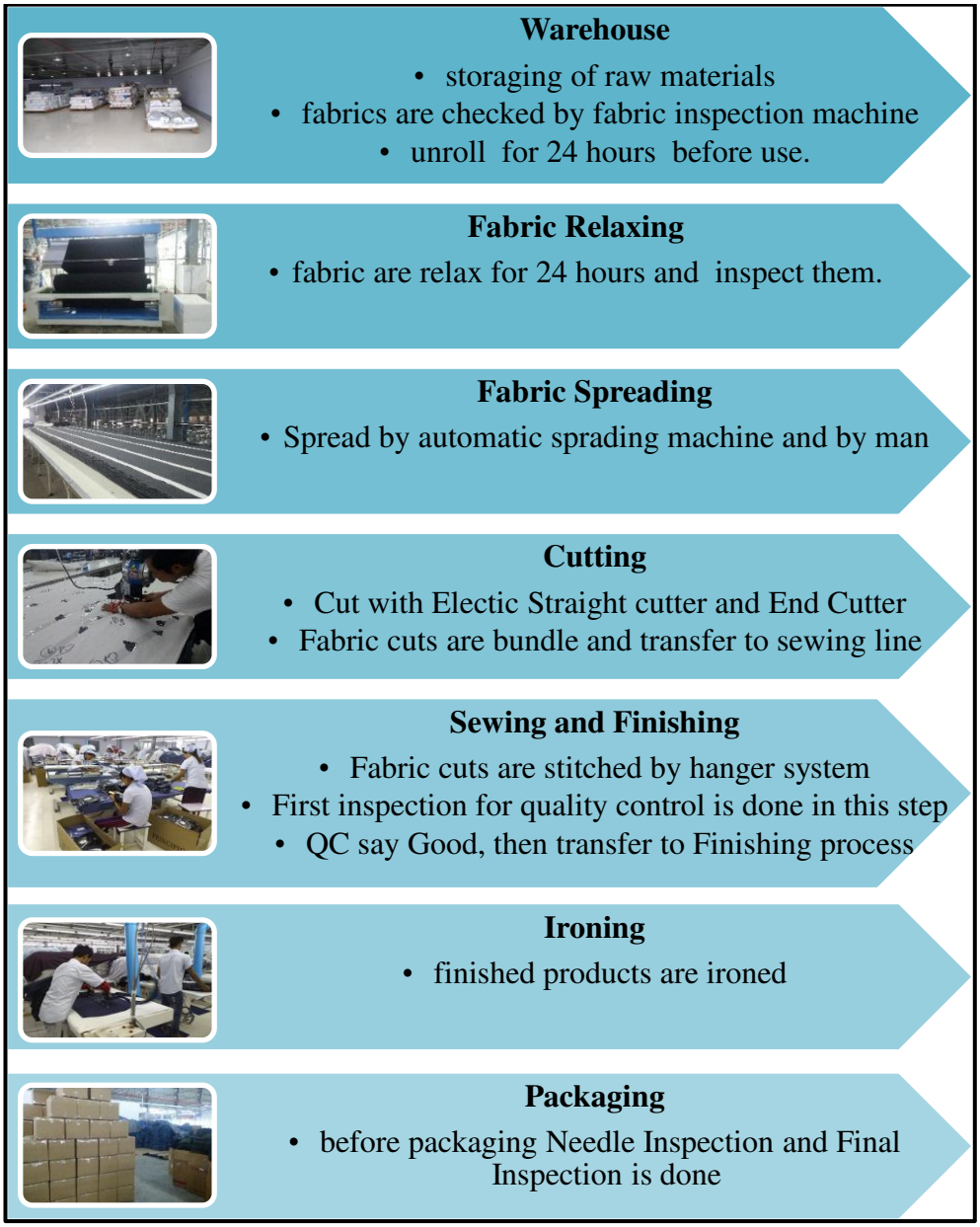


Figure 4.5-Overview manufacturing process of the proposed factory

As seen in the layout plan, the received raw material of fabric is relaxing and inspected in warehouse. After the fabric has been relaxed, it is transferred to the spreading and cutting area. The fabric is spread and lay to cut the fabric properly. The fabric is first to cut into uniform plies and then spread either manually or using a computer-controlled system in preparation for the cutting process. Fabrics are cut according to design, sizes at cutting lines, and then send to sewing line. All parts of a garment are joined to the sewing section to make a complete garment. After a garment is fully sewn and assembled, inspection will be done for quality control and it is transferred to the ironing section of the facility for final pressing. Complete products are folded, tagged, sized, and packaged according to customer specifications. Final products are stored in the warehouse and ready to ship the products to the buyer. Component process of flow chat is shown in figure below.

4.7. Employment

The normal working hours of the factory is from 7:30 am to 4:10 pm on Monday to Friday. The break time is 11:30 pm to 12:10 pm. Sunday and other gazette holidays are closed. The total operation days are 290 days per year. There are 2149 workers workers are employed in the factory. The factory working time is one shift per day. Employee statement of the factory can be seen as follows:

Table 4.1- Employee statement

Sr No	Designation	No. of Employee	
		Local	Foreign*
1	Facory Director		1
2	Administration Manager		1
3	Financial Manager		1
4	Personnel Manager	1	
5	Cutting head	4	2
6	Sewing head		2
7	Ironing head	2	
8	Finishing head		2
9	Warehouse head	2	
10	Packing head	2	
11	Packaging head	2	
12	Inspection head	4	
13	Q.C Manager		2
14	Mechanic Supervisor		2
15	Mechanic head	2	
16	Warehouse Supervisor		2
17	Technical instructor		14
18	Financial Accounting		1
19	Business Handler		2
20	Engineering Dept.		2
21	Doctor	4	
22	Translator	16	
23	IE		2
24	Factory inspector		2
25	MR		3
26	CSR		3
27	Planner		2

28	Team leader	40	
29	AQL	2	
30	Finance staff	4	
31	Documentation specialist	2	
32	Security staff & cleaner	16	
33	Skilled workers	1200	
34	Unskilled worker	800	
	Sub total	**2103**	**46**
	Total	**2149**	

4.8. Production Rate

The capacity of average production rate is 7,440,000 pcs yearly. The production rate is depended on CMP contract or customer orders. List of production items are shown in below table.

Table 4.2- Production Statement

No.	Products Item	Unit	Year 1	Year2	Year 3	Year 4	Year 5
1	Pyjamas	SET	1,600,000	2,400,000	2,880,000	2,880,000	2,880,000
2	Jumpsuit	PCS	240,000	360,000	432,000	432,000	432,000
3	baby/toddler sleeve-bibs	PCS	240,000	360,000	432,000	432,000	432,000
4	T-shirt	PCS	800,000	1,200,000	1,440,000	1,440,000	1,440,000
5	zipper coat	PCS	240,000	360,000	432,000	432,000	432,000
6	Polo shirt	PCS	240,000	360,000	432,000	432,000	432,000
7	Hoddie	PCS	240,000	360,000	432,000	432,000	432,000
8	Shirt with batwing sleeves	PCS	240,000	360,000	432,000	432,000	432,000
9	Vest	PCS	400,000	600,000	720,000	720,000	720,000
10	Camisole	PCS	400,000	600,000	720,000	720,000	720,000
11	Dress	PCS	480,000	720,000	864,000	864,000	864,000
12	T-shirt (round neck)	PCS	480,000	720,000	864,000	864,000	864,000
13	Bikini	SET	240,000	360,000	432,000	432,000	432,000
14	Baby romper	PCS	480,000	720,000	864,000	864,000	864,000
15	Skirt	PCS	480,000	720,000	864,000	864,000	864,000
16	Pants	PCS	640,000	960,000	1,152,000	1,152,000	1,152,000
	TOTAL		**7,440,000**	**11,160,000**	**13,392,000**	**13,392,000**	**13,392,000**

4.9. Raw Materials Requirement

List of Raw Materials and machines are shown in below table.

Table 4.3- List of Raw Materials

No.	Partoculars	Unit	Year 1	Year 2	Year 3	Year 4	Year 5
1	Fabric Woven	meter	936000	1404000	1684800	1684800	1684800
2	Knit	kg	2153600	3230400	3876480	3876480	3876480
3	eight button	pcs	800000	1200000	1440000	1440000	1440000
4	plastic paper	pcs	3680000	5520000	6624000	6624000	6624000
5	Packaging Box	pcs	240000	360000	432000	432000	432000
6	photoinlay	pcs	2720000	4080000	4896000	4896000	4896000
7	magic sticker	meter	7200	10800	12960	12960	12960
8	elastic	meter	638400	957600	1149120	1149120	1149120
9	air hole	pcs	3360000	5040000	6048000	6048000	6048000
10	cardboard	pcs	2080000	3120000	3744000	3744000	3744000
11	hydrosol with	roll	384	576	691.2	691.2	691.2
12	size label	pcs	4800000	7200000	8640000	8640000	8640000
13	sticker	pcs	2080000	3120000	3744000	3744000	3744000
14	plastic handle	pcs	4560000	6840000	8208000	8208000	8208000
15	ring label	pcs	480000	720000	864000	864000	864000
16	cup	pair	240000	360000	432000	432000	432000
17	100% polyester sewing thread	meter	852720000	1279080000	1534896000	1534896000	1534896000
18	paper carton	pcs	233200	349800	419760	419760	419760
19	hangtag	pcs	5440000	8160000	9792000	9792000	9792000
20	main label	pcs	6000000	9000000	10800000	10800000	10800000
21	label	pcs	3840000	5760000	6912000	6912000	6912000

Table 4.3- List of Raw Materials (Continue)

No.	Partoculars	Unit	Year 1	Year 2	Year 3	Year 4	Year 5
22	packaging tape	roll	148800	223200	267840	267840	267840
23	disiccant	g	10560000	15840000	19008000	19008000	19008000
24	100% nylon sewing thread	meter	6240000	9360000	11232000	11232000	11232000
25	ribbon	meter	384000	576000	691200	691200	691200
26	flat knitting machine	pcs	240000	360000	432000	432000	432000
27	bowknot	pcs	1840000	2760000	3312000	3312000	3312000
28	green tags	pcs	240000	360000	432000	432000	432000
29	price tickets	pcs	4480000	6720000	8064000	8064000	8064000
30	plastic bags	pcs	5440000	8160000	9792000	9792000	9792000
31	sticker	pcs	4640000	6960000	8352000	8352000	8352000
32	copy paper	pcs	240000	360000	432000	432000	432000
33	sealing	pcs	2960000	4440000	5328000	5328000	5328000
34	palstic hanger	pcs	2560000	3840000	4608000	4608000	4608000
35	nylon straps	meter	96000	144000	172800	172800	172800
36	plastic button	pcs	480000	720000	864000	864000	864000
37	plastic handle	pcs	3520000	5280000	6336000	6336000	6336000
38	stain tape	meter	1376293.578	2064440. 367	2477328. 44	2477328. 44	2477328. 44
39	plastic clips	pcs	3680000	5520000	6624000	6624000	6624000
40	bar code sticker	pcs	992000	1488000	1785600	1785600	1785600
41	carelabel	pcs	2000000	3000000	3600000	3600000	3600000
42	printed label	pcs	2080000	3120000	3744000	3744000	3744000

Table 4.3- List of Raw Materials (Continue)

No.	Partoculars	Unit	Year 1	Year 2	Year 3	Year 4	Year 5
43	transparent shoulder straps	meter	2516000	3774000	4528800	4528800	4528800
44	transparent round stick	pcs	480000	720000	864000	864000	' 864000
45	carelabel	pcs	10640000	15960000	19152000	19152000	19152000
46	sitcker	pcs	273600	410400	492480	492480	492480
47	elastic	meter	2316800	3475200	4170240	4170240	4170240
48	packaging tape	meter	196800	295200	354240	354240	354240
49	bridge plate	pcs	252000	378000	453600	453600	453600
52	paper liner	pcs	5680000	8520000	10224000	10224000	10224000
53	lining cilth	meter	720	1080	1296	1296	1296
54	100% nylon sewing thread	meter	346216000	519324000	623188800	623188800	623188800
55	plactic hook	pcs	640000	960000	1152000	1152000	1152000
56	lining cilth	meter	719600	1079400	1295280	1295280	1295280
57	buckle with five claws	pcs	3366400	5049600	6059520	6059520	6059520
58	buckle with five claws	pcs	3600000	5400000	6480000	6480000	6480000
59	Lace	meter	272000	408000	489600	489600	489600
60	label	pcs	2000000	3000000	3600000	3600000	3600000
61	Zipper	pcs	880000	1320000	1584000	1584000	1584000

4.10 Machinery and Equipment

The lists of machineries and accessories used in operation process required for the proposed factory are listed in the following Tables.

Table 4.4. Main Structural Material List (Local Purchased) construction phase

No.	Name	Unit	Unit Price (USD)	QTY	Total Price (USD)
1	Steel Plate	T	696	690.5	480,243
2	Shape Steel	T	702	276.3	193,824
3	Galvanized Steel Sheet	T	855	109.95	94,007
4	Welded Pipe	T	821	20.02	16,436
5	Level 3 Reinforced Steel	T	665	396.7	263,806
6	Level 1 Reinforced Steel	T	685	65.2	44,662
7	Roof Color Steel Plate	T	745	81.64	60,822
8	Aluminium Alloy Extrusions	T	44,505	12.7	565,214
9	Cement	T	76.70	1700	130,390
10	Rubble	m^3	24.60	4500	110,700
11	Sand	m^3	5.25	2500	13,125
	Toal			**10353**	**1,973,229**

Table 4.5. Factory Accessories List (Local Purchased)

No	Item	Unit	Qty	Unit price (USD)	Amount (USD)	Source
						Local
1	Spray line groove 200*100(lncluding accessories)	Meter	400	7	2800	Local
2	Spray line groove 80*80 (lncluding accessories)	Meter	500	3.5	1750	Local
3	Spray line groove 80x50 (lncluding accessories)	Meter	600	2	1200	Local
4	10 li tie rod (Need More Information)	pc	1100	0.65	715	Local
5	Cable YJV1*240mm^2	Meter	500	18.3	9150	Local
6	Cable YJV1*185mm^2	Meter	300	14.5	4350	Local
7	Cable YJV1*120mm^2	Meter	500	9.5	4750	Local
8	Cable YJV1*50mm^2	Meter	800	4	3200	Local
9	Cable YJV1*35mm^2	Meter	800	3	2400	Local
10	Cable YJV1*25mm^2	Meter	800	2.1	1680	Local

11	Cable YJV1*16mm^2	Meter	900	1.36	1224	Local
12	BVV 2.5mm^2	bale	90	20	1800	Local
13	BW 6mm^2	bale	90	49.5	4455	Local
14	BVV 4mm^2	bale	40	32	1280	Local
15	BVV 1.5mm^2	bale	16	12.8	204.8	Local
16	Security exit 1$220V 50HZ	unit	30	4.5	135	Local
17	Emergency ligthing 1$220V 50HZ LED '	unit	30	4.5	135	Local
18	LED lights T8 18W	unit	900	3.3	2970	Local
19	LED lamp	unit	650	1.3	845	Local
20	Eight hole socket (With bottom box)	set	400	1	400	Local
21	Power cabinet	set	2	1850	3700	Local
22	Distrbution box	set	16	85	1360	Local
23	Air compressor 20P	set	2	4500	9000	Local
24	Fire pump	set	4	590	2360	Local
25	Fire control box	set	2	150	300	Local
26	Fire hose	set	10	17.5	175	Local
27	Cabinet for team leader	Set	16	120	1920	Local
28	Whiteboard shelf / holder	Set	4	80	320	Local
29	Chair for Production	Set	1500	20	30000	Local
30	Shelf	Set	130	135	17550	Local
31	Ladder	Set	6	800	4800	Local
32	Material Preparation Table	Set	8	130	1040	Local
33	End-line QC and Packing Table	Set	28	50	1400	Local
34	Handcart for preparation and pack	Set	18	50	900	Local
35	Handcart for small plastic containe	Set	18	50	900	Local
36	Cutting table	Set	10	2200	22000	Local
37	Materials cart	Set	8	350	2800	Local
38	Fabric laing table	Set	4	2000	8000	Local
39	Material Shelf with wheels	Set	30	80	2400	Local
40	Goods Shelf with wheels	Set	10	100	1000	Local
41	Material Cage	Set	10	100	1000	Local
42	Big air conditioner	Set	10	635	6350	Local
43	Small air conditioner	Set	18	310	5580	Local
	TOTAL				**170,299**	

Table 4.6. List of Machinery and Equipment (Local Purchased)

No	Item	Unit	Qty	Unit price (USD)	Amount (USD)	Source
						Local
1	High speed lockstich sewing machine	SETS	100	480	48,000	Local
2	Semi-dry-head, 2-needle, Lockstitch Machine with Organized Split Needle Bar	SETS	14	1,200	16,800	Local
3	Semi-dry-head, High¬speed, Overlock/Safety Stitch Machine	SETS	100	450	45,000	Local
4	Semi-dry-head, High¬speed, Overlock/Safety Stitch Machine	SETS	20	450	9,000	Local
5	2-needle chain lockstitch machine	SETS	8	1,200	9,600	Local
6	1-needle, Lockstitch Machine with Vertical Edge Trimmer	SETS	8	750	6,000	Local
7	Automatic bag booting machine	SETS	2	15,000	30,000	Local
8	Computer- controlled, Progranmmable,Pattern Template Sewing Machine	SETS	2	7,500	15,000	Local
9	Cutting Machine	SETS	10	300	3,000	Local
10	Suction thread machine	SETS	2	720	1,440	Local
11	Wire cutting machine	SETS	2	320	640	Local
12	flycutter	SETS	2	6,500	13,000	Local
13	gelee2s	SETS	2	4,600	9,200	Local
14	CARV	SETS	2	7,200	14,400	Local
15	3-needle and 5-threads interlock machine	SETS	40	1,725	69,000	Local
16	Computer-controlled, Highspeed, Lockstitch Buttonholing Machine	SETS	8	5,000	40,000	Local
17	Automatic round eye sewing machine	SETS	2	9,500	19,000	Local
18	Button Sewing Machine	SETS	8	3,500	28,000	Local
19	Computer-controlled,High-speed,Bartacking Machine	SETS	8	3,500	28,000	Local
20	inside curved teeth machine	SETS	4	1,050	4,200	Local
21	2-needle curved teeth	SETS	4	1,050	4,200	Local
22	4-needle and 6-threads interlock machine	SETS	8	2,900	23,200	Local
23	Computer-controlled, Direct-drive,High-speed, 1 -needle,Lockstitch,Zigzag Stitching Machine	SETS	4	2,850	11,400	Local
24	elastic machine	SETS	8	1,430	11,440	Local

25	elastic-joint machine	SETS	2	15,000	30,000	Local
26	Feed-off-the-arm,Double Chainstitch Machine	SETS	4	900	3,600	Local
27	Feed-off-the-arm,Double Chainstitch Machine	SETS	4	2,100	8,400	Local
28	Button Attaching Machine	SETS	8	350	2,800	Local
29	label pressing machine	SETS	12	300	3,600	Local
30	The collar machine	SETS	4	3,800	15,200	Local
31	interlock machine with left knife(3-needle and 5-threads)	SETS	10	2,800	28,000	Local
32	interlock machine with right knife(3-needle and 5-threads)	SETS	6	2,800	16,800	Local
33	water-soluble tape machine	SETS	2	750	1,500	Local
34	Automatic brokrn machine	SETS	10	170	1,700	Local
35	steel belt machine	SETS	2	750	1,500	Local
36	Fusing machine	SETS	2	3,500	7,000	Local
37	Cloth inspecting machine	SETS	2	4,800	9,600	Local
38	Spreader	SETS	2	1,500	3,000	Local
39	Roll cutting Machine	SETS	2	10,000	20,000	Local
40	Needle detector	SETS	2	5,000	10,000	Local
41	Series Conveyor Type Needle Detector	SETS	2	10,000	20,000	Local
42	Dehumidifier	SETS	2	1,500	3,000	Local
43	Automatic spreading machine	SETS	2	18,000	36,000	Local
44	Automatic cutting machine	SETS	2	45,000	90,000	Local
45	degreasing machine	SETS	2	650	1,300	Local
46	Iron table	SETS	50	300	15,000	Local
47	Taboret	SETS	600	8	4,800	Local
48	Work table	SETS	74	60	4,440	Local
49	Subcontracting& TestingJtockjable	SETS	44	35	1,540	Local
50	Table for the production line	SETS	18	480	8,640	Local
51	Pallet	SETS	660	30	19,800	Local
52	Cutting Table	SETS	4	1,152	4,608	Local
53	Flotation Cutting Table	SETS	4	4,600	18,400	Local
54	Doubie-layer cioth spreading trolley	SETS	100	200	20,000	Local
55	cutted stutt trolley in single faced	SETS	120	180	21,600	Local
56	Troliey	SETS	40	120	4,800	Local
57	Basket frame	SETS	40	18	720	Local

58	Inspection table	SETS	10	50	500	Local
59	Clothes rack	SETS	40	35	1,400	Local
60	rack	SETS	40	200	8,000	Local
61	Pallet Jack	SETS	2	300	600	Local
62	Air compressor	SETS	2	7,500	15,000	Local
63	Office Network Cable	Meter	660	2	1,610	Local
	TOTAL				**923,978**	

Table 4.7. List of Machinery and Equipment (Import)

No	Item	HS Code with Four Digit	Unit	Qty	Unit price	Amount (USD)	Source	
							Import	Import From
1	High speed lockstich sewing machine	8452290000	SETS	400	480	192,000	Import	China,Tai Wan,Japan,Vietnam,France
2	Semi-dry-head, 2-needle,Lockstitch Machine with Organized Split Needle Bar	8452290000	SETS	40	1,200	48,000	Import	China,Tai Wan,Japan,Vietnam,France
3	Semi-dry-head, High-speed,Overlock/Safety Stitch Machine	8452290000	SETS	560	450	252,000	Import	China,Tai Wan,Japan, Vietnam,France
4	Semi-dry-head, High-speed,Overlock/Safety Stitch Machine	8452290000	SETS	60	450	27,000	Import	China,Tai Wan,Japan,Vietnam,France
5	2-needle chain lockstitch machine	8452290000	SETS	20	1,200	24,000	Import	China,Tai Wan,Japan,Vietnam,France
6	1 -needle, Lockstitch Machine with Vertical Edge Trimmer	8452290000	SETS	20	750	15,000	Import	China,Tai Wan,Japan,Vietnam,France
7	Automatic bag booting machine	8452290000	SETS	4	15,000	60,000	Import	China,Tai Wan,Japan, Vietnam,France
8	2needle flatbed making belt loop machine with ffonr fabric trimmer	8452290000	SETS	2	800	1,600	Import	China,Tai Wan,Japan,Vietnam,France
9	Computer-controlled,Progranmmable,Pattern Template Sewing Machine	8452909200	SETS	4	7,500	30,000	Import	China,Tai Wan,Japan,Vietnam,France
10	Cutting Machine	8213000000	SETS	30	300	9,000	Import	China,Tai Wan,Japan, Vietnam,France
11	Suction thread machine	8451800000	SETS	6	720	4,320	Import	China,Tai Wan,Japan,Vietnam,France
12	Wire cutting machine	8451500000	SETS	6	320	1,920	Import	China,Tai Wan,Japan,Vietnam,France
13	flycutter	8441100000	SETS	2	6,500	13,000	Import	China,Tai Wan,Japan,Vietnam,France
14	gelee2s	9017100000	SETS	2	4,600	9,200	Import	China,Tai Wan,Japan,Vietnam,France
15	CARV	8465990000	SETS	2	7,200	14,400	Import	China,Tai Wan,Japan,Vietnam,France
16	3-needle and 5-threads interlock machine	8452290000	SETS	300	1,500	450,000	Import	China,Tai Wan,Japan,Vietnam,France
17	Computer-controlled, Highspeed, Lockstitch Buttonholing Machine	8452290000	SETS	20	5,000	100,000	Import	China,Tai Wan,Japan,Vietnam,France

No	Item	HS Code with Four Digit	Unit	Qty	Unit price	Amount (USD)	Source	
							Import	Import From
18	Automatic round eye sewing machine	8452290000	SETS	2	9,500	19,000	Import	China,Tai Wan,Japan, Vietnam,France
19	Button Sewing Machine	8452290000	SETS	20	3,500	70,000	Import	China,Tai Wan,Japan,Vietnam,France\
20	Computer-controlled, High-speed, Bartacking Machine	8452290000	SETS	20	3,500	70,000	Import	China,Tai Wan,Japan,Vietnam,France
21	inside curved teeth machine	8452290000	SETS	12	1,050	12,600	Import	China,Tai Wan,Japan,Vietnam,France
22	2-needle curved teeth machine	8452290000	SETS	12	1,050	12,600	Import	China,Tai Wan,Japan,Vietnam,France
23	4-needle and 6-threads interlock machine	8452290000	SETS	20	2,900	58,000	Import	China,Tai Wan,Japan,Vietnam,France
24	Computer-controlled,Direct-drive,High-speed, 1 - needle,Lockstitch,Zigzag Stitching Machine	8452290000	SETS	10	2,850	28,500	Import	China,Tai Wan,Japan,Vietnam,France
25	elastic machine	8452290000	SETS	20	1,430	28,600	Import	China,Tai Wan,Japan,Vietnam,France
26	elastic-joint machine	8452290000	SETS	2	15,000	30,000	Import	China,Tai Wan,Japan,Vietnam,France
27	Feed-ofF-the-arm,Double Chainstitch Machine	8452290000	SETS	12	900	10,800	Import	China,Tai Wan,Japan,Vietnam,France
28	Feed-ofF-the-arm,Double Chainstitch Machine	8452290000	SETS	10	2,100	21,000	Import	China,Tai Wan,Japan,Vietnam,France
29	Button Attaching Machine	8452290000	SETS	80	350	28,000	Import	China,Tai Wan,Japan,Vietnam,France
30	label pressing machine	8479899990	SETS	36	300	10,800	Import	China,Tai Wan,Japan,Vietnam,France
31	The collar machine	8452290000	SETS	10	3,800	38,000	Import	China,Tai Wan,Japan,Vietnam,France
32	interlock machine with left kniFe(3-needle and 5- threads)	8452290000	SETS	30	2,800	84,000	Import	China,Tai Wan,Japan,Vietnam,France
33	interlock machine with right kniFe(3-needle and 5- threads)	8452290000	SETS	14	2,800	39,200	Import	China,Tai Wan,Japan,Vietnam,Franee
34	water-soluble tape machine	3926100000	SETS	4	750	3,000	Import	China,Tai Wan,Japan,Vietnam,France
35	Automatic brokrn machine	8444005000	SETS	30	170	5,100	Import	China,Tai Wan,Japan,Vietnam,France

No	Item	HS Code with Four Digit	Unit	Qty	Unit price	Amount (USD)	Source	
							Import	Import From
36	steel belt machine	8479899990	SETS	4	750	3,000	Import	China,Tai Wan,Japan,Vietnam,France
37	Fusing machine	8479899920	SETS	6	3,500	21,000	Import	China,Tai Wan,Japan,Vietnam,France
38	Cloth inspecting machine	8451500000	SETS	2	4,800	9,600	Import	China,Tai Wan,Japan,Vietnam,France
39	Spreader	8451500000	SETS	6	1,500	9,000	Import	China,Tai Wan,Japan,Vietnam,France
40	Roll cutting Machine	8479899990	SETS	2	10,000	20,000	Import	China,Tai Wan,Japan,Vietnam,France
41	Needle detector	9031809090	SETS	4	5,000	20,000	Import	China,Tai Wan,Japan,Vietnam,France
42	Series Conveyor Type Needle Detector	9031809090	SETS	4	10,000	40,000	Import	China,Tai Wan,Japan,Vietnam,France
43	Dehumidifier	8418612090	SETS	6	1,500	9,000	Import	China,Tai Wan,Japan, Vietnam,France
44	Automatic spreading machine	8451500000	SETS	6	18,000	108,000	Import	China,Tai Wan,Japan, Vietnam,France
45	Automatic cutting machine	8451500000	SETS	4	45,000	180,000	Import	China,Tai Wan,Japan, Vietnam,France
46	degreasing machine	8456200000	SETS	6	650	3,900	Import	China,Tai Wan,Japan,Vietnam,France
47	Iron table	8451300000	SETS	150	300	45,000	Import	China,Tai Wan,Japan,Vietnam,France
48	Taboret		SETS	2000	8	16,000	Import	China,Tai Wan,Japan,Vietnam,France
49	Work table	7326909000	SETS	220	60	13,200	Import	China,Tai Wan,Japan,Vietnam,France
50	Subcontracting& Testing Work table	7326909000	SETS	130	35	4,550	Import	China,Tai Wan,Japan, Vietnam,France
51	Table for the production line	7326909000	SETS	50	480	24,000	Import	China,Tai Wan,Japan,Vietnam,France
52	Pallet	3926909090	SETS	2000	30	60,000	Import	China,Tai Wan,Japan,Vietnam,France
53	Cutting Table	7326909000	SETS	8	1152	9,216	Import	China,Tai Wan,Japan, Vietnam,France
54	Flotation Cutting Table		SETS	8	4600	36,800	Import	China,Tai Wan,Japan, Vietnam,France
55	Doubie-layer cioth spreading trolley	7326909000	SETS	300	200	60,000	Import	China,Tai Wan,Japan,Vietnam,France
56	cutted stutt trolley in single faced	8716800000	SETS	360	180	64,800	Import	China,Tai Wan,Japan,Vietnam,France

No	Item	HS Code with Four Digit	Unit	Qty	Unit price	Amount (USD)	Source	
							Import	Import From
57	Troliey	8716800000	SETS	130	120	15,600	Import	China,Tai Wan,Japan,Vietnam,France
58	Basket frame		SETS	130	18	2,340	Import	China,Tai Wan,Japan,Vietnam,France
59	Inspection table	9031200000	SETS	30	50	1,500	Import	China,Tai Wan,Japan,Vietnam,France
60	Clothes rack		SETS	130	35	4,550	Import	China,Tai Wan,Japan, Vietnam,France
61	rack	7308900000	SETS	130	200	26,000	Import	China,Tai Wan,Japan,Vietnam,France
62	Pallet Jack	8716800000	SETS	6	300	1,800	Import	China,Tai Wan,Japan,Vietnam,France
63	Diesel Generator Set	8502	SETS	4	50000	200,000	Import	China,Tai Wan,Japan,Vietnam,France
64	Electric forklift	8427209000	SETS	2	15000	30,000	Import	China,Tai Wan,Japan,Vietnam,France
65	Bliler	8402190000	SETS	2	60000	120,000	Import	China,Tai Wan,Japan,Vietnam,France
66	Aircompressor	8414801090	SETS	4	7500	30,000	Import	China,Tai Wan,Japan,Vietnam,France
67	Office Network Cable	8544	Meter	2000	2.44	4,880	Import	China,Tai Wan,Japan,Vietnam,France
68	Auto thread trinner device		SETS	600	250	150,000	Import	
						3,164,376		

4.11. Project Utilities

4.11.1. Energy Required

The proposed project is intended to get required electricity supply form township main grid line and connects to own transformers (380 kVA), which is situated within the factory compound. One backup generator with the capacity of 500 kVA is used when the electricity breaks down. The estimated consumption of fuel (diesel, petrol) is about 8,800 gallons per year.The estimated electricity meter unit is about 120,000kW per year. Fuel will be stored in Steel Tanks and constructed in accordance with the regulation issued by Ministry of Energy. Fire prevention activities must be arranged in accordance with instruction of Fire Fighting Department.

4.11.2. Water Supply

The main water use in the proposed factory is for operation use of boiler water and for domestic usage. Approximatelly, the factory well be uses 28,000 gal per day as water for operation use boiler water is 2,300 gal per day and for personal water usage (Domestic water) is 25,700 gal per day that is pumped from the two tubes well (300 feet depth; installed 4-inch diameter (Ø) pipe each). Drinking water will be providing by outsource suppliers.
Estimated electrical and water usage are shown in the following table:
Table 4.8 Anticipated electrical and water usage per year

Utilities	Source	Consumption per year
Power/ Electricity (Total)	-EPC Transformer / Generator -380/220 V, 500KVA	120,000kW
Water (Total)	-No.1 tube wells connected to firefighting system. -Water from tube well No.2 is stored in overhead water storage tanks	8,120,000 gallons

4.11.4. Ventilation System

Ventilation System will install for workers in the working area of the factory. Air-cons, funs, windows, exhaust fan and main doors will be provided for workers around the factory.

4.11.5. Drainage Channels

There are drainage channels installed the base of building around the factory compound. All channels are 1 ft wide and 2 ft depth. All staffs and workers in the factory are strictly prohibited to throw solid waste into the drainage channel. Domestic wastewater discharged to the factory drainage channel is flowed to the municipal drainage channel which is beside the factory compound.

Figure 4.6 - Drainage Channel in the Factory Compound (during construction)

4.12. Amount and Types of Waste

4.12.1. Solid Waste

(a) Non-hazardous waste

Garment wastes will be generated from mainly cutting section which generation is about 120 kilograms per day in the operation phase of factory. From the production process, main solid waste generation will be due to cutting, sewing and packaging activities. Fabric scraps from cutting and sewing, and packing material from activities of receiving raw materials and packaging finished goods will be collected and stored for further use. Extra foam scraps will be collected and sold back to the supplier as the supplies will be purchased from one local supplier.

Domestic wastes are generated from the workers including from office and canteen. According to the IGES (2016), the estimated amount of waste generation from each person is 0.4 kg/person/day. On the factory operation period, there are 2149 workers in the factory; the estimated waste generation is around 860 kg/day. To avoid overload and unsanitary bulk storage of wastes i.e., the factory is recommended to practice waste segregation into dry and wet waste with different color garbage bins. Recyclable domestic waste will be recycled. Other domestic waste will be disposed of in a domestic waste disposal site as directed by Township CDC.

(b) Hazardous waste

The factory use generators which consume diesel as fuel and boiler which consume wood as fuel. Used or spill diesel and machine oil which can be hazardous will be stored in a separate storage container constructed in the factory compound, and then contact with local recycler for proper disposal.

4.12.2. Liquid Waste

The main water usages are boiler and domestic usages in operation phase of factory. The wastewater discharges from boiler will be low quantity. Based on the U.S EPA, the average daily wastewater discharge for a worker is 9 gallond/employee /day (**ged**) to 18 ged with the medium value of 12 ged. Therefore, the estimated wastewater discharge from the 2149 workers will be around 25,000 gal/day.

The generated wastes and management process of the proposed factory is shown in the following Figure 4.7.

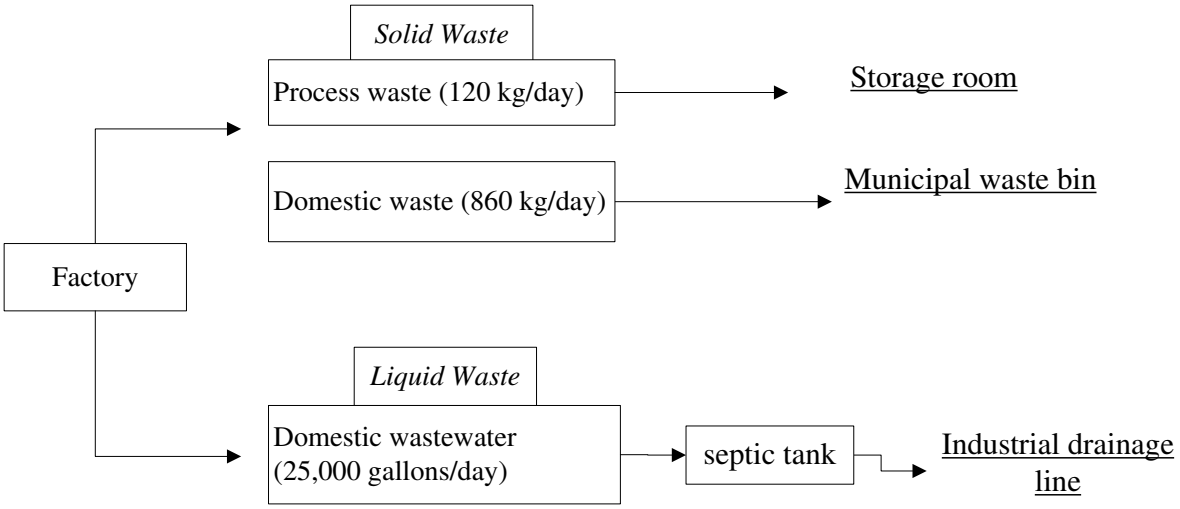


Figure 4.7 – Flow Chart of Generated Wastes and Proposed Management in the Factory

5. DESCRIPTION OF SURROUNDING ENVIRONMENT

This section describes the project sites baseline environmental and social conditions according to available sources of baseline information and qualitative assessments of the project site. The purpose of reviewing the baseline conditions is to present an understanding of the potential environmental and social sensitivities of the study area.

5.1 Geographical Study Limit

The geographical study limit is defined as the baseline data surrounding of the project site should be collected. The project site is located ShwePyiThar Township. The project study area refers to the area that needs to be studied in order to adequately understand and describe the baseline conditions likely to be affected by the project. At a minimum, the project study area will encompass the project footprint and around the 500-meter radius of the project site is the geographical study limit of the scoping study.

Figure 5.1. Geographical Study Limit Area of Project

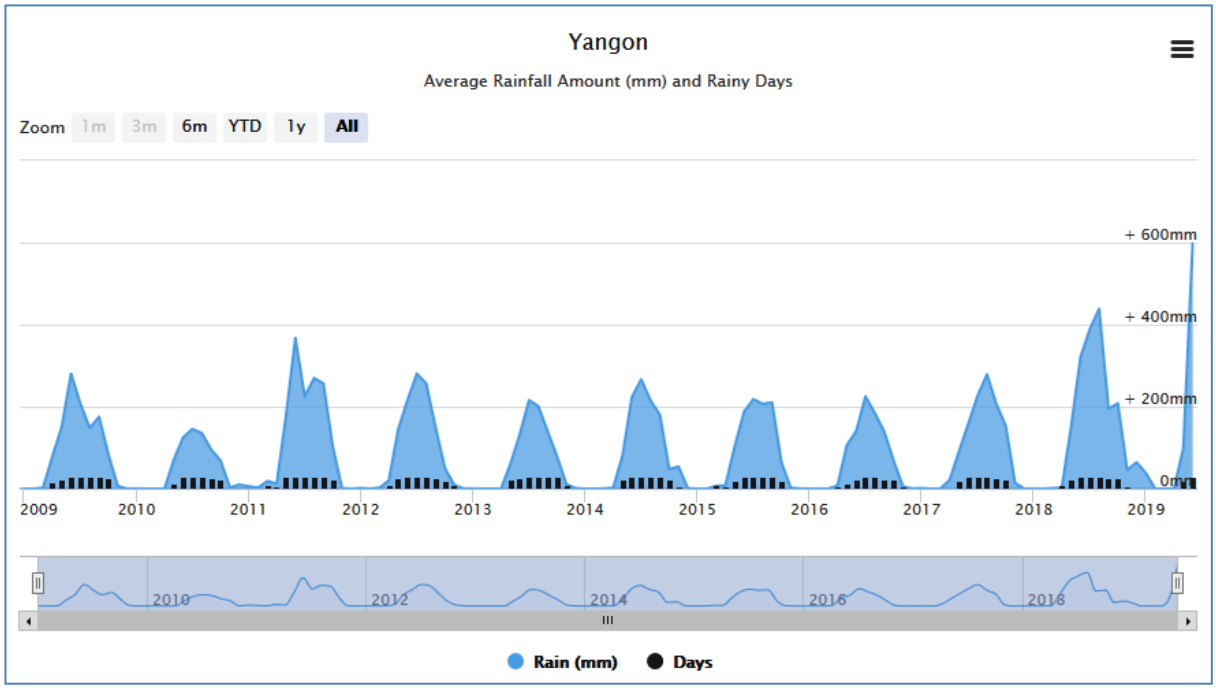
The existing physical parameters of climatic, hydrological, geological, air quality and acoustic conditions of the proposed project are as follows:

5.2. Meteorology and Climatology

The dry season of the area in which the project lies starts in February and ends in May. 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 is 40˚C and the lowest temperature is 23˚C. Yearly rainfall and temperature are shown in folling table.

Table 5.1. Yearly Rainfall and Temperature of Shwepyithar Township

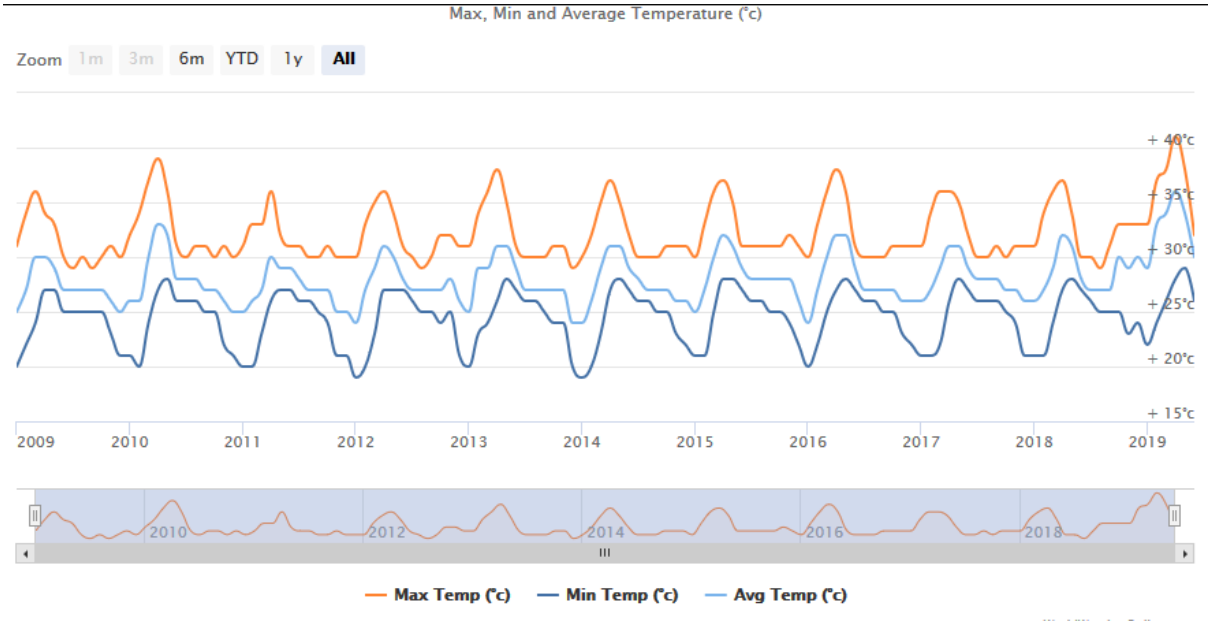
No.	Year	Rainfall		Temperature	
		Raining Day	Total Rainfall (in)	Highest (˚C)	Lowest (˚C)
1.	2014	87	138.39	31	23
2.	2015	100	110.31	40	23
3.	2016	97	150.24	34	30
4.	2017	102	146.97	34	30
5.	2018	97	136.92	35	30
6.	2019	104	141.85	41	30
7.	2020	106	145.12	39	28



Average Rainfall and Rainy Day over Project Area

Temperature Trends

It was very clear from temperature trend analysis that the maximum temperature showed increasing trends and decreasing trend for minimum temperature over all parts of the years in the project site.



Maximum and Minimum Temperature Deviation Trend over Project Area

5.3. Geology

Yangon area is underlain by alluvial deposits, the non-marine fluviatile sediments of Irrawady Formation, and hard, massive sandstone of Pegu Series. The alluvial deposits are composed of gravel, clay, silts, sand and laterite, which lies upon the eroded surface of Irrawady Formation at 4.6 m above mean sea level. The central part of Yangon area is occupied by the anticlinal ridge as a backbone, 30 m above mean sea level and covered with sands, sand rock, soft sandstones, shale, clays, and lateritic of Irrawady Formation. The hard compact sandstone and shale of Pegu series can be found at the northwest corner of Hlawga Lake with NNW–SSE strike dipping to the east. Alluvial deposits are found in the surrounding areas of the ridge whereas lateritic soils can be found along the ridge (Figure 5.2).

In the geological map, two anticlines can be seen trending NNW-SSE direction and are cut by NNE-SSW trending transverse fault (Aung, 2011). From the geological point of view, it can be concerned for the initial review of faster displacement possibility in some area such as in the eastern part of the city where the top soil is clays.

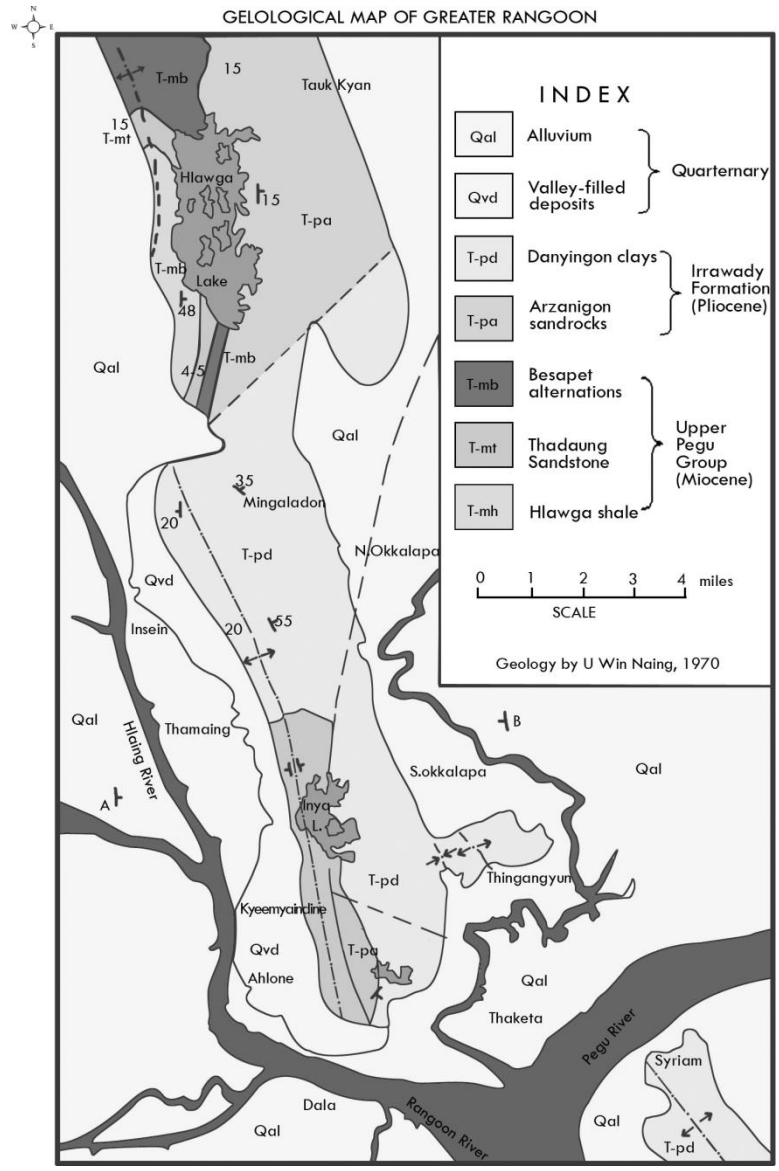


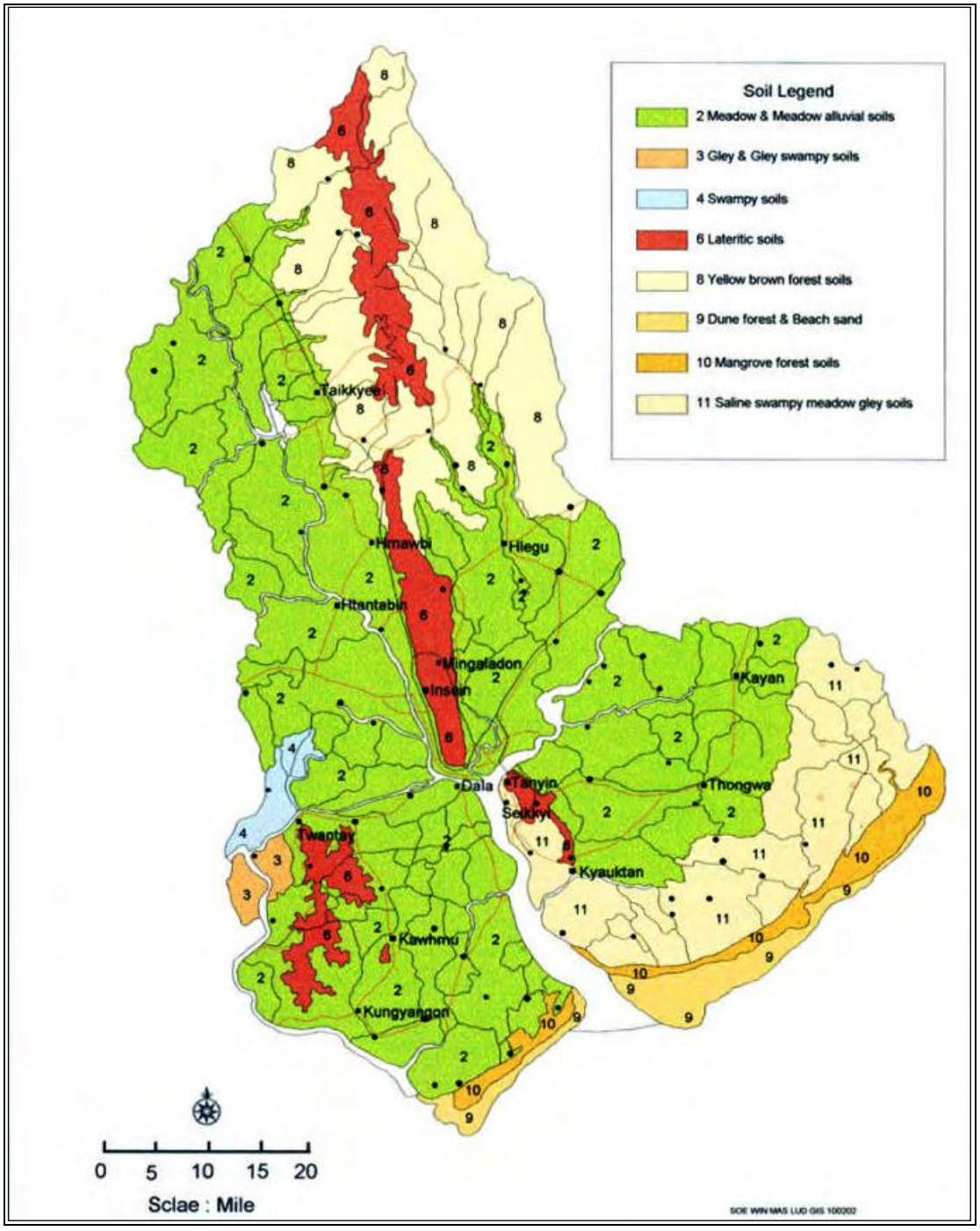
Figure 5.2. Geological map of Yangon Area

5.4. Soil Erosion

The different varieties of the individual soil characteristics are Meadow and Meadow Alluvial Soil, Gley and Gley swampy soils, Swampy soils, Lateritic soils, Yellow brown forest soils, Dune forest & Beach sand, Mangrove forest soils and Salineswampy meadow gley soils. The meadow soils which occurnear the river plains with occasional tidal floods are noncarbonate.

They usually contain large amount of salts. Meadow Alluvial soils (fluvic Gleysols) can be found in the flood plains. They have the texture of silty clay loam and they have the neutral soil reaction and are rich in available plant nutrients. Meadow Gley soils (Gleysol) and Meadow swampy (Histic Gleysol) occur in the regions of lower depressions where the lands are inundated for more than 6 months in a year. The texture of these soils is clayey to clay and usually having very strong acid reaction, and contain large amount of iron.

Dune forest and Beach sand can be found only at the coastal line of Myanmar. The areas of their occurrence are insignificant. The coastal line should be under wind and water erosion control. Mangrove forest soils occur in very small area along the coastal line of Myanmar, especially in the region of Ayeyarwady Delta. These are marine flat lowlands, which are affected by daily tides. Saline swampy meadow gley soils in Ayeyarwady Delta and along the river bands of the Gulf of Motama and the marine flat lowlands influenced by the tidal sea water, which is always salty.



Source: Land Use Division, Myanmar Agriculture Service

Figure 5.3. Soil map of Yangon Division

5.5. Existing Air Quality

Emission of air pollutants occur from the operational works since the sampling point is located in the compound of proposed factory. The project site is in the construction stage and the main sources of pollutants are from the construction activities.

5.5.1 Air Quality Monitoring

Survey Item

The parameters for air quality survey were SO_2, NO_2, CO_2, CO, $PM_{2.5}$, PM_{10}, Temperature, Relative Humidity, Wind Speed and Wind Direction. Continuous monitoring of NO_2, SO_2, $PM_{2.5}$ and PM_{10} was undertaken over a 24-hour period at locations to provide an indication of ambient air quality. Ambient air quality data was collected in August 2021 at one survey points are located in the compound of the factory. The location of air quality survey points are presented in figures 5.4, 5.5 and table 5.2 below. The baseline air result data report for this project is described in Appendix B.

Table 5.2 - The location of air sample point of Project

Date	Point	Coordinates		Location
		Latitude (N)	Longitude (E)	
18.8.2021	AS	17° 0'25.32"N	96° 4'31.54"E	In the factory compound

Figure 5.4 Location of Air Survey Point

Figure 5.5. Record Photo for Air Monitoring

Survey Method

Sampling and analysis of ambient air quality were conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). The Haz-Scanner Environmental Perimeter Air Station (EPAS) was used to collect ambient air survey data. Sampling rate or air quality data were measured automatically every one minute and directly read and recorded onsite for measured parameters (SO2, NO2, CO2, CO, PM10, PM2.5), as shown in following table.

Table 5.3. Recorded Parameter for Ambient Air Quality

No.	***Parameters***	***Analysis Methods***
1.	Carbon Dioxide (CO_2)	NDIR (optional sensor)
2.	Carbon monoxide (CO)	Electrochemical sensors
3.	Sulfur dioxide (SO_2)	Electrochemical sensors
4.	Nitrogen dioxide (NO_2)	Electrochemical sensors
5.	Hydrogen Sulfide (H_2S)	Electrochemical sensors
6.	Ozone (O_3)	Gas Sensing Semiconductor- GSS technology (optional sensor)
7.	Particulate Matter 2.5 ($PM_{2.5}$)	Infrared Light Scattering
8.	Particulate Matter 10 (PM_{10})	Infrared Light Scattering

5.5.2. Identification of Air Pollutants and Its Impacts

The proposed factory site is in the operation stage and the main sources of pollutants are from the operational works. Therefore, the site has to measure the surrounding air quality to know whether SO_2, NO_2, CO_2, CO, $PM_{2.5}$ and PM_{10} are exceeding the limiting amount of Guidelines or not. The impacts of pollutants are defined below.

Carbon Monoxide (CO) is a toxic gas that cannot be seen or smelled. All people are at risk for CO poisoning. Unborn babies, infants, the elderly, and people with chronic heart disease, anemia, or respiratory problems are generally more at risk than others. Breathing CO can cause headache, dizziness and vomiting nausea. If CO levels are high enough, unconscious or death may be become. Exposure to moderate and high levels of CO over long periods of time has also been linked with increased risk of heart disease.

Carbon Dioxide (CO_2) is the primary greenhouse gas pollutant, accounting for nearly three-quarters of global greenhouse gas emissions. Carbon pollution leads to long lasting changes in our climate, such as rising global temperatures, rising sea level, changes in weather and precipitation patterns and changes in ecosystems, habitats and species diversity. Children, older adults, people living in poverty may be at risk from the health impacts of climate change.

Nitrogen Dioxide (NO_2) is a nasty-smelling gas. The main effect of breathing in raised levels of nitrogen dioxide is the increased likelihood of respiratory problems. Nitrogen dioxide inflames the lining of the lungs, and it can reduce immunity to lung infections. This can cause problems such as wheezing, coughing, colds, flu and bronchitis. Increased levels of nitrogen dioxide can have significant impacts on people with asthma because it can cause more frequent and more intense attacks. Children with asthma and older people with heart disease are most at risk.

Sulfur Dioxide (SO_2) is an invisible gas and has a nasty, sharp smell. It reacts easily with other substances to form harmful compounds, such as sulfuric acid, sulfurous acid and sulfate particles. Sulfur dioxide affects human health when it is breathed in. It irritates the nose, throat and airways to cause coughing, wheezing, shortness of breath, or a tight feeling around the chest. The effects of sulfur dioxide are felt very quickly and most people would feel the worst symptoms in 10 or 15 minutes after breathing in. Those most at risk of developing problems if they are exposed to sulfur dioxide are people with asthma or similar conditions.

Ozone (O_3) has a strong odor. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. It can also reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

Particulate matter (PM) consists of microscopically small solid particles or liquid droplets suspended in the air. The smaller the particles, the deeper they can penetrate in to the respiratory system and the more hazardous they are to breathe. Long-term exposure to current ambient PM concentrations may lead to a marked reduction in life expectancy. The reduction in life expectancy is primarily due to increase cardio-pulmonary and lung cancer mortality. Increases are likely in lower respiratory symptoms and reduced lung function in children, and chronic obstructive pulmonary disease and reduced lung function in adults.

Measurement of Air Quality Comparing with the Air Quality Standards and Guidelines

CO, CO_2, NO_2, SO_2, PM_{10} and $PM_{2.5}$ are measured at the proposed factory site. The site is in the operation stage and the collected data shown below are due to the operational works. The standards for applicable to the possible air pollutants were determined from review of Myanmar National Environmental Emission Guideline and World Health Organization (WHO) Guideline CO_2 value compared with American Conference of Governmental Industrial Hygienists (ACGIH) Guidelines.. Air Quality Guidelines Values are shown in the table below.

Table 5.4- Air Quality Guidelines Values

Parameters	Averaging Period	Guideline value	Organization
SO_2	24-hour	20 ($\mu g/m^3$)	WHO/ NEQEG
	10 minute	500 ($\mu g/m^3$)	WHO/ NEQEG
NO_2	1-year	40 ($\mu g/m^3$)	WHO/ NEQEG
	1-hour	200 ($\mu g/m^3$)	WHO/ NEQEG
PM_{10}	1-year	20 ($\mu g/m^3$)	WHO/ NEQEG
	24-hour	50 ($\mu g/m^3$)	WHO/ NEQEG
$PM_{2.5}$	1-year	10 ($\mu g/m^3$)	WHO/ NEQEG
	24-hour	25 ($\mu g/m^3$)	WHO/ NEQEG
CO	8-hour	10($\mu g/m^3$)	WHO_{Europe}
CO_2	12-hour	5000 (ppm)	ACGIH
Ozone	8-hour daily maximum	100 ($\mu g/m^3$)	WHO/ NEQEG

The findings of the air quality sampling monitored datas and the applicable national standards used for comparison for the project are shown in the following Table 5.5, 5.6 and air result data report is described in Appendix B.

Table 5.5- Ambient Air Monitoring Results

Parameters	Averaging Period	Concentration		Guideline value
		Observed value	Converted value	
PM_{10}	24-hour	$36^a(2^b\text{-}43^c)$ $\mu g/m^3$	-	50 ($\mu g/m^3$)
$PM_{2.5}$	24-hour	$17^a(1^b\text{-}21^c)$ $\mu g/m^3$	-	25 ($\mu g/m^3$)
SO_2	24-hour	$2.1^a(1^b\text{-}5^c)$ ppb	5.4 $\mu g/m^3$	20 ($\mu g/m^3$)
NO_2	24-hour	$24^a(2^b\text{-}54^c)$ ppb	45.1 $\mu g/m^3$	-
	1-hour*	$36^a(2^b\text{-}43^c)$ $\mu g/m^3$	52.6 $\mu g/m^3$	200 ($\mu g/m^3$)
O_3	24-hour	$32^a(12^b\text{-}50^c)$ ppb		-
	8-hour	$33.5^a(12^b\text{-}50^c)$ ppb	65.76 $\mu g/m^3$	100 ($\mu g/m^3$)

CO	24-hour	$1.4^a(1^b\text{-}4^c)$ ppb	1.6 µg/m^3	-
	8-hour	$2^a(1^b\text{-}4^c)$ ppb	2.3µg/m^3	10(µg/m^3)
CO_2	24-hour	$270^a(15^b\text{-}754^c)$ ppm	-	-
	12-hour	$281^a(15^b\text{-}754^c)$ ppm	-	5000 (ppm)

a- Average. b-Min. c-Max, * One hour in Max. value of 24 hr period

SO_2 1 ppb = 2.62 µg/m^3, NO_2 1 ppb = 1.88 µg/m^3, O_3 1 ppb = 1.96 µg/m^3

The general equation is: C µg/m^3 = C (ppb) x (M) / molar volume (L)

Where C is Concentration and M is the molecular weight of the gaseous pollutant. An atmospheric pressure of 1 atm and 25°C is 24.45 L assumed.

The ambient air conditions measured at AS in the proposed project area provide some indication of the air quality of the project area. The measured values are as shown in Table 5.5. According to the measured concentration of the gases, all results indicated that they are well within the permissible limits of the national and international guidelines.The mean concentrations of measured $PM_{2.5}$ and PM_{10} values are within the range of guideline values. Generally, the PM concentrations in the air are related to the microclimate conditions such as humidity, rainfall, temperatures of the proposed site.

5.6. Existing Humidity, Temperature and Noise

Relative humidity and temperature of the proposed Garment Factory were measured by using the Haz-Scanner Environmental Perimeter Air Station (EPAS). The noise levels for the proposed site were measured by TES-52A Advanced Sound Level Meter.

Relative Humidity and Temperature of Proposed Factory

RH % (Average)	RH % (Max)	RH% (Min)	Temp ˚C (Average)	Temp ˚ C (Max)	Temp˚ C (Min)
64	71	54	29	33	20

TES-52A Advanced Sound Level Meter

Table 5.6 National Emission Quality Guideline (NEQG) for Noise Level

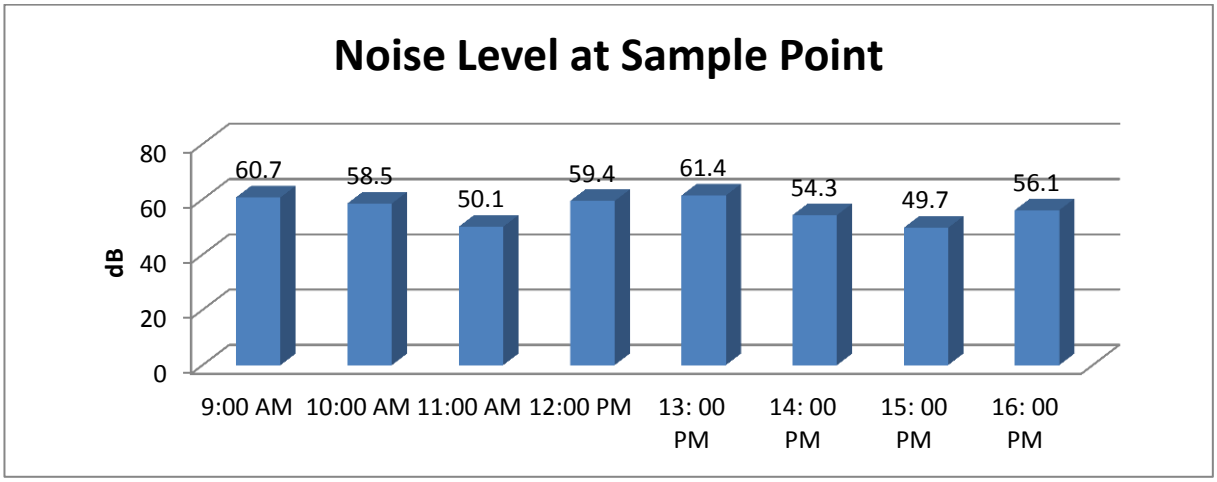
Receptor	One Hour LAeq (dBA)a	
	Daytime 07:00-22:00 (10:00-22:00 for Public holidays)	Night time 22:00-07:00 (22:00-10:00 for Public holidays)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

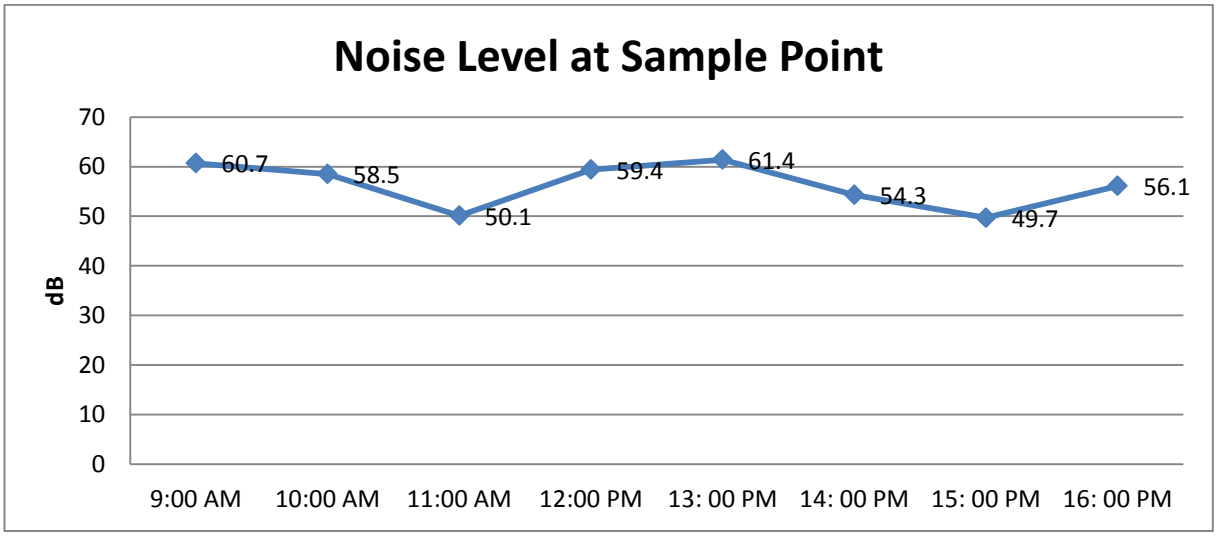
The location of Noise sample point of the Project

No.	Sample Name	Coordinates		Location
		Latitude (N)	Longitude (E)	
1.	Noise Monitoring Point (NS)	17° 0'25.32"N	96° 4'31.54"E	Besides the factory building.

Table 5.7 Average Values of Noise Level (dB) at the sampling point

Noise Sample Point	Date/Time (18-8-2021)	Noise Level
NS	9: 00 AM	60.7
	10: 00 AM	58.5
	11: 00 AM	50.1
	12: 00 PM	59.4
	13: 00 PM	61.4
	14: 00 PM	54.3
	15: 00 PM	49.7
	16: 00 PM	56.1





5.7. Wind Speed and Wind Direction

Wind speeds and wind directions of proposed site had been measured by using EPAS for each 1 time per hour are as follows;

Wind speed and wind direction of proposed site

Sample point	Date/Time (18-8-2021)	Wind Speed (km/h)	Wind Direction (degree)	Wind Direction (cardinal point)
Air Sample Point	9: 00 AM	6.2	61°	ENE
	10: 00 AM	7.0	81°	E
	11: 00 AM	3.5	79°	E
	12: 00 PM	4.5	75°	ENE
	13: 00 PM	8.3	79°	E

	14: 00 PM	3.9	69°	ENE
	15: 00 PM	4.0	66°	ENE
	16: 00 PM	4.3	87°	E

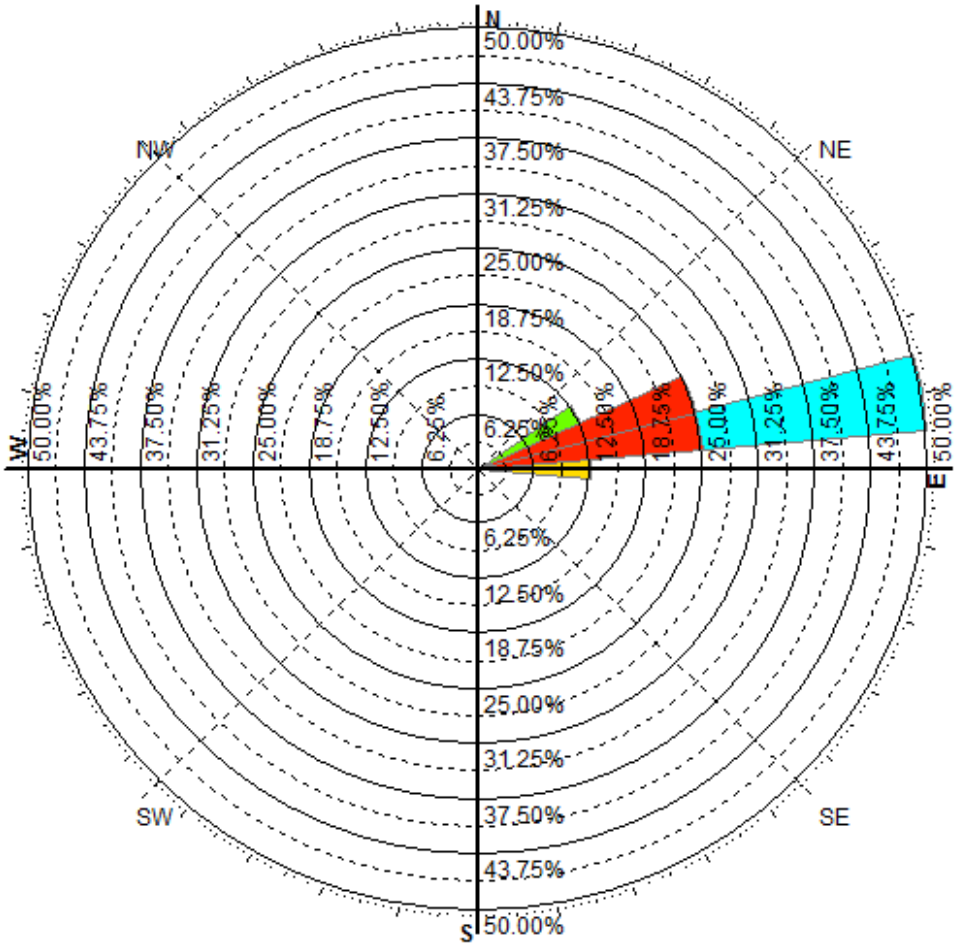


Figure 5.6 Wind speed and wind direction of proposed site

5.8. Water Quality

Surface Water

There is no Surface water in project area. So, Surface water samples were not collected from the project station, but, these surface water flow industrial drain around east and west of the project.

Ground Water

Proposed project has one tube well and it will be used for domestic water for workers, boiler water and firefighting. The depth of tube well is range from 200 ft to 400 ft. The ground water quality are tested in Laboratory are shown in Appendix B.

The location of Water sample point of the Project

No.	Sample Name	Coordinates		Location
		Latitude (N)	Longitude (E)	
1.	Water Sampling Point (WS)	17° 0'28.41"N	96° 4'29.81"E	Tube well, beside the factory building

Figure 5.7 Location Points of Ground Water Sampling

Figure 5.8 Record Photo for Water Sampling

Water Result

Water samples are collected and some parameters of water quality are measured on site and some parameters are sent to respective laboratories. Water samples are tested for drinking water purpose in ISO-TECH Laboratory (one of the national approved laboratory).

Table 5.8 Tube Well Water Quality Testing Results inside the Project Site

Analyses	Results	Unit	WHO- Drinking Water Guideline
pH	6.9		6.5-8.5
Color (True)	5	TCU	15
Turbidity	24	NTU	5
Electro conductivity	49	µS/cm	1500
Total Hardness	18	mg/l as $CaCO_3$	500
Calcium Hardness	14	mg/l as $CaCO_3$	
MagnesiumHardness	2	mg/l as $CaCO_3$	
Total Alkalinity	26	mg/l as $CaCO_3$	
PhenolphthaleinAlkalinity	Nill	mg/l as $CaCO_3$	
Carbonate($CaCO_3$)	Nill	mg/l as $CaCO_3$	
Bicarbonate(HCO_3)	26	mg/l as $CaCO_3$	
Iron	0.42	mg/l	1
Chloride		mg/l	250
Sodium Chloride		mg/l	
Sulphate		mg/l	500
Total Solid		mg/l	1500

Suspended Solid	44	mg/l	
Dissolved Solid		mg/l	1000
Manganese	Nill	mg/l	0.05
Phosphate	Nill	mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	
Temperature	25	C°	
Fluoride (F)	1.3		1.5
Lead (as Pb)	Nill		0.01
Arsenic (As)	Nill	mg/l	0.01
Nitrate (N,NO_3)		mg/l	50
Chlorine (Residual)		mg/l	
Ammonia (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen		mg/l	
Chemical Oxygen Demand (COD)	32	mg/l	
Biochemical Oxygen Demand (BOO)		mg/l	
Cyanide (CN)	Nill	mg/l	0.07
Zinc	Nill	mg/l	3
Copper (Cu)	Nill	mg/l	2
Silica (Si)		mg/l	

5.9. Soil Quality

Soil Sampling

Forecast Item

The item examined to forecast the situation and impact was as below;

-Current soil composition in the project area and soil contamination caused by waste water and solid waste in the operation phase.

Forecast Area

The area examined to forecast the impact was set in near the project area and its surrounding liable potential area.

Forecast Period

This investigation was done to forecast the impact of soil in the operation phase of the factory.

The location of Soil sample point of the Project

No.	Sample Name	Coordinates		Location
		Latitude (N)	Longitude (E)	
1.	Soil Sampling Point (SS)	17° 0'24.19"N	96° 4'27.87"E	beside the factory building

Figure 5.9. Location Point of Soil Sampling

Figure 5.10 Record Photo for Soil Sampling

Table 5.9 Results of Soil

Sr No.	Sample plot	Moisture %	pH Soil : Water 1: 2.5	EC Soil : Water 1:5 mS/cm	Texture				Organic Carbon %	Humus %	Total N %	CEC meq/ 100gm	Exchangeable Ca						Available Nutrients	
					Sand %	Silt %	Clay %	Total %					Ca^{++}	Mg^{+}	Na^{++}	K^{++}	H^{++}	$A1^{++}$	P ppm (Bray)	K_2O mg/ 100gm
1	Soil Sample SS	4.05	6.5	0.43	64.8	11.4	20.1	99	2.4	2.91	0.15	12.0	5.8	6.04	0.75	1.2	Not detected	Not detected	7.20	12.67

Sr No.	Sample plot	ANIONS meq/100gm				CATIONS meq/100gm				pH Soil : Water 1: 2.5	EC Soil : Water 1:5 mS/cm	SAR	RSC meq/ 100gm	TDS %
		$CO^{=}_3$	HCO^{-}_3	$C1^{-}$	SO^{-}_4	Ca^{++}	Mg^{+}	Na^{++}	K^{++}					
1	SS	Not detected	0.33	0.15	0.33	0.32	0.07	0.16	0.07	6.31	0.14	0.33	Not detected	0.06

Sr No.	Sample	pH	EC	TDS	SAR	RSC	Dorminant Salts
1	SS	Slightly Acid	Very low	Medium	Low	Not detected	$Ca(HCO_3)_2$

Sr No.	Sample	pH	EC	Texture	Organic Carbon	Total N	CEC	Available Nutrients	
								P	K_2O
1	SS	Slightly Acid	Very low	Sandy Loam	Medium	Low	Medium	Low	Medium

5.10. Socio-economic Resources

The following are the secondary data of ShwePyiThar Township. Some data are collected from Township Profiles of ShwePyiThar (GAD) Administration Department and some data are sourced from the Departmentof Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census– Yangon Region, Northern District-ShwePyiThar Township Report" October 2017.

(a) Population

The township comprises 23 wards and 4 village tracts, having a total population of 343,526 with high population density 5,149.7 persons per km^2 as shown in the following Table.

Township	Total (Male/Female)				Urban Population (%)	House-holds
	Male	Female	Total	Sex Ratio		
ShwePyiThar	164264	179262	343,526	1:1.09	81.4%	73775

Source: TspProfiles, Census, ShwePyitha_ October 2017

(b) Ethnicity

Most of the people who live in ShwePyiThar are mostly Bamar. The races residing in ShwePyiTharTownship are shown in the following table.

No.	Race	Number	%
1	Kachin	338	0.119
2	Kayar	64	0.022
3	Kayin	5680	1. 9
4	Chin	1737	0.60
5	Mon	1550	0.54
6	Bamar	326135	91.15
7	Rakhine	5773	2.02
8	Shan	502	0.17
9	Foreigner	1747	0.61
Total		343,526	100

Source: ShwePyiThar Township Administrative Offices, 2019

(c) Religion

All of 96% of the people living in the township are Buddhists. There are many religious places in the region including, 3 pagodas and 286 monasteries for Buddhists. The different kinds of religion present in ShwePyiThar Township are shown in in the following Table.

Township	Religion	Buddhist	Christian	Hindu	Muslim	Other
ShwePyiThar	Number	269764	7476	2601	4882	199
	(%)	94.67	2.62	0.91	1.71	0.09

Source: ShwePyiThar Township Administrative Offices, 2019

(d) Land Use

ShwePyiThar Township mainly uses its land for settlement followed by Industrial Land. Detailed acres for land uses in ShwePyiThar Township are shown in in the following table.

Land Category	Acres
Agricultural Land	1917
Forest and Natural Area	-
Grazing land	-
Industrial Land	2617.83
Settlement Land (Urban)	8184.881
Settlement Land (Rural)	3569.892
Wastelands	-
Forest wild	-
wild land	-
Other	194.397
Total Area	16484.00

Source: ShwePyiThar Township Administrative Offices, 2019

(e) Occupation, Education and Healthcare Profile

Data show that trade is the common livelihood means of households in ShwePyiThar Township. The other main economic activities in the area are industry, government employee, and public services. The summery of Occupation, Education and Healthcare Profile of ShwePyiThar Township are shown in following table.

Table 5.10- Socio-Economic Condition of ShwePyiTha Township

Socio-Economic Environment	
Project site location	ShwePyiThar Township, Yangon Region
Type of local administration	Municipality
Socio-economic Environment	
Population	343,526 people
Number of households	73,775
Economy/Occupation	Government Employee 15.64% Services 15.02% Agriculture 0.58% Livestock 2.02% Trade 14.99% Industry 0.47% Arbitrary 24.28% Others 27.02%
Industries	331 Factories
Labour Force (aged 15 – 64)	Labour force participation rate 65.8% Unemployment rate 3.7% Employment to population ratio 63.4%
Per Capita GDB	2,840,545 kyats/year
No. of schools	30- Primary schools 12- Middle schools 5- High schools 1- University
Education Completed (Population aged 25 and over)	Never attended 5.1% Primary school 30.7% Middle school 30.48% High school 20.46% Diploma 0.29% University/ College 11.67% Post- graduate 0.37% Vocational training 0.18% Others 0.74%
Public Health facilities	Urban health care centers -2 Sub Rural health care centers -9 Township General hospital- 1 Private clinic- 120

Source: TspProfiles, Census, ShwePyitha_ October 2017

(f) Transportation

Yangon to Pyay Rail Way line is running from north to south beside the project area. The main mode of transportation within the project area is by road. Major roads running from north to south within the project area are: Highway Main Road Number 4 and Hlaw Kar road.

Main connecting road to Insein is Low Mingalardon Road and Htauk Kyant road crossing connected to Htauk Kyant.

(g) Main Water Source

The main water source for the whole township is groundwater. Most of the households, factories and industries have their own tube wells for their own water supply. Some 45.9 per cent of the households use water from bottled water/water purifier and 41.3 per cent use water from tube well/borehole.

(h) Electricity Supply

Within Shwepyithar Township, Yangon Electricity Supply Corporation (YESC) supplies electric power. Total demand of power in the Shwepyithar Township exceeds 36 MW. (source: www.ubifrance.com). The project will also use the electricity distributed by YESC through its own transformer.

5.11. Biodiversity

Biodiversity is composed of diversity of ecosystems and types of habitat, species and communities of species, and the genotype of species and populations. These factors are important for adaptation of nature to environmental changes and essential for survival of life. The changing and lose of habitats is the most significant threat to biodiversity. Since the project site is within the industrial zone, it is assumed that there is no significant impact on wildlife disturbance because the land for this project is already modified by human activities. There is physical disturbance caused by the plant operations. The project is 8 acres of land, there is no direct impact on biodiversity is limited to the use of this required area.

As project site location, some domestic animals are found near the project site. The most commonly found domestic animals are birds, dogs. Dogs also stay besides this project as a habitat. These animals play as receptor species in food web chain. The presence of fauna species was identified based on site observation and data were collected from local people as well. There are no threatened or endangered fauna at the project site and its surroundings. Inside the project area, there is no special living and breeding of the fauna species. So, there is only minor impact on wild fauna species due to the operation of the Garment factory. According to site surveying and baseline data collection,

5.12. Vicinity around the Proposed Project

Since the project site is within the industrial zone there is no cultural and heritage resource within 500 m radioed around the proposed project area. There are no confirmed protected areas in the Project's impact zones. The nearest protected area recorded is Hlawga National Park and it is located approximately 4 km east of the project site.Most of the areas around the project are factories and residential area. There is a large vacant lot to the east and northern side of the project site. To the west and south of the project site are residential areas. The nearest areas around the proiect site are shown in figure below:

Figure 5.11. Vicinity of the project site

6. ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION MEASURES

This chapter provides an assessment of potential impact arising from the project. To identify and assess the magnitude of potential impacts of project activities of the proposed project, the HRD team will use professional judgment from specialists, fieldwork, desktop studies, modeling and analysis to identify potential impacts and their likely interactions. The methodological approach used for the project impact assessment is adapted from the impact assessment methods recommended by the Canadian Environmental Assessment Agency (1990), by the World Bank (1991) and by the International Finance Corporation (Dec. 1998).

6.1. Impact Assessment Methodology

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities. The significance of the aspects/impacts of the process were rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts. The significances of the impacts were determined through a synthesis of the criteria below:

Assessment	**Weighing**				
	1	2	3	4	5
Magnitude (M)	Insignificant	small and will have no effect on environment	Moderate and will result in minor changes on environment	High and will result in significant changes on environment	Very high and will result in permanent changes on environment
Duration (D)	0-1 year	2-5 year	6-15 year	Life of operation	Post Closure
Extent (E)	Limited to the site	Limited to 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 following explanation;

< 15	No impact (-)
15-29	Low impact (U)
30-44	Moderate significant (C)
45-59	High significant (B)
> 60	Very high significant (A)

6.2. Anticipated Impacts and Mitigation Measures during Construction Phase

Since this proposed project is the construction of factories and associated building on land in the industrial zone, this report will access and analyses the impacts for construction phase.
The construction period is expected to be about one year. Construction of proposed project will include (1) foundation works for concrete and steel structure and (2) erection of steel structures and minor earth works for Site clearance, soil leveling and internal drainage system. Therefore, the major activities during construction phase will include:

- Vehicular movement,
- Loading and unloading construction materials,
- On site storage of construciton materials,
- Erection of factories and associated building,
- Connection of power supply system,
- Maintenance of construction machinery, and
- Disposal of solid wastes from both construction site and workers etc.

According to the above activities, construction of proposed project can potentially affect the natural environment and local communities. Moreover, construction activities will be disturbed to wildlife.

(a) Impact on Air Environment during Construction Phase

The fugitive dust emissions will be emitted from construction activities such as a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. In addition, minor air pollution was occurred by smoking from diesel generator. These activities will affect neighborhoods though construction is not a long term. Therefore, the negative impact of air pollution by smoking and dust emission cannot be a not major significant impact on the environment.

Mitigation Measures

The following dust suppression measures and good site practices are recommended for the construction phase:

- Water spraying of or covering all exposed areas, access roads and stockpiles;
- Prohibiting the burning of waste or vegetation on site;
- Cover dump trucks before Vehicles transporting dusty materials should be covered at all times.
- Keep soil moist while loading into dump trucks to minimize fugitive dust
- Switching off engines when idling.
- Vehicle / equipment exhausts observed to be emitting significant black smoke from their exhausts will be serviced/ replaced.

(b) Impact of Noise during Construction Phase

During construction activities, noise may be caused by the operation of, earth moving and excavation equipment, concrete mixers, welding, cutting and the transportation of equipment, materials and people.These noises may create a nuisance to the surrounding. However, this

negative impact will be a short-term (limited to the duration of the construction works) and is not much affected to the environment or local communities.

Mitigation Measures

- Avoid running construction machineries at the same time; and also to avoid working at night.
- No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection.
- Provide adequate ear protection (ear plugs or muffs) to workers working in the excessive noise areas.

(c) Impact on Water during Construction Phase

Potential construction-induced impacts to surface water quality will be soil erosion and sedimentation resulting from excavation and grading activities necessary for the access road and construction of infrastructure during rainy seasons. The solid waste generated during construction will include as iron, steel scrap, clay, brick, stone, ceramics, rubber, bags, wooden crates and domestic solid waste from the construction workers. In addition, vehicles can leak fuel oil during transportation of construction materials and workers during construction phase.

Improper disposal of domestic waste, construction waste and hazardous waste such as waste oil and paints can have serious implications on the environment. Significant impacts associated with waste disposal include reduced surface water pollution, water quality deterioration, increased sedimentation, increased turbidity as well as changes in the nearest water body.

Mitigation Measures

The following measures will be put in place for the project during the construction phase:

- Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion and subsequent sedimentation;
- Provision of channels, earth bunds or sand bag barriers on site to direct stormwater to silt removal facilities;
- All the waste from construction shall be separated categorically and stored for future waste management practices.
- Segregate hazardous and non-hazardous waste and provide appropriate containers for the type of waste type (e.g. enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour nuisance);
- Sanitary toilet systems with septic tanks should be laid out prior to initiation of all mass construction activities.

(d) Impacts of Waste Disposal during Construction Phase

During the construction phase, a range of solid waste materials will be generated either due to the daily activities of the construction workforce (e.g. generation of putrescible waste) as well as a range of general construction waste such as biomass, concrete, steel pipes, plastic pipes,

steel plates, structural steel and wooden crates during the civil works phase of construction. In addition, hazardous waste will be generated such as oil rags and paints.

Mitigating Measures

The following measures will be put in place for the project during construction phase

- Segregate hazardous and non-hazardous waste and provide appropriate containers for the type of waste type (e.g. enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour nuisance);
- Store wastes in closed containers away from direct sunlight, wind and rain;
- Store waste systematically to allow inspection between containers to monitor leaks or spills;

(e) Occupational Health and Safety during Construction Phase

Since many construction activities include steel erection and welding, fastening of roofing materials, metal grinding, cutting and concrete work, etc., the construction workers will be exposed to risks of accidents and injuries. Also, injuries can be occurred from accidental falls from high elevations, accidents by road construction heavy machineries, and hand tools, cuts from sharp edges from site clearance activities.

Mitigating Measures

Submission of the procedure and supporting PPE and OHS documentation (e.g. safety plan, procedures, work instructions)

For the safety of construction staff, adequate figures in Myanmar language and any other language appropriate will be safety measures including availability of first-aid facilities are made available on the project site.

6.3. Impact Assessment and Mitigation Measures for Operation Phase of Factory

The following are the anticipated impacts during operation phase of proposed factory.

(a) Impacts on Air Quality;
(b) Impacts of Noise;
(c) Impacts on Water Environment,
(d) Impacts of Solid Waste, and
(e) Impact on Human Environment

All of the impacts during operation phase are not affected directly to local communities. The resource utilization is an issue which should be seen from a sustainable development perspective, scarcity of water resources, combustion of fossil fuels, utilization of raw materials, emission of ozone depletion chemicals, etc.

(a) Impact on Air Quality during Operation Phase

During the operation phase, air pollution may cause by fugitive dust from loading and unloading of raw material and cleaning floor. PM (fly ash) will be generated mainly from wood fired boiler. The project will involve the movement of vehicles for transporation of raws materials, goods and workers in the factory areas such as trucks and transportation farry

etc., which will contribute to gases emissions from the combustion of fuel. The most prevalent gases emitted from wood fired boiler and vehicle exhaust by fuel combustion are CO, CO_2, and NO_2. In addition, emergency used of generator may generate particulate matters such as PM_{10}, $PM_{2.5}$, CO, SO_2, NO_2, and CO_2. However, it can be concluded, as the impact is not significant because the generator and vehicle movements will run only a short time.

Mitigation Measures

- Install exhaust ventilation system at emission / release points of factory room
- Insignificant PPE shall be provided to workers such as facemasks with appropriate filters for dust removal and air purification
- Regular maintenance of equipment and machines.
- Install filter in the boiler smoke stack and sufficient stack height
- Retention tank is installed for cooling down the hot water from boiler blow up.

(b) Impact of Noise during Operation Phase

Noise pollution can affect the environment and factory employees. Noise from boiler m diesel generator, transportation machines, and ferry car affect the near environment. The employees suffer the noise from cutting and sewing machines. The Occupational Health and Safety Administration describe the noise level standard for workers are as follow.

Table 6.1- The Occupational Safety and Health Administration (OSHA)

Work per day(hour)	Noise level dB(A)
15 minutes	115
30 minutes	110
1 hr	105
2 hr	100
3 hr	97
4 hr	95
6 hr	92
8	90
12 hr 6 min	87
16 hrs	85

Mitigation Measures for Noise

- Avoid the use of noise producing machines,
- Give the PPE for noise (earphone) working in noisy area,

At first, the factory should consider the working hour based on the noise level of working area. Avoid the noise pollution the factory should;

- Give the sufficient time to rest for the workers working in noisy area.
- Provide noise control measures for generator such as silencer and muffler.

(c) Impact on Water during Operation Phase

The factory does not produce wastewater from the operation process. The other domestic wastewater is storm water discharge. If can not proper management of domastic wastewater, they will cause the adverse effects to environment.

Mitigation measures for Water Quality

The proposed project do not cause the water pollution as the garment process not used the chemicals and others pollutants that causing the surface and ground water pollution. Water are used for domestic, boiler and fire fighting. The factory must test the water quality in laboratory 2 times per year.

Mitigation Measures for Domestic Wastewater

- Implement adequate sanitary facilities for onsite personnel.
- Design drainage pipes and culverts for the controlled release of storm flows.
- The sewage from the entire plant area will be collected and treated in a sewage Tank.

(d) Impacts of Solid Waste during Operation Phase

Solid wastes from the operation phase of the proposed factory will consist of factory process wastes and domestic wastes from workers. Domestic wastes from workers will be gnerated because there is numerous workers' residence inside the factory.

Solid waste from Factory

Solid wastes from garment factory at the operation process are rejected garments, cutting pieces and boiler ash from boiler operation process.

Solid waste from Worker

During operation phase, solid wastes generated from the workers are plastic, paper, glass and food waste. The solid waste from workers in the project site and operation phase will cause the adverse effects to environment.

Mitigation Measures for Factory Process Wastes and Domestic Wastes

- Waste should be segregated at source by types of waste and systematically disposed into separate containers.
- Waste disposal facilities shall be sited and signposted throughout the site;
- Use marked bins to segregate hazardous and non-hazardous wastes.
- 3R (reuse, refuse, recycle) should be promoted for employees by awareness-raising campaigns and environmental education program.

(e) Impact on Human Environment

Impacts on human environment will include socio-economic impacts and human health impats as follow:

Positive Socio-economic Impacts

The socio-economic impacts are considered as positive because more jobs opportunities is created during operation phases of the project. The factory workers

comprising both skilled and unskilled will recruit from the local community. The project proponent will implement the following practices during operation phase:

- Ensure total compliance with national labor and employment laws;
- To avoid exploitation of child labor by contractor and sub-contractor;
- Promote the fair treatment, non-discrimination and equal opportunity for workers; and
- Promote safe and healthy working conditions.

Project Proponent should try to mitigate or minimize negative impacts while enhancing and maximizing the positive impacts to their optimum

Negative Socio-economic Impacts

The following are the anticipated negative impacts during operation phase:

(i) Fire Outbreak Risk

Fire could start due to many reasons. Potential fire hazard could be from poor electrical connections, improper fuel storage and throwing of smoking cigarettes. Potential sources of fire can be from kitchens in the dormitory and canteen, electrical hazards and from neighboring factories. Fire in the factory can spread quickly if fire extinguishers or sprinklers are not adequately provided. The factory will be installed with modern fire hydrant system effectively fighting fires of various proportions and of all classes of fire risks. Fire drill training that educates safe and clear exit routes should be provided.

(ii) Occupational Health and Safety

Physical injuries

Physical injuries may occur in workplaces such as fall on slippery floors, improper use of machines and tools (e.g., cutting machine and other) and improper product loading and unloading in store.

Lighting and temperature

Factory will use light tubes for general lighting purposes. This includes space lighting and task lighting. Activities of the workers in the operating sector depend on the quality of light; thus, it is important to provide sufficient lighting to those areas.

Management and Mitigation Measures

Activated by the proposed factory

The factory will be installed with modern fire hydrant system effectively fighting fires of various proportions and of all classes of fire risks.

To prevent electric shock hazards, two electrical maintenance staffs (handyman) are to be assigned to do regular inspections and take preventive measures.

For the health of the employees, one room in the building is to be used for clinic that has one doctor and one nurse. First aid kits will be provided in all of the buildings in the project area. First aid training is given for the employees.

To prevent injuries and accidents caused by operating machineries, proper Personal Protective Equipment (PPE) such as safety gloves, helmet, goggles, earmuffs etc., are to be provided and required machine guards are to be installed.

Health and safety impacts will be in terms of risk of accidents, probable electric shock hazard and fires. To avoid this, one Health, Safety and Environment (HSE) Coordinator is to be appointed. Regular trainings regarding safety aspects are to be given by HSE Coordinator.

To prevnt communicable diseases like current health risk of Covide 19

The proposed factory must follow the "Guideline for Prevention and Control of Coronavirus Disease 2019 (COVID-19), In factories, workplaces and construction sites" release date (19-4-2020) by the Ministry of Health and Sports.

6.4. Anticipated Impacts and Mitigation measures for Decommissioning Phase

Although, the proposed project is expected to have an operational life, decommissioning of the project would occur at the end of its lifespan. The goal of project decommissioning will be to remove the concrete and steel structures and equipment for proposed project as a whole and return the site to a condition as close to a pre-construction state as feasible. The physical removal of the structures and equipment will be the reversal of the construction process. All areas disturbed by the proposed project would be restored to pre-project conditions and/or to conditions acceptable to the Township CDC. During decommissioning phase, all concrete and steel structures and equipment would be dismantled and removed. The major activities that will be required for the decommissioning of proposed project are:

(a) Equipment and electrical system removal
(b) Building and Steel structures removal, and
(c) Concrete foundation removal

Impacts during decommissioning are expected to be limited to workers on site. No impacts are anticipated to nearest residences or businesses because all decommissioning activities will be expected to take place during daytime and will only use small number of machineries. Potential environmental impacts due to the decommissioning activities will include the following:

(a) Impacts on air environment;
(b) Impacts of noise
(c) Impacts on soil and ground water environment; and
(d) Impacts on socio-economic

(a) Impacts on Air Environment during Decommissioning Phase

During decommissioning some localized increase in dust levels will be unavoidable. The sources gases of dust generation will be vehicle movement and demolishing of buildings. The activities for demolishing process could be considered as a small-scale work. Therefore, the negative impact of air pollution by dust emission cannot be a not major significant impact on the environment.

Mitigation Measures

Water should be sprayed as a suppressant to increase the moisture content

(b) Impact of Noise

During decommissioning phase, the use of equipment (steel cutter, hand grinder etc) for structure building demolition works will inevitably generate noise. Another source of noise generation is resulting from the transportation vehicles. These noises may create a nuisance to the surrounding. However, this negative impact will be a temporary or short-term and is not much affected to the environment or local communities in the industrial zone.

Mitigation Measures

- Use equipment and machines which generate low noise levels.
- Provide adequate ear protection (ear plugs or muffs) to workers working in the excessive noise areas.
- Avoid working at night for noise control

(c) Impacts on Soil and Ground Water

Improper disposal of decommissioning debris such as concrete blocks, steel pieces cabling, scrap metal and drainage from solid waste dump can have potential to soil and ground water pollutions.

Mitigation Measures

All the solid and liquid waste produced during decommissioning phase have to disposed according to the rule and regulations of YCDC

(d) Impacts on Socio-economic during Decommissioning Phase.

In the event of the project closure, there will be potential negative impacts resulting in loss of jobs and indirect employment depending on the garment factory and of associated business enterprises as well as loss of revenues for the government.

Mitigation Measures

The project proponent, will have a plan not to close the entire project totally and intend to use another business purposes to retain the loss of job for local people and to keep the revenues for the Government.

Best Garment (Myanmar) Co., Ltd will provide and recommend their employees in applicable jobs at other factories in the industrial zone if feasible. If it is not feasible to appoint in other factories, extensive and comprehensive warning to employees to allow them to source alternative livelihood will be taken early and will pay compensation according to the national labour rules and regulations.

6.5. Evaluation and Impact Ratings for Proposed Factory

The summary of evaluation and prediction of significant impacts in operation and decommissioning phase of proposed factory before without proper mitigation is shown in Table below:

Table 6.2 Summary of Impact Ratings in Construction Phase of Proposed Factory

Potential Impacts	Activities and Source	Components	Magnitude	Duration	Extent	Probability	Points	Significant
Construction Phase								
Air	Construction activities, generator and vehicle movement	Dust, PM, SO_2, NO_x, CO,	2	1	2	3	15	Low
Noise	construction equipment , generator and vehicles	Noise	3	1	1	4	20	Low
Water	Wastewater from Construction Activities	Organic Matter in wastewater	3	1	2	3	18	Low
Solid Waste	Construction waste and domestic waste	Construction materials and human waste	2	1	1	4	16	Low
Occupational health and safety	Workers' health in construction area	Infectious disease; such as AIDS/HIV, Hepatitis B/C, Covid-19 etc. and other physical injuries	2	1	1	2	8	Low

Table 6.3 Summary of Impact Ratings in Operation Phase of Proposed Factory

Potential Impacts	Activities and Source	Components	Magnitude	Duration	Extent	Probability	Points	Significant
Operation Phase								
Air	raw materials handling, boiler operation, diesel generator and vehicle movement	Dust, PM, SO_2, NO_x, CO,	2	4	2	3	24	Low
Noise	Factory machines, Emergency use of diesel generator	Noise	2	4	2	4	32	Medium
Water	Domestic wastewater	Organic Matter in wastewater	2	4	1	3	21	Low
Solid Waste	Factory process waste Domestic waste	Production waste Office waste and human waste	3	4	1	4	32	Medium
Occupational health and safety	Workers' health in operation area	Infectious disease; such as AIDS/HIV, Hepatitis B/C, Covid-19 etc. and other physical injuries	1	4	1	3	18	Low
Socio-economic	Factory operation	Job Employment and government revenues	3	4	2	4	36	Medium

Table 6.4. Summary of Impact Ratings in Decommissioning Phase of Proposed Factory

Potential Impacts	Activities and Source	Components	Magnitude	Duration	Extent	Probability	Points	Significant
Decommissioning Phase								
Air	Building demolishing and vehicle movement	Dust, PM,	2	1	2	3	15	Low
Noise	Equipment and machines, used for structural removal	Noise	2	1	1	3	12	Low
Soil and Ground Water	Improper disposal of decommissioning debris	Waste	2	1	1	2	8	Low
Socio-economic	Factory close	loss of jobs and government revenues	3	4	2	4	36	Medium

7. PUBLIC CONSULTATION AND DEVELOPMENT PROGRAM

7.1. Objective of Public Consultation

Public consultation is one part of the Environmental Management Plan to familiar the local people or stakeholder with the project. The consultation helped the Project to gather information on potentially affected people and on potential data gaps and informed the project activities.

7.2. Environmental Management Plan Requirements

Public consultation is necessary as a part of the EMP study. The project proponent and its consultant have to organize a public consultation among regulators, local community, local authority and other relevant organizations on the project development and plans. As a part of EMP requirement, the project proponent publicized about the project developments to the concerned stakeholders as follows;

- Information of the stakeholders about the project, environmental and social issues related to project operation, and mitigation measures to minimize environmental and social impacts.
- Considering the views, concerns, and perceptions of stakeholders, communities and individuals that could be affected by the project or who otherwise have an interest in the project.
- Participation and partnership where issues, need to join for discuss and assess.

7.3. Public Consultation

The consultative meeting was organized with the representation from stakeholders and local people. Currently, we have not been able to hold a public meeting due to the COVID-19 disease. The Public meeting will be held on the time after the risk of COVID-19 disease. Therefore, HRD social team interviewed the workers who are representative from every section of factory as the focus group discussion. Structured in-depth interviews were held with key employees in the factory on August 17, 2021.

Key Findings during worker interviews

- No special problem
- A little noise impact
- To get on job training if available
- Little effect on dust dispersion in working area

7.4. Public Disclosure Process

Summary of EMP report in Myanmar language was also distributed to all key stakeholders as public disclosure process. Full draft EMP report will be availiable at Best Garment (Myanmar) or HRD company office.

7.5. Implementation Program

7.5.1. Corporate Social Responsibility Plan

Best Garment (Myanmar) Co., Ltd agrees to contribute about 2% of net profit as CSR fund and they granted annual environmental conservation and monitoring costs will not take account of in this CSR fund. Part of CSR activity such as donations will also contribute to public sohool around the factory. Proposed allocated percent of CSR budget are as follow:

No.	Activities	Proposed allocated per cent of CSR budget
1.	Education	30%
2.	Health care facilities	25%
3.	local community development	20%
4.	social welfare development	25%
Total		100%

7.5.2. Employees' Welfare Plan

We plan to make the following Employees' welfare plan to our valuable employees.

Staff transportation

For all employees who live far away from the factory, commuter buses will be rented by the company and the staff will be transportd free of charge.

Health care

Any infirmary will be set up within the factory compound and stocked with appropriate medicines. Qualified nurses will be hired by the company so that in emergency cases employees could be treated free charge.

Rick prevention

Evacuation plan in case of emergency would be drafted and explained to all employees so that in case of emergency namely; earthquake, fire and other natural or manmade disaster injury or death could be avoided.

Bonus

Base on the performance of the company, annual bonus will be declared and paid out to each employee before the Myanmar New Year (water festival). The amount of bonus will be in accordance with the amount of profit earned by the company.

Training

On job training course for unskill and semiskill workers will be arranged three times per years. Off job training for skill workers and middle management level will be sent to relevant training center. Occasionally, potential workers would be dispatched to overseas training in developing countries.

Other

We will be provided accommodation for our senior management level employees and based on the labor law of the country, othe benefits such as leave (sick leave, annual level etc.) would be drawn up included in the Employees' Welfare Plan accordingly. All employees would be supplied with uniforms free of charge twice a year.

8. ENVIRONMENTAL MANAGEMENT PLAN

These items include excessive working hours, non-payment of overtime premiums or contracted wages, non-provision of required government benefits, documentation on important labor issues such as age, hours, wages; proper disciplinary processes, discrimination, infringements on freedom of association, violations of local law, non-functioning water treatment facility and life safety violations (emergency exits, fire prevention). Labor, health & safety, and environmental issues that can be improved in the factory for the wellbeing of workers and/or betterment of the factory's reputation or management practice. For proposed and existing suppliers with issues, a reasonable corrective action plan can be proposed over a 6 month period.

8.1. Environmental Management Plan for Noise Management

Purpose

People can feel permanent hearing loss due to disease, aging, sudden loud noise and a long-term noise. The following table describes the management workplace noise levels to help prevent workers from experiencing work-related hearing loss.

Table 8.1. Environmental Management Plan for Noise Management

Activity Item	Monitoring and Correcting Action/ Implementation	Requirements
Noise Management		• Factories must identify workers who work in areas with noise levels that are higher than 85 decibels. These workers must wear hearing protection and be trained on the proper use of hearing protection and the health and safety risks of not wearing hearing protection. • Factories must supply workers with the necessary hearing protection (ear plugs, ear muffs). Factories must keep written records that show this training has been completed. • Factories must meet legal requirements to test workers' hearing to determine whether they have experienced any hearing loss. • Factories must conduct noise hazard evaluations each year to identify any areas where noise levels exceed 85 decibels. • Factories must first attempt to reduce noise levels that are higher than 85 decibels through proper maintenance of equipment and engineered noise controls.
	Training, Rules & Record Keeping	• Workers in areas where noise levels are higher than 85 decibels should have an audiometric test to determine if hearing loss has occurred. This test

		should be conducted at 2000, 3000, and 4000 Hz frequency range for both ears. • Warning signs should be posted in areas where noise levels exceed 85 decibels, telling workers (and visitors) that the area is a "Mandatory Hearing Protection" area. • Factories should keep records of noise monitoring results.
	Hazard Assessment	• Noise levels within buildings should be monitored each year to determine which areas (if any) exceed 85 decibels. • Noise output on new equipment should be evaluated and engineered controls used to reduce noise.
	Hazard Control	• Where noise levels are higher than 85 decibels, factories should provide workers with hearing protection, such as earplugs or ear muffs with a noise reduction ratio of 20. Workers should be trained and required to wear the hearing protection. • Where noise levels are higher than 85 decibels, factories should use engineered controls to reduce noise levels, including: - Rubber padding to reduce machine vibration -Sound barriers - Sound insulation • Noise levels should not exceed a 140-decibel peak sound pressure level at any time. -Noise curtains, -Sound-absorbing materials, -Enclosures

Program strategy for Noise Management

Plan	Evaluate the noise levels throughout the factory. Identify any areas where noise levels exceed 85 decibels and workers who work in these areas. Provide the training these workers to wear hearing protection.
Do	The workers working with an areas of noise levels greater than 85 decibels. Workers in these areas must provide the hearing protection equipment (ear muffs, ear plugs). Reducing the working hours. Provide the sufficient time for rest. Use the sound proof machine and engineered controls to reduce the noise levels in an areas where noise levels are greater than 85 decibels.
Check	Monitor the noise levels in the factory. Check the workers to wear the hearing protection. Medical check for workers working in the noising areas.
Act	Re-train and/or discipline workers who don't wear required hearing protection.

Permissible Exposure Levels

Dueation per day, hour	Sound level dBA slow response
8	**90**
6	**92**
4	**95**
3	**97**
2	**100**
1 1/2	**102**
1	**105**
1/2	**110**
1/4 or less	**115**

8.2. Environmental Management Plan for Lighting

Purpose

Heavy and scattered light affect the workers' visible eyes and poor lighting or a complete lack of lighting may prevent workers from seeing possible hazards and more emphasized the work for seeing. The purpose of this section is to describe requirements for workplace and emergency lighting to help provide a safe working environment for all factory workers.

The factory provide the 1300 lighter for the employees in the workplace. The factory should be required the following requirements;

1. Factories that have night shifts or low natural lighting levels must provide emergency lighting in case of a power failure.

2. Lighting must meet the following required lux levels in the workplace

Table 8.2. IFC Guideline for lighting

Location	Light Intensity
Emergency light	10 lux
Outdoor non working areas	20 lux
Simple orientation and temporary visits (machine storage, garage, warehouse)	50 lux
Workspace with occasional visual tasks only (corridors, stairways, lobby, elevator, auditorium, etc.)	100 lux
Medium precision work (simply assembly, rough machine works, welding, packing, etc.)	200 lux
Precision work (reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc.), offices.	500 lux
High precision work (difficult assembly, sewing, color inspection, fine sorting etc.)	1000-3000 lux

Source: IFC, World Bank

8.3. Environmental Management Plan for Temperature

Purpose

The heat from the sun directed towards the factory's window and door which cause the arising the temperature in the factory. The workers may be caused fainting and heat stress by arising the temperature. The following table shows the temperature degree in workplace.

Work/rest periods	Light work	Moderate work	Heavy work
Continuous work	30.0˚C	26.7˚C	25.0˚C
70%work:25%rest	30.6˚C	28.0˚C	25.9˚C
50%work:50%rest	31.4˚C	29.4˚C	27.9˚C
25%work:75%rest	32.2˚C	31.1˚C	30.0˚C

Source: Guideline from American Conference of Governmental Industrial Hygienists (ACGIH)

The factory have 57 air fans in the factory and 20 air fans in the employees' hostels to reduce the temperature. In hottest summer season, the factory should be provided the following requirements;

1. The factory provides air coolers to reduce the temperature in workplace.
2. There is no tree beside the factory and so the sunshade materials cover beside the factory to reduce the exposure of sun light.
3. The factory provides enough for drinking water.

8.4. Waste Management

A waste management plan will be developed for the project outlining the type and nature of waste arising from the project and means of managing the storage and handling of waste to minimize opportunities for accidental release. The production of waste will be minimized through good design (for instance, of use of pre-assembled units) and management procedures wherever practicable. All waste is managed in accordance with the Waste Management Procedure (WMP) prepared for the project.

8.4.1. Solid Waste

From the production process, main solid waste generation will be due to cutting, sewing and packaging activities. Fabric scraps from cutting and sewing, and packing material from activities of receiving raw materials and packaging finished goods will be collected and stored for further use. Extra foam scraps will be collected and sold back to the supplier as the supplies will be purchased from one local supplier.

To avoid overload and unsanitary bulk storage of wastes i.e., the factory is recommended to practice waste segregation into dry and wet waste with different color garbage bins and cooperation with Township CDC for regular disposal at sanitary landfill of CDC.

Used diesel and machine oil which can be hazardous will be stored in a separate storage container constructed in the factory compound, and then contact with local recycler for proper disposal.

8.4.2. Liquid Waste

During the operation phase, sanitation/ drainage system will be developed. The regular monitoring should be done along with cooperation with CDC (Shwepyithar) for regular disposal.
Liquid waste containing few chemicals such as detergent and disinfectants will be generated from canteen and boiler and discharged through drainage system. However, the impacts arising from this are negligible as the amount of usage is small.
Make sure storage and disposal of waste are proper by contacting and cooperating with CDC.

8.5. Environmental Management Plan for Air Quality

Purpose
The purpose of this section is to control gases emission and generating less dust will be adopted as far as possible.

Activity Item	Monitoring and Correcting Action/ Implementation	Requirements
		Use vacuum cleaner for cleaning the works place. Provide enough PPE to employee Install filter in the boiler smoke stack and sufficient stack height Retention tank is installed for cooling down the hot water from boiler blow up Factories must use ventilation that directs air flow away from workers operation area.
	Assessment	Air quality within factory area should be monitored twice a year.
	Hazard Control	Metain and proper inspection at boiler and generator. In dry period, regular spraying water will be carried out at the road and factory compound as per required Factory should never discharge contaminated air flow close to (or at the same level as) a heating, ventilation, or air conditioning vent or an open area where exhausted fumes might be drawn back into the building through a make-up air unit, by fans, etc. Factory ventilation systems should use mechanical or electronic air filters to remove particles, and activated charcoal filters to remove gases and vapors.

8.6. Management and Control of Water Consumption

As the proposed factory uses ground water for boiler process, cleaning and domestic uses, water conservation measures need to be taken. The reduction in the amount of water consumed in a factory will have several environmental and economic benefits, including conservation of water resources, and consequently, lower wastewater discharge volumes. Water conservation during operation phase of proposed factory plant can be conducted as follows:

(a) Typical record keeping of daily quantity of water consumption
(b) Reducing cleanup water use, and
(c) Minimizing domestic water consumption.

Domestic water consumption will be minimized by implementing water efficient fixtures such as 3 litres WC flushing cistern, standard qualities of urinals and taps to minimize the wastage of water together with other water conservation measures. Furthermore, to ensure ongoing water conservation, an employee education and awareness programme will be introduced for the employee of the factory plant. Dry type urinals will also be used selectively. The following are specific measures:

(a) Use of water efficient plumbing fixtures (ultra flow toilets and urinals,). Water efficient plumbing fixtures use less water with no marked reduction in quality and service. Install water less W.C. and urinals which will help in conserving sufficient quantity of water leak detection and repair techniques;
(b) Awareness campaign to disseminate knowledge on strategies and technologies that can be used for water conservation;
(c) New employees will be issued a standard water information packet. The information should include water conservation plans, water conservation methods being adopted in the complex and a list of essential and non-essential water uses;
(d) Office manager will periodically remind the staff of water conservation efforts and notify staff of recurring problems with compliance or any changes in policy. As new conservation efforts are implemented, the manager will communicate these changes to the employees;
(e) Proper methods of water use will be placed in the toilets and other areas of water consumption.

8.7. Management and Control of Energy Consumption

The proposed factory processes can account for substantial electricity demand. Reduction in energy consumption is an important consideration in a pollution prevention program and in lowering the operational cost. While energy conservation measures reduce the amount of pollution created in the production or use of energy, pollution prevention measures reduce the energy requirements for waste handling and treatment.

Conservation of Electricity

Electricity conservation during operation phase of proposed factory plant can be conducted as follows:

(a) Install energy and water meters to measure and control consumption throughout the facility;
(b) Implementing good housekeeping measures such as turning off equipment and lights when not in use;
(b) Use LED lights and/or lower wattage lamps;
(c) Using more efficient equipment when replacing old equipment (such as motors and Sewing machine units);
(d) Installation of computerized controllers to better regulate motor output;
(e) Installation of timers and thermostats to control heating and cooling; and
(f) Preventative maintenance of operational processes and pipes so as to improve efficiency and minimize losses.

8.8. Proposed Environmental Management Cell for Proposed Factory

The proposed project should have the organization to monitor the environmental and social impacts of the proposed project. This organization can audit the proposed project to compliance the Environmental Management Plan (EMP). The monitoring team should consist as follow.

Table 8.3. Structure of Monitoring Team

No.	Monitoring Team members	Number of member
1.	Managing Director	1
2.	Authorizes person from environmental conservation department	1
3.	Industrial zone Authorizes person	1
4.	Environmental Officer/ Project Manager	1
5.	OHS Officer	1
6.	Local Authorizes person from GAD	1
7.	Representative from Elected Villages/Ward	2

Roles and Responsibilities

Managing Director

Duties and responsibilities of a managing director include formulating policies, managing daily operations, and planning the use of materials and human resources.

Project Manager

The major duties and responsibilities of the project manager of proposed factory should be as given below:

- Setting up tools and standards for managing the program;
- Planning, tracking, and reporting on outputs and outcomes;

- Information and logistics management;
- Financial planning and tracking ;
- Risk and Issue tracking;
- Cross-project interdependency management;
- Setting quality control standards and tracking implementation;
- Setting and tracking change control procedures;
- Developing stakeholders' map, defining the interest of each group; and
- Planning and executing communication plans to stakeholders.

Roles and Responsibilities of Environmental Officer (EO)

The Environmental Officer (EO) of the proposed factory should report directly to the Board of Members of the company. The EO should also be a member of technical team of proposed factory and should be responsible for all environmental matters pertaining to the day to day operation of the factory. The main responsibilities and duties of the EO include:

(a) To implement the environmental management plan,
(b) To assure regulatory compliance with all relevant rules and regulations,
(c) To ensure regular operation and maintenance of pollution control devices,
(d) To minimize environmental impacts of operations by strict adherence to the EMP.
(e) To initiate environmental monitoring as per approved schedule.
(f) To assess the compliance of the operation of the factory with environmental quality objectives;
(g) To monitor and evaluate the effectiveness of mitigation or control measures in achieving environmental protection;
(h) To carry out and monitor environmental awareness within the plant personnel;
(i) To recommend amendments in procedures or remedial actions in the event that performance is unsatisfactory;
(j) To establish and promote good relations with local communities (industrial, residential, etc.) on matter pertaining to environmental protection; and
(k) Review and interpretation of monitored results and corrective measures in case monitored results are above the specified limit.
(l) Maintain documentation of good environmental practices and applicable environmental laws as ready reference.
(m) Maintain environmental related records.
(n) Coordination with regulatory agencies, external consultants, monitoring laboratories.
(o) Maintain of log of public inconvenience and the action taken.
(p) Ready to solve any complaints from local people about environmental and social issues.

Occupational Health and Safety Officer (OHS Officer)

The major duties and responsibilities of the OHS officer or person-in-charge for workplace occupational safety and health of proposed factory should be as given below:

(a) To prevent accidents, injuries and work-related illnesses in the workplace.
(b) To create and implement health and safety policies in accordance with the latest legislation and to ensure that these policies are implemented by management and employees.

(c) To draw health and safety policy in place and to create this document and ensure it's regularly updated to reflect any changes to the law.
(d) To ensure ensure that each member of staff is aware of and adheres to this policy.
(e) To ensure regular inspections and risk assessments, and ensuring that any hazards or defects are rectified immediately. They will also keep an accident book and must record and thoroughly investigate any accident, recommending any improvements in safety standards if required.
(f) To train all staff in safety issues, and advising them on protective clothing and equipment where necessary. They also act as a key point of contact for any member of staff who has a query or concern regarding the safety of the workplace.
(g) To safegurad machinery, fire safety, occupational health, noise, control of hazardous substances, manual handling, working with display screen equipment, and environmental health.

8.9. Proposed Monitoring Parameters and Responsibilities

Monitoring frequency should be sufficient to provide representative data for the parameter being monitored. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken.
The parameters to be monitored, location of the monitoring sites, frequency and duration of monitoring and responsibilities for each of the monitoring parameters are presented in Table 8.4. Monitoring should be conducted daily by the EO of Proposed factory and weekly or monthly by proposed monitoring team or by the registered monitoring agency.

Table 8.4 - Proposed Environmental Monitoring Parameters for Proposed factory

Impact Source	Parameters	Monitoring Frequency	Proposed Monitoring Locations	Responsibility
Construction Phase				
Air Quality	NO_2, SO_2, PM_{10}, $PM_{2.5}$, CO, CO_2, O_3	Biannually	at the project site (17° 0'27.31"N 96° 4'31.67"E)	Construction company
Noise	Noise level in dB(A)	Biannually	at workplace inside the project site (17° 0'27.31"N 96° 4'31.67"E)	Construction company
Water Quality	DO, COD, BODs, pH, EC, TSS oil & grease, TN,TP, nitrate and total coliform	Biannually	At tube wells inside the factory (17° 0'28.41"N 96° 4'29.81"E)	Construction company/ Best Garment Ltd
Soil	TOC, N, P, K, EC, Na, Mg, Ca, Sodicity	Once	at the project site (17° 0'24.19"N 96° 4'27.87"E)	Construction company
Operation Phase				
Air Quality	NO_2, SO_2, PM_{10}, $PM_{2.5}$, CO, CO_2, O_3	Quarterly	1. at near boiler 2. at workplace inside the factory (17° 0'27.31"N 96° 4'31.67"E)	Best Garment Ltd.(EO) through registered third party monitoring agency
Noise	Noise level in dB(A)	Monthly	At workplace inside the factory (17° 0'27.31"N 96° 4'31.67"E)	Best Garment Ltd.(EO) through registered third party monitoring agency
Water Quality	DO, COD, BODs, pH, EC, TSS oil & grease, TN,TP, nitrate and total coliform	Biannually	At tube wells inside the factory (17° 0'28.41"N 96° 4'29.81"E)	Best Garment Ltd.(EO) through registered third party monitoring agency
Soil pollution	TOC, N, P, K, EC, Na, Mg, Ca, Sodicity	Biannually	At nearest lands	Best Garment Ltd.(EO) through registered third party monitoring agency

Table 8.4 -Continue

Impact Source	Parameters	Monitoring Frequency	Proposed Monitoring Locations	Responsibility
Decommissioning Phase				
Air Quality	NO_2, SO_2, PM_{10}, $PM_{2.5}$, CO, CO_2, O_3	Quarterly until completion of decommissioning	At workplace inside the factory (17° 0'27.31"N 96° 4'31.67"E)	Best Garment Ltd.(EO) through registered third party monitoring agency
Noise	Noise level in dB(A)	Monthly until completion of decommissioning	At workplace inside the factory (17° 0'27.31"N 96° 4'31.67"E)	Best Garment Ltd.(EO) through registered third party monitoring agency

8.10. Implementation Budget and Schedule

Estimated Cost for Implementation of Mitigation Measures

The factory must implement the proposed mitigation measures and monitoring plan for the factory. The estimated cost for mitigation measures are as follow;

Table 8.5 Estimated Costs for Mitigation Measures

Parameters	Mitigation Measures and Monitoring	Frequency	Estimated Cost (US$)	Annual Cost
Air quality control	Water spraying	Daily	-	-
	Wind-break plants	Once,	500	500 US$
	Exhaust Stack filter install in Boiler	Once	750	750 US$
Noise control	use of sound proof in Diesel Generator	Once	150	150 US$
Noise control	Use of PPE	Monthly	50	600 US$
Health and Safety	Medical check and PPE	Monthly	500	6000 US$
			Total Estimated Annual Cost	8000 US$

Estimated Environmental Monitoring Costs by Monitoring Agency

The following table shows estimated monitoring costs for required monitoring parameters if monitoring is conducted by approved third party monitoring agency.

Table 8.6 Estimated Environmental Monitoring Costs Conducted by Monitoring Agency

No.	Impact Source	Frequency	Estimated Cost per Frequency	Annual Cost
1.	Air Quality	Quarterly	1500 US$	6000 US$
2.	Noise	Monthly	350 US$	4200 US$
3.	Water Quality	Biannually	200 US$	400 US$
4.	Soil pollution	Biannually	200 US$	400 US$
			Total Estimated Annual Cost	11000 US$

According to the above tables the annual estimated cost for mitigation measures will be US$ 8000 and monitoring will be US$ 11000. The budget is estimated to be US$ 20,000. It should be noted that costs for many in-built mitigation measures, such as, acoustic enclosures for noise control, exhaust stack filter install in boiler, are already included in the contract cost estimate and/or operating cost estimates. Best Garment (Myanmar) Co. Ltd will make more budget funds if necessary. In addition, separate budget will be allocated for CSR activities, which will be conducted by the project proponent for community development.

8.11. Reporting Monitoring Results

Results of recorded in files to monitor and audit monitoring will be carried out strictly as required by the related national regulations. According to the environmental impact assessment procedure, 2015, Article 108, the monitoring results of required parameters will be reported to Environmental Conservation Department (ECD) every six months, as provided in a schedule in the EMP, or periodically as prescribed by the Ministry.

8.12. Occupational Health and Safety Management Plan

For the proposed factory, workers are subjected to various types of occupational hazards during operation phase. In most of the cases, injuries are results to unsafe working practices, reluctance to use proper protective clothing and personal protective clothing and personal protective appliances, improper house-keeping, improper guarding of machinery, improper working environment, e.g. poor ventilation and lighting, noise etc, and above all lack of awareness of the employees and workers.

Safety management program for proposed factory should include the following:

(a) Emergency and first-aid procedures;
(b) Medical precautionary measures;
(c) Maintenance and troubleshooting Precautions;
(d) House keeping;
(e) Safety awareness;
(f) Safety training; and
(g) Safety guidelines.

(a) Emergency and First-aid Procedures

First aid is immediate, temporary treatment given in the event of accident or illness.

Inhalation: Workers with symptoms of exposure to fumes and gases should go to an uncontaminated area and inhale fresh air or oxygen and call a physician. Administer oxygen by mask if the person is breathing. If breathing has stopped, administer cardiopulmonary resuscitation (CPR), preferably with simultaneous administration of oxygen. Call for emergency assistance.

Eye: Contact lenses, if worn, should be removed. Irrigate the eyes immediately with large amounts of water for 15 minutes. Occasionally hold the eyelids apart to insure complete irrigation. Apply a dry protective dressing. Call for emergency medical assistance. Don't remove dust from the eyes yourself. Get medical assistance.

For "flash burns" cover the eye with cold (preferably iced) compresses for 5 to 10 minutes; then repeat. Apply a dry protective dressing. Call a physician. Don't rub the eye. Don't use ointments or drops unless prescribed by a physician.

Skin: For skin contact with irritants, flush the areas with large amounts of water, and then wash with soap and water. Remove contaminated clothing. If mucous membranes are irritated, flush with water. Wash cuts and scrapes with mild soap and water. Avoid contamination. Apply a dry sterile dressing.

For thermal bums, cold water is an effective first aid measure. If skin is not broken, immerse bum part in clean cold water or apply clean ice to relieve pain. Do not disturb or

open blisters. Prevent contamination. Bandage loosely with a clean dry dressing. Call for emergency medical assistance.

Electrical Shock and Electrical Burns: Disconnect and turn off power. Remove victim from contact. Use no conducting materials if the rescuer must resort to pulling the victim from the live contact. The rescuer must first protect himself by use of insulated materials such as gloves. If not breathing, administer CPR as soon as electrical contact is broken. Call for emergency medical assistance. Continue CPR until spontaneous breathing has been restored or until a physician arrives. Administer oxygen. Keep comfortably warm. Keep horizontal until there is no further evidence of shock. Treat electrical bums as thermal bums. For electrical bums apply clean, cold (iced) compresses. Prevent contamination. Cover with a clean, dry dressing. Call for emergency medical assistance.

(b) Medical Precautionary Measures

The following medical precautionary measures are recommended for the proposed factory.

a) Periodic health examinations are recommended with the cooperation with Public Health Office (Shwepyithar).
b) An effective educational, training, and industrial hygiene program should be instituted. The program should cover the following: (i) the nature and potential hazards; (ii) proper and safe use of equipment; and (iii) emergency and first aid procedures.
c) Medical personnel should be available on-site or by phone for advice and consultation. Emergency phone numbers should be posted near the telephones.
d) The following should be readily available: (i) first aid supplies approved by a physician; (ii) stretchers and blankets for transportation; (iii) oxygen inhalation equipment; and (iv) approved instant acting eye washes and showers.
e) Good personal hygiene practices are very important. Employees should wash their face and hands before eating, and it is recommended they are not be permitted to eat, drink, or smoke in the work area. Food and beverages should not be stored in the work area. Contaminated clothing should be changed.
f) Protection against skin conditions, such as chemical burns, rashes, and dermatitis can be provided by appropriate protective clothing and equipment, as well as the use of protective creams or lotions.

(c) Maintenance and Troubleshooting Precautions

Faulty or improperly maintained equipment can cause property damage, physical injury, or possibly death by fire or electrical shock. Here is a list of some important items to check when troubleshooting or maintaining equipment.

(a) Stop operating immediately if equipment is malfunctioning.
(b) Do not perform any maintenance unless you are qualified to perform such work.
(c) Make test readings carefully.
(d) Protect the equipment from heat, excessive wet conditions, oil or grease, corrosive atmospheres, and inclement weather.
(e) Replace parts only with manufacturer's recommended replacement parts.

(f) Keep all protective devices and covers in position.

(d) House Keeping

The following measures shall be practiced at the proposed factory.

(a) Regular cleaning of the floors with service water.
(b) Keeping all de-dusting systems in perfect working conditions to avoid dust accumulation inside and outside the plant.
(c) Avoid dumping of wastes, damaged equipment and items anywhere inside the plant affecting aesthetics and increasing risk of fire and other hazards.
(d) Keeping ventilation systems of premises in perfect working condition to avoid ingress of dust inside the pressurized room.
(e) Maintaining hygienic conditions in areas like canteens, near drinking water sources and toilets.
(f) Maintaining green belt along the factory boundaries to suppress noise, fugitive dust and to improve the aesthetics.
(g) Developing a positive outlook in the employees for improving the working place, both in factory and office or laboratory clean and well maintained.

(e) Safety Awareness

Safety awareness must be promoted among project managers and employees by:

(a) Imparting regular training.
(b) Installing/displaying safety caution boards and safety posters mentioning Do's & Don'ts at different vulnerable locations.
(c) Arranging safety & housekeeping competition etc.
(d) To procure and maintain personal protective equipment in good working condition.

(f) Safety Training

Training programs in safety and accident prevention will be organized at all levels of employees with a view to familiarize them with the general safety rules, safety procedures in various operational activities and to update their knowledge in safety and accident prevention, industrial hygiene and emergency equipment. These training programmes will be conducted periodically in a planned manner to refresh their knowledge by safety officer. Training shall be imparted for:

(a) Safe working and maintenance practices.
(b) Use of proper tools and tackles.
(c) Use of personal protective equipment.
(d) Handling emergency situation.

(g) Safety Guidelines

The factory should have the HSE Officer and Safety committees to can identify and correct factory health and safety issues, increase safety awareness, and improve workers' job satisfaction. The safety committee provides to describe the requirements for employees safety and health in good working condition. The purpose of the Garment Factory Safety Committee is to promote a safe working environment and reduce the accidents in working places. The factory provides the required PPE as follow.

Table 8.7- Summary of Recommended Personal Protective Equipment According to Hazard

Objective	Workplace Hazards	Suggested PPE
Eye and face protection	Flying particles, molten metal, gases or vapors, light radiation	Safety glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, and overhead power cords	Plastic helmets for top and side impact protection
Hearing protection	Noise	Hearing protectors (ear plugs or ear muffs)
Foot protection	Failing or rolling objects, points objects. Corrosive or hot liquids	Safety shoes and boots for protection against moving and failing objects, liquids and chemicals
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures	Gloves made of rubber or synthetic material (Neoprene), leather, insulation materials, etc.
Respiratory protection	Dust, fogs, fumes, mists, gases, smokes, vapors	Facemasks with appropriate filters for dust removal and air purification (chemical, mists, vapors and gases). Single or multi-gas personal monitors, if available
	Oxygen deficiency	Portable or supplied air (fixed lines). Onsite rescue equipment
Body / leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Insulating clothing, body suits, aprons etc. of appropriate materials

Program Strategy for Safety Management

Plan	• Factory management drafts Safety Committee Mission Statement. • Safety Committee approves Mission Statement, appoints Leaders. • Leaders prepare meeting agendas.
Do	Safety Committee meets at least once a month to discuss factory safety issues. Committee provides written record of meetings to management & posts a copy that worker population can easily access. Keep records of safety committee meetings for at least five years. Members are trained to inspect factory areas, conduct incident investigations, prioritize and follow-up on corrective actions. Safety Committee conducts the activities described in its Mission Statement and reports to factory management regularly.
Check	Management reviews Safety Committee activities and performance and recommends changes, as necessary.

Act	Safety Committee changes procedures, adopts new tools, etc. to respond to management's feedback and improve its performance.

8.13. Emergency Response Plan

EMP should be focused on emergency preparedness and management. The main emergencies arising from the proposed project may be because of an accidental fire. Fire protection systems should be conducted with priority levels for the buildings of factory and office considering the heights, and required suitable provisions and good housekeeping should be done for firefighting. There is also very low probability of an earthquake and the protection of factory is taken care of through the structural design complying with International Standard.

Emergency prevention through good design, operation, maintenance and inspection can reduce the probability of occurrence and consequential effect of such outcomes. HSE Team should lead to practice Emergency Response Plan by combining resources of Company and outside services to achieve the followings:

- Localize the emergency
- Minimize effects on property and people
- Effective rescue and medical treatment
- Evacuation

In case any contractor has its own Emergency Response Plan (ERP), it will be reviewed and approved by HSE Manager. The ERP needs to include information on reportable incident notification, contact information and activation of alarms. Moreover, should contain the contact telephone number of fire department, nearest hospital, fire services, etc.

The ERP should contain instructions for support relating to:

- Medical emergencies procedures;
- Social Emergencies Procedures (i.e., protests, vehicle accidents);
- Heavy weather/storms / flood events;
- Chemical substances Spill Emergency Plan;
- Any other emergency response plan required by Myanmar authorities. (e.g. Fire Emergency Plan)

Emergency Response Plan is written documents which include the action to be taken by all staff in the event of fire and the arrangements for calling the fire brigade. General Fire Notice for small premises could take the form of a simple fire action signs which are posted in positions where staff and relevant persons can read it and become familiar with its contents. Staff Fire Notice for high fire risks or large premise will be need more detailed Emergency

Response Plan which take account of the findings of the risk assessment. In addition notices giving clear and concise instructions of the routine to be followed in case of fire should be prominently displayed.

In certain cases should nominate persons to implement the fire action plan and give them adequate training in firefighting and evacuation procedures. The following items should be considered where appropriate:

- Fire evacuation strategy
- Action on hearing the fire alarm
- Calling the fire bridge
- Power/process isolation
- Identification of key escape routes
- Fire wardens
- Places of assembly and roll call
- Firefighting equipment provided
- Training required

  It needs to consider how to arrange the evacuation of the premises in the light of risk assessment and the other fire precautions. The plan should instruct all personnel upon on hearing the fire alarm to act in accordance with the agreed strategy. The Fire Service should also be informed immediately when person discovering fire, depend on conditions (Work time or other time). In premises, the key escape routes must be identified including schematic drawings and most importantly emergency escape and exist-signs.

Figure 8.1. Example of General Fire Notice in and around the Factory

The fire wardens who are the responsible person where necessary to safeguard the safety of employees should nominate employees to implement certain fire safety measures. The need for fire wardens depends on the size and complexity of the premises. They also require special training by an external fire training organization. They should be competent in the use of fire extinguishers and be capable of extinguishing small fires. They should have some knowledge of fire prevention and be able to identify possible fire hazards to prevent fire from occurring.

The Emergency Response Plan should be the subject of frequent training so all employees are familiar with its contents and there should be regular fire drills. Fire drills should consider the following points:

- Regular intervals
- Records kept
- There should be drills completed at least once a year
- Fire Alarms and Fire Fighting Equipment should be tested at weekly intervals and records kept
- Fire equipment regularly serviced

Figure 8.2. Proposed Fire Fighting Equipments

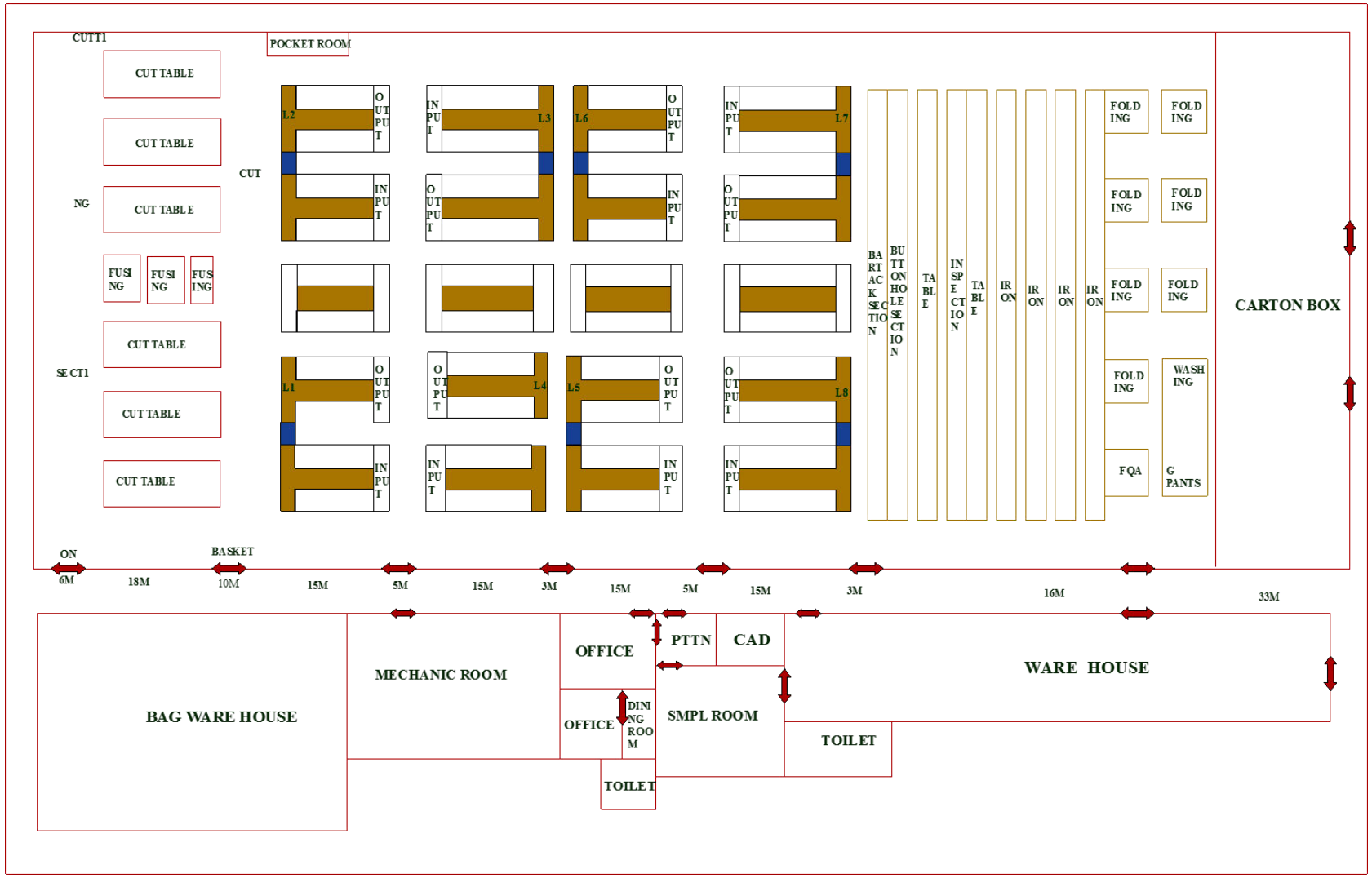


Figure 8.3 Proposed Evacuation Route Map of Proposed Factory

9. CONCLUSION AND RECOMMENDATIONS

9.1. Conclusions

This EMP report reviews the key anticipated environmental and social impacts of proposed project. Moreover, proper mitigation measures for these anticipated impacts and good environmental management practices, which do not reduce factory process, were described in this report. Implementation of appropriate mitigation measures during operation phases will minimize the negative impacts of the project to acceptable levels. Environmental monitoring of the proposed project will be undertaken during implementation regularly and through the first five years of its operation by local community to ensure that the measures are being implemented properly. According to the EMP study, all of the major and minor environmental and social impacts can be reduced by proper mitigation measures described in this report. To summarize, it can be concluded that all of the anticipated adverse impacts of the project can be minimized by the proper mitigation measures described in this report. The proposed factory can be allowed to operate with increasing employment opportunities for local people as well as resulting in government revenues if the project proponent will do all of the mitigation and enhancement measures described in this report.

9.2. Recommendations

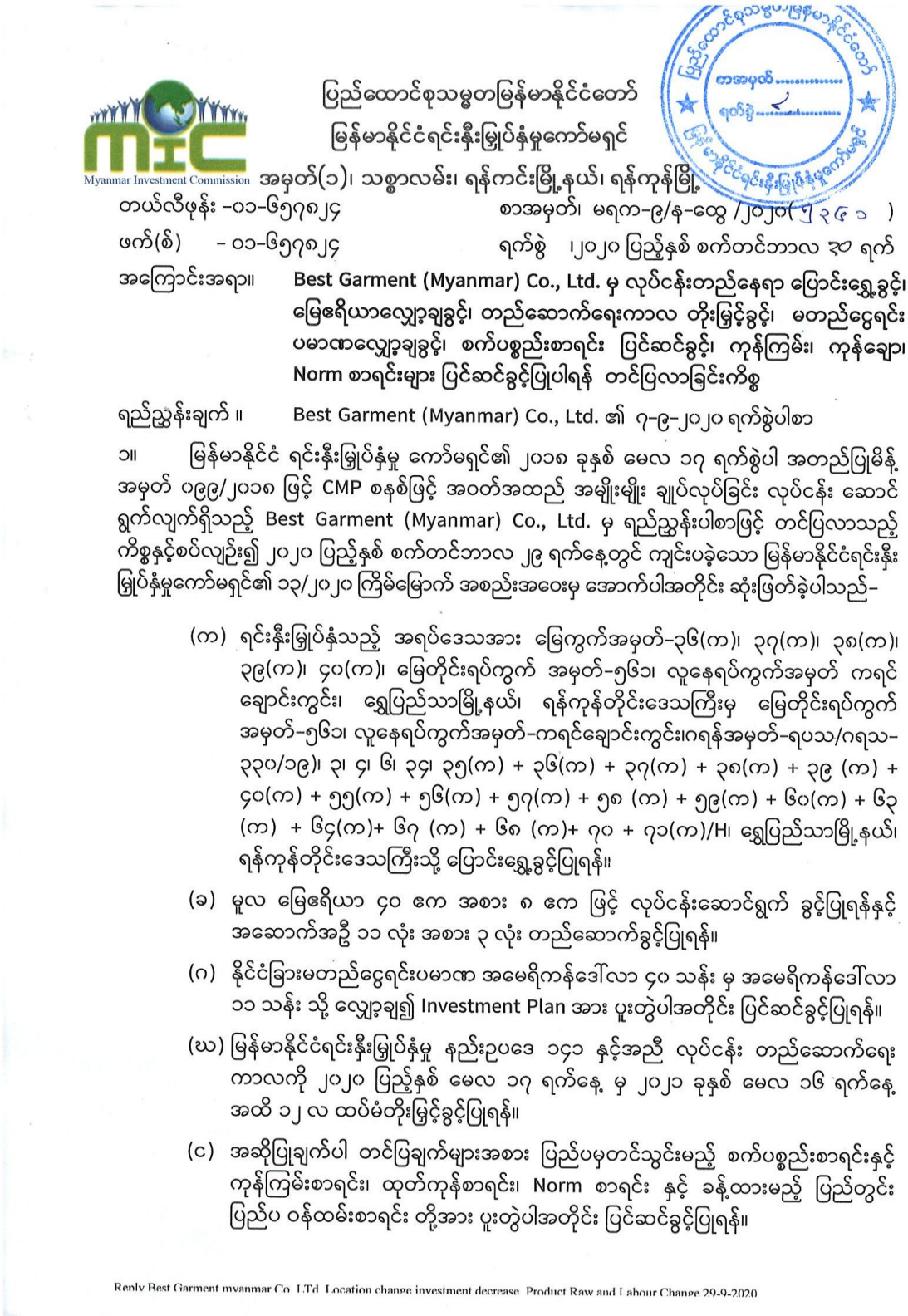
The EMP commitments should be followed by Best Garment (Myanmar) Company Limited. Further training programs should be done for factory workers and staff to meet the environmental performance.

In addition, the Best Garment (Myanmar) Company Limited should monitor air, noise, and groundwater quality, and waste management at every six months to ensure these in line with the National Environmental Quality (Emissions) Guidelines.

APPENDIX

APPENDIX A

Relevant Documents



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်
Myanmar Investment Commission အမှတ်(၁)၊ သစ္စာလမ်း၊ ရန်ကင်းမြို့နယ်၊ ရန်ကုန်မြို့

တယ်လီဖုန်း -၀၁-၆၅၇၈၂၄ စာအမှတ်၊ မရက-၉/န-ထွေ /၂၀၂၀(၅၃၀)
ဖက်(စ်) -၀၁-၆၅၇၈၂၄ ရက်စွဲ ၂၀၂၀ ပြည့်နှစ် စက်တင်ဘာလ ၃၀ ရက်

အကြောင်းအရာ။ **Best Garment (Myanmar) Co., Ltd. မှ လုပ်ငန်းတည်နေရာ ပြောင်းရွှေ့ခွင့်၊ မြေဧရိယာလျှော့ချခွင့်၊ တည်ဆောက်ရေးကာလ တိုးမြှင့်ခွင့်၊ မတည်ငွေရင်းပမာဏလျှော့ချခွင့်၊ စက်ပစ္စည်းစာရင်း ပြင်ဆင်ခွင့်၊ ကုန်ကြမ်း၊ ကုန်ချော၊ Norm စာရင်းများ ပြင်ဆင်ခွင့်ပြုပါရန် တင်ပြလာခြင်းကိစ္စ**

ရည်ညွှန်းချက် ။ Best Garment (Myanmar) Co., Ltd. ၏ ၇-၉-၂၀၂၀ ရက်စွဲပါစာ

၁။ မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု ကော်မရှင်၏ ၂၀၁၈ ခုနှစ် မေလ ၁၇ ရက်စွဲပါ အတည်ပြုမိန့် အမှတ် ၀၉၉/၂၀၁၈ ဖြင့် CMP စနစ်ဖြင့် အဝတ်အထည် အမျိုးမျိုး ချုပ်လုပ်ခြင်း လုပ်ငန်း ဆောင်ရွက်လျက်ရှိသည့် Best Garment (Myanmar) Co., Ltd. မှ ရည်ညွှန်းပါစာဖြင့် တင်ပြလာသည့် ကိစ္စနှင့်စပ်လျဉ်း၍ ၂၀၂၀ ပြည့်နှစ် စက်တင်ဘာလ ၂၉ ရက်နေ့တွင် ကျင်းပခဲ့သော မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်၏ ၁၃/၂၀၂၀ ကြိမ်မြောက် အစည်းအဝေးမှ အောက်ပါအတိုင်း ဆုံးဖြတ်ခဲ့ပါသည်-

(က) ရင်းနှီးမြှုပ်နှံသည့် အရပ်ဒေသအား မြေကွက်အမှတ်-၃၆(က)၊ ၃၇(က)၊ ၃၈(က)၊ ၃၉(က)၊ ၄၀(က)၊ မြေတိုင်းရပ်ကွက် အမှတ်-၅၆၁၊ လူနေရပ်ကွက်အမှတ် ကရင်ချောင်းကွင်း၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးမှ မြေတိုင်းရပ်ကွက် အမှတ်-၅၆၁၊ လူနေရပ်ကွက်အမှတ်-ကရင်ချောင်းကွင်း၊ဂရန်အမှတ်-ရပသ/ဂရသ-၃၃၀/၁၉၂၊ ၃၊ ၄၊ ၆၊ ၃၄၊ ၃၅(က) + ၃၆(က) + ၃၇(က) + ၃၈(က) + ၃၉ (က) + ၄၀(က) + ၅၁(က) + ၅၆(က) + ၅၇(က) + ၅၈ (က) + ၅၉(က) + ၆၀(က) + ၆၃ (က) + ၆၄(က)+ ၆၇ (က) + ၆၈ (က)+ ၇၀ + ၇၁(က)/H၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးသို့ ပြောင်းရွှေ့ခွင့်ပြုရန်။

(ခ) မူလ မြေဧရိယာ ၄၀ ဧက အစား ၈ ဧက ဖြင့် လုပ်ငန်းဆောင်ရွက် ခွင့်ပြုရန်နှင့် အဆောက်အဦ ၁၁ လုံး အစား ၃ လုံး တည်ဆောက်ခွင့်ပြုရန်။

(ဂ) နိုင်ငံခြားမတည်ငွေရင်းပမာဏ အမေရိကန်ဒေါ်လာ ၄၀ သန်း မှ အမေရိကန်ဒေါ်လာ ၁၁ သန်း သို့ လျှော့ချ၍ Investment Plan အား ပူးတွဲပါအတိုင်း ပြင်ဆင်ခွင့်ပြုရန်။

(ဃ) မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှု နည်းဥပဒေ ၁၄၁ နှင့်အညီ လုပ်ငန်း တည်ဆောက်ရေး ကာလကို ၂၀၂၀ ပြည့်နှစ် မေလ ၁၇ ရက်နေ့ မှ ၂၀၂၁ ခုနှစ် မေလ ၁၆ ရက်နေ့ အထိ ၁၂ လ ထပ်မံတိုးမြှင့်ခွင့်ပြုရန်။

(င) အဆိုပြုချက်ပါ တင်ပြချက်များအစား ပြည်ပမှတင်သွင်းမည့် စက်ပစ္စည်းစာရင်းနှင့် ကုန်ကြမ်းစာရင်း၊ ထုတ်ကုန်စာရင်း၊ Norm စာရင်း နှင့် ခန့်ထားမည့် ပြည်တွင်း ပြည်ပ ဝန်ထမ်းစာရင်း တို့အား ပူးတွဲပါအတိုင်း ပြင်ဆင်ခွင့်ပြုရန်။

Reply Best Garment myanmar Co. LTd. Location change investment decrease. Product Raw and Labour Change 29-9-2020

J

၂။ သို့ဖြစ်ပါ၍ ကော်မရှင်၏ ဆုံးဖြတ်ချက်ကို သိရှိနိုင်ရန်နှင့် မြေငှားရမ်းခြင်း သဘောတူ စာချုပ် မိတ္တူ (၅) စုံ အား ကော်မရှင်သို့ ပေးပို့ရန် အကြောင်းကြားပါသည်။

ဦးကြင်ဌ(ကိုယ်စား)
(သန့်စင်လွင်၊ အတွင်းရေးမှူး)

မန်နေးဂျင်းဒါရိုက်တာ

Best Garment (Myanmar) Co., Ltd. (ကော်မရှင် အတည်ပြုမိန့်တွင် ပြင်ဆင်ရန် ဝန်ဆောင်ခ အဖြစ် ကျပ် ၂၅,၀၀၀ (ကျပ် နှစ်သောင်းခွဲ တိတိ) အား ရင်းနှီး မြှုပ်နှံမှုနှင့် ကုမ္ပဏီများ ညွှန်ကြားမှု ဦးစီးဌာနသို့ ပေးသွင်းထားသည့် ငွေသွင်းချလံ (မူရင်း) နှင့် ကော်မရှင် အတည်ပြုမိန့် (မိတ္တူ)ကို ဤကော်မရှင်ရုံးသို့ ပေးပို့ရန်နှင့် အအတည်ပြုမိန့် တွင် တစ်လအတွင်းပြင်ဆင်ရန်)

မိတ္တူကို

ညွှန်ကြားရေးမှူးချုပ်၊ ပြည်တွင်းအခွန်များ ဦးစီးဌာန
ညွှန်ကြားရေးမှူးချုပ်၊ အကောက်ခွန်ဦးစီးဌာန
ညွှန်ကြားရေးမှူးချုပ်၊ ကုန်သွယ်ရေးဦးစီးဌာန
ရင်းနှီးမြှုပ်နှံမှုဌာနခွဲ (၂)၊ ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီးဦးစီးမှူးရုံး၊ ရင်းနှီးမြှုပ်နှံမှုနှင့် ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
ကုမ္ပဏီရေးရာဌာနခွဲ၊ ရင်းနှီးမြှုပ်နှံမှုနှင့် ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
မြန်မာနိုင်ငံအထည်ချုပ်လုပ်ငန်းရှင်များအသင်း
ရုံးလက်ခံ၊ မျှောစာတွဲ

Reply Best Garment myanmar Co. LTd Location change investment decrease. Product Raw and Labour Change 29-9-2020

Best Garment (Myanmar) Co., Ltd

Survey Block No. 561, Residential Ward No. KayinChaungKwin, Plot No. 36 (A), 37 (A), 38 (A), 39 (A), 40 (A), ShwePyiThar Township, Yangon, Myanmar

နောက်ဆက်တွဲ (၁)

ခွင့်ပြုမိန့်ပါတည်နေရာနှင့် ပြောင်းလဲအတွားရယူထားသည့်တည်နေရာပြမြေပုံ

အနီရောင်မျဉ်း_____မြေပိုင်ရှင်၏ မြေကွက်နယ်နိမိတ်

အစိမ်းရောင်မျဉ်း_____ခွင့်ပြုမိန့်ပါ လုပ်ငန်းတည်နေရာ

အပြာရောင်မျဉ်း_____ပြောင်းလဲလျှောက်ထားလိုသည့်တည်နေရာ

Best Garment (Myanmar) Co., Ltd

Survey Block No. 561, Residential Ward No. KayinChaungKwin, Plot No. 36 (A), 37 (A), 38 (A), 39 (A), 40 (A), ShwePyiThar Township, Yangon, Myanmar.

နောက်ဆက်တွဲ (၈)

လျှောချခွင့်လျှောက်ထားသည့် (၈၈က) နှင့် ကျန်(၃၂ ဧက)တို့ပိုင်းခြင်းပြမြေပုံ

အပြာရောင်----------Best Garment (Myanmar) Co., Ltd. မှအသုံးပြုမည့် (၈ ဧက)

အဝါရောင် ---------- စက်ရုံနှင့်အခြေခံအဆောက်အဦးတည်ဆောက်ပုံးရမ်းခြင်းလုပ်ငန်းအတွက်အသုံးပြုမည့် (၃၂ ဧက)

APPENDIX B

Environmental Quality Results

ISO TECH LABORATORY

TRACE CERTIFIED

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)

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0821 012

WATER QUALITY TEST RESULTS FORM

Client	Dr.Aung Lay Tin
Nature of Water	Tube Well
Location	Best Garment , ရွှေပြည်သာ
Date and Time of collection	18.8.2021
Date and Time of arrival at Laboratory	19.8.2021
Date and Time of commencing examination	20.8.2021
Date and Time of completing	22.8.2021

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
pH	6.9		6.5 - 8.5
Colour (True)	5	TCU	15 TCU
Turbidity	24	NTU	5 NTU
Conductivity	49	micro S/cm	
Total Hardness	18	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	14	mg/l as $CaCO_3$	
Magnesium Hardness	2	mg/l as $CaCO_3$	
Total Alkalinity	26	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)	26	mg/l as $CaCO_3$	
Iron	0.42	mg/l	0.3 mg/l
Chloride (as CL)		mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO_4)		mg/l	200 mg/l
Total Solids		mg/l	1500 mg/l
Suspended Solids	44	mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	

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

Tested by
Signature:
Name: Zaw Hein Oo ~~B.Sc (Chemistry)~~ Sr. Chemist
(a division of WEG Co.,Ltd.) ISO TECH Laboratory

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

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-73242162, Fax: 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)

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

W0821 012

WATER QUALITY TEST RESULTS FORM

Client	Dr.Aung Lay Tin
Nature of Water	Tube Well
Location	Best Garment, ရေမြုပ်သာ
Date and Time of collection	18.8.2021
Date and Time of arrival at Laboratory	19.8.2021
Date and Time of commencing examination	20.8.2021
Date and Time of completing	22.8.2021

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)	25.0	°C	
Fluoride (F)	1.3	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 (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)	32	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)		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 (Si)		mg/l	

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

Tested by

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

Approved by

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

(a division of WEG Co.,Ltd.)
No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-73242162, Fax: 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

AIR MONITORING REPORT

Main | Preferences | Header | Data | Report

ENVIRONMENTAL REPORT

Session location:
Session site:
Organizational affiliation: EDC
Session environment: Outdoors
Session type: Ambient
Session environment:
Session Description:
Logger Serial Number: 915099
Logging began on: 8/18/2021 9:30:00 AM
Logging stopped on: 8/19/2021 9:300:00 AM
Data uploaded on: 8/21/202 2:00:00 PM
Samples were averaged and saved every: Minute
Report was averaged: 10 Minute
Total samples in this upload: 135

SENSOR	UNITS	LO LIM	HI LIM

* indicates no limit was set

Data collected by: HRD
City: ShwePyiThar
State: Yangon
Country: Myanmar
Longitude: 96° 4'31.54"E
Latitude: 17° 0'25.32"N
Elevation:

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 135

Start Date 8/18/2021 9:30:00 AM 135

End Date 8/19/2021 9:30:00 AM

	BarM mBar	CO2 ppm	CO ppb	H2S ppb	CH4 ppm	NO2 ppb	O3 ppb	PMA uG/m3	PMB uG/m3	RH %	SO2 ppb	SLRR W/m2	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	
Ave	1010.04	270.0	1.4	0	0	24.0011	32.0145	36.0012	17.0110	61.0020	2.1100	1.04566	29.1200	19.0145	.967407	10.0051	0
Max	1020.	762	4	0	0	54	50	43	21	70	5	5.6	41	67	5.3	11	0
Min	1007.	15	1	0	0	2	12	2	1	52	1	0	29	0	0	10.3	0
EPAS	1008.88	229.081	1.8	0	0	15.1851	32.0518	22.6074	11.1333	61.4370	2.25925	1.18666	28.6370	19.9185	.967407	10.7851	0
Header ?	1010.	754	4	0	0	54	50	42	21	71	5	5.6	33	67	5.3	11	0
	1007.	15	1	0	0	2	12	2	1	54	1	0	18	0	0	10.3	0
Daily	1008.67	220.096	1.83870	0	0	15.6559	31.9569	20.8172	10.1827	60.8387	2.31182	1.62365	29.1935	28.9139	1.40430	10.7935	0
Wed, Aug18, 2021	1010.	754	4	0	0	54	50	42	21	71	5	5.6	33	67	5.3	11	0
	1007.	15	1	0	0	2	12	2	1	54	1	0	18	0	0	10.3	0
Ave Period 10	1010	100	1	0	0	2	44	22	14	62	2	2	28	60	0	10.9	0
8/18/21 9:30:00	1010	100	1	0	0	2	44	22	14	62	2	2	28	60	0	10.9	0
	1010	100	1	0	0	2	44	22	14	62	2	2	28	60	0	10.9	0
8/18/21	1010.0	100	1	0	0	2	44	22	14	62	2	2	28	60	0.0	10.9	0.0
Ave Period 10	1010	200	1	0	0	8	50	21	18	66	2	1	27	61	0	10.7	0
8/18/21 9:40:00	1010	200	1	0	0	8	50	21	18	66	2	1	27	61	0	10.7	0
	1010	200	1	0	0	8	50	21	18	66	2	1	27	61	0	10.7	0
8/18/21	1010.0	200	1	0	0	8	50	21	18	66	2	1	27	61	0.0	10.7	0.0
Ave Period 10	1010	111	1	0	0	10	49	28	19	69	1	2	26	60	0	10.9	0
8/18/21 9:50:03	1010	111	1	0	0	10	49	28	19	69	1	2	26	60	0	10.9	0
	1010	111	1	0	0	10	49	28	19	69	1	2	26	60	0	10.9	0
8/18/21	1010.0	111	1	0	0	10	49	28	19	69	1	2	26	60	0.0	10.9	0.0
Ave Period 10	1010	40	2	0	0	6	41	34	10	71	2	1	26	59	0	10.7	0
8/18/21 10:00:00	1010	40	2	0	0	6	41	34	10	71	2	1	26	59	0	10.7	0
	1010	40	2	0	0	6	41	34	10	71	2	1	26	59	0	10.7	0
8/18/21	1010.0	40	2	0	0	6	41	34	10	71	2	1	26	59	0.0	10.7	0.0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 135

Start Date 8/18/2021 9:30:00 AM

135

End Date 8/19/2021 9:30:00 AM

	BarM mBar	CO2 ppm	CO ppb	H2S ppb	CH4 ppm	NO2 ppb	O3 ppb	PMA uG/m3	PMB uG/m3	RH %	SO2 ppb	SLRR W/m2	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	
Ave	**1010.04**	**270.0**	**1.4**	**0**	**0**	**24.0011**	**32.0145**	**36.0012**	**17.0110**	**61.0020**	**2.1100**	**1.04566**	**29.1200**	**19.0145**	**.967407**	**10.0051**	**0**
Max	**1020.**	762	4	0	0	54	50	43	21	70	5	5.6	41	67	6.3	11	0
Min	1007.	15	1	0	0	2	12	2	1	52	1	0	29	0	0	10.3	0
Ave Period 10	**1010.2**	**50**	**1**	**0**	**0**	**2**	**36**	**37**	**20**	**68**	**1**	**2.8**	**19**	**60**	**0**	**10.9**	**0**
8/18/21 10:10:00	1010.	50	1	0	0	2	36	37	20	68	1	2.8	19	60	0	10.9	0
	1010.	50	1	0	0	2	36	37	20	68	1	2.8	19	60	0	10.9	0
8/18/21	1010.2	50	1	0	0	2	36	37	20	68	1	2.8	19	60	0.0	10.9	0.0
Ave Period 10	**1010.2**	**60**	**2**	**0**	**0**	**15**	**46**	**29**	**18**	**70**	**3**	**3**	**18**	**59**	**2.3**	**10.7**	**0**
8/18/21 10:20:00	1010.	60	2	0	0	15	46	29	18	70	3	3	18	59	2.3	10.7	0
	1010.	60	2	0	0	15	46	29	18	70	3	3	18	59	2.3	10.7	0
8/18/21	1010.2	60	2	0	0	15	46	29	18	70	3	3	18	59	2.3	10.7	0.0
Ave Period 10	**1010.2**	**420**	**1**	**0**	**0**	**10**	**46**	**39**	**18**	**70**	**2**	**1**	**18**	**60**	**0**	**10.9**	**0**
8/18/21 10:30:00	1010.	420	1	0	0	10	46	39	18	70	2	1	18	60	0	10.9	0
	1010.	420	1	0	0	10	46	39	18	70	2	1	18	60	0	10.9	0
8/18/21	1010.2	420	1	0	0	10	46	39	18	70	2	1	18	60	0.0	10.9	0.0
Ave Period 10	**1010.2**	**351**	**2**	**0**	**0**	**15**	**46**	**38**	**21**	**70**	**3**	**3**	**18**	**61**	**5.2**	**10.7**	**0**
8/18/21 10:40:00	1010.	351	2	0	0	15	46	38	21	70	3	3	18	61	5.2	10.7	0
	1010.	351	2	0	0	15	46	38	21	70	3	3	18	61	5.2	10.7	0
8/18/21	1010.2	351	2	0	0	15	46	38	21	70	3	3	18	61	5.2	10.7	0.0
Ave Period 10	**1010.2**	**245**	**1**	**0**	**0**	**15**	**12**	**31**	**21**	**70**	**2**	**3**	**18**	**63**	**0**	**10.7**	**0**
8/18/21 10:50:00	1010.	245	1	0	0	15	12	31	21	70	2	3	18	63	0	10.7	0
	1010.	245	1	0	0	15	12	31	21	70	2	3	18	63	0	10.7	0
8/18/21	1010.2	245	1	0	0	15	12	31	21	70	2	3	18	63	0.0	10.7	0.0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 135

Start Date 8/18/2021 9:30:00 AM

135

End Date 8/19/2021 9:30:00 AM

	BarM mBar	CO2 ppm	CO ppb	H2S ppb	CH4 ppm	NO2 ppb	O3 ppb	PMA uG/m3	PMB uG/m3	RH %	SO2 ppb	SLRR W/m2	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	
Ave	**1010.04**	**270.0**	**1.4**	**0**	**0**	**24.0011**	**32.0145**	**36.0012**	**17.0110**	**61.0020**	**2.1100**	**1.04566**	**29.1200**	**19.0145**	**.967407**	**10.0051**	**0**
Max	**1020.**	762	4	0	0	54	50	43	21	70	5	5.6	41	67	6.3	11	0
Min	1007.	15	1	0	0	2	12	2	1	52	1	0	29	0	0	10.3	0
Ave Period 10	**1010.2**	**15**	**1**	**0**	**0**	**15**	**46**	**20**	**21**	**70**	**3**	**1**	**18**	**59**	**5.6**	**10.3**	**0**
8/18/21 11:00:0	1010.	15	1	0	0	15	46	20	21	70	3	1	18	59	5.6	10.3	0
	1010.	15	1	0	0	15	46	20	21	70	3	1	18	59	5.6	10.3	0
8/18/21	1010.2	15	1	0	0	15	46	20	21	70	3	1	18	59	5.6	10.3	0.0
Ave Period 10	**1010.2**	**52**	**2**	**0**	**0**	**20**	**46**	**27**	**17**	**70**	**2**	**3**	**18**	**60**	**7.1**	**10.3**	**0**
8/18/21 11:10:04	1010.	52	2	0	0	20	46	27	17	70	2	3	18	60	7.1	10.3	0
	1010.	52	2	0	0	20	46	27	17	70	2	3	18	60	7.1	10.3	0
8/18/21	1010.2	52	2	0	0	20	46	27	17	70	2	3	18	60	7.1	10.3	0.0
Ave Period 10	**1010.2**	**36**	**2**	**0**	**0**	**15**	**46**	**37**	**17**	**70**	**4**	**3**	**18**	**0**	**0**	**10.9**	**0**
8/18/21 11:20:0	1010.	36	2	0	0	15	46	37	17	70	4	3	18	0	0	10.9	0
	1010.	36	2	0	0	15	46	37	17	70	4	3	18	0	0	10.9	0
8/18/21	1010.2	36	2	0	0	15	46	37	17	70	4	3	18	0	0.0	10.9	0.0
Ave Period 10	**1010.2**	**258**	**1**	**0**	**0**	**22**	**46**	**24**	**14**	**70**	**2**	**3**	**18**	**60**	**7**	**10.9**	**0**
8/18/21 11:30:0	1010.	258	1	0	0	22	46	24	14	70	2	3	18	60	7	10.9	0
	1010.	258	1	0	0	22	46	24	14	70	2	3	18	60	7	10.9	0
8/18/21	1010.2	258	1	0	0	22	46	24	14	70	2	3	18	60	7.0	10.9	0.0
Ave Period 10	**1010.2**	**450**	**3**	**0**	**0**	**15**	**46**	**30**	**15**	**70**	**1**	**1**	**18**	**80**	**7.3**	**10.9**	**0**
8/18/21 11:40:0	1010.	450	3	0	0	15	46	30	15	70	1	1	18	80	7.3	10.9	0
	1010.	450	3	0	0	15	46	30	15	70	1	1	18	80	7.3	10.9	0
8/18/21	1010.2	450	3	0	0	15	46	30	15	70	1	1	18	80	7.3	10.9	0.0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 135

Start Date 8/18/2021 9:30:00 AM

135

End Date 8/19/2021 9:30:00 AM

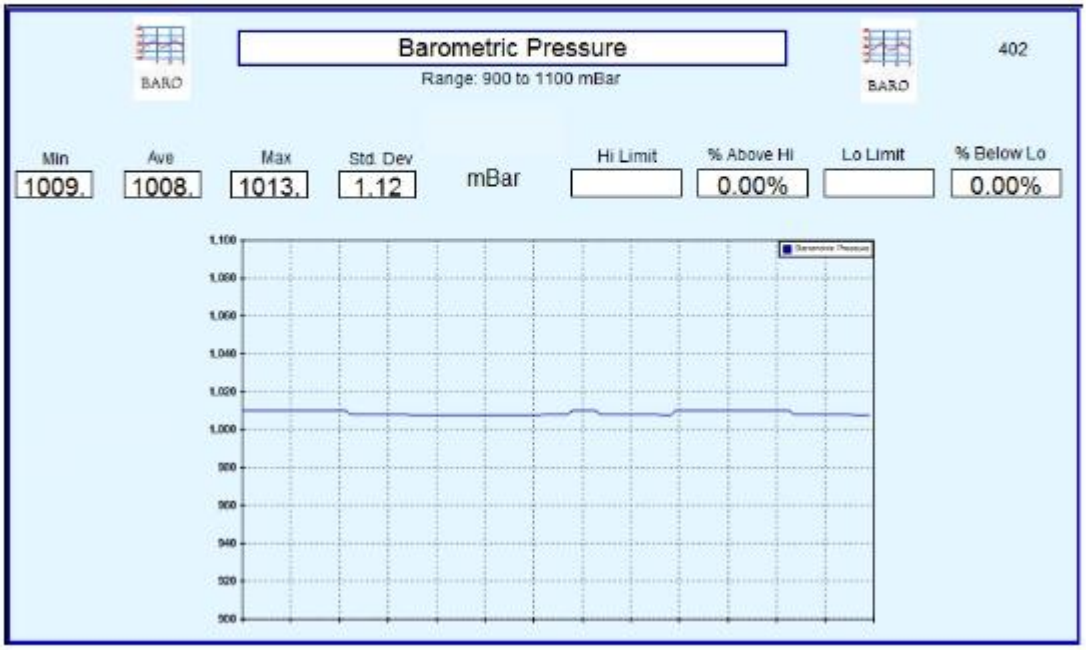
	BarM mBar	CO2 ppm	CO ppb	H2S ppb	CH4 ppm	NO2 ppb	O3 ppb	PMA uG/m3	PMB uG/m3	RH %	SO2 ppb	SLRR W/m2	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	
Ave	**1010.04**	**270.0**	**1.4**	**0**	**0**	**24.0011**	**32.0145**	**36.0012**	**17.0110**	**61.0020**	**2.1100**	**1.04566**	**29.1200**	**19.0145**	**.967407**	**10.0051**	**0**
Max	**1020.**	762	4	0	0	54	50	43	21	70	5	5.6	41	67	6.3	11	0
Min	1007.	15	1	0	0	2	12	2	1	52	1	0	29	0	0	10.3	0
Ave Period 10	**1009.9**	**252**	**2**	**0**	**0**	**2**	**18**	**40**	**11**	**58**	**3**	**3**	**27**	**0**	**0**	**10.9**	**0**
8/18/21 11:50:0	1009.	252	2	0	0	2	18	40	11	58	3	3	27	0	0	10.9	0
	1009.	252	2	0	0	2	18	40	11	58	3	3	27	0	0	10.9	0
8/18/21	1009.9	252	2	0	0	2	18	40	11	58	3	3	27	0	0.0	10.9	0.0
Ave Period 10	**1010.3**	**252**	**1**	**0**	**0**	**30**	**18**	**42**	**1**	**60**	**2**	**3**	**30**	**81**	**7.2**	**10.9**	**0**
8/18/21 12:00:0	1010.	252	1	0	0	30	18	42	1	60	2	3	30	81	7.2	10.9	0
	1010.	252	1	0	0	30	18	42	1	60	2	3	30	81	7.2	10.9	0
8/18/21	1010.3	252	1	0	0	30	18	42	1	60	2	3	30	81	7.2	10.9	0.0
Ave Period 10	**1010.3**	**451**	**2**	**0**	**0**	**25**	**18**	**28**	**8**	**60**	**3**	**1**	**30**	**80**	**7.1**	**10.6**	**0**
8/18/21 12:10:0	1010.	451	2	0	0	25	18	28	8	60	3	1	30	80	7.1	10.6	0
	1010.	451	2	0	0	25	18	28	8	60	3	1	30	80	7.1	10.6	0
8/18/21	1010.3	451	2	0	0	25	18	28	8	60	3	1	30	80	7.1	10.6	0.0
Ave Period 10	**1010.3**	**654**	**1**	**0**	**0**	**30**	**18**	**32**	**7**	**60**	**3**	**2**	**30**	**0**	**0**	**10.6**	**0**
8/18/21 12:20:0	1010.	654	1	0	0	30	18	32	7	60	3	2	30	0	0	10.6	0
	1010.	654	1	0	0	30	18	32	7	60	3	2	30	0	0	10.6	0
8/18/21	1010.3	654	1	0	0	30	18	32	7	60	3	2	30	0	0.0	10.6	0.0
Ave Period 10	**1010.3**	**754**	**2**	**0**	**0**	**26**	**18**	**28**	**3**	**60**	**1**	**2.5**	**30**	**79**	**3.1**	**10.3**	**0**
8/18/21 12:30:0	1010.	754	2	0	0	26	18	28	3	60	1	2.5	30	79	3.1	10.3	0
	1010.	754	2	0	0	26	18	28	3	60	1	2.5	30	79	3.1	10.3	0
8/18/21	1010.3	754	2	0	0	26	18	28	3	60	1	2.5	30	79	3.1	10.3	0.0

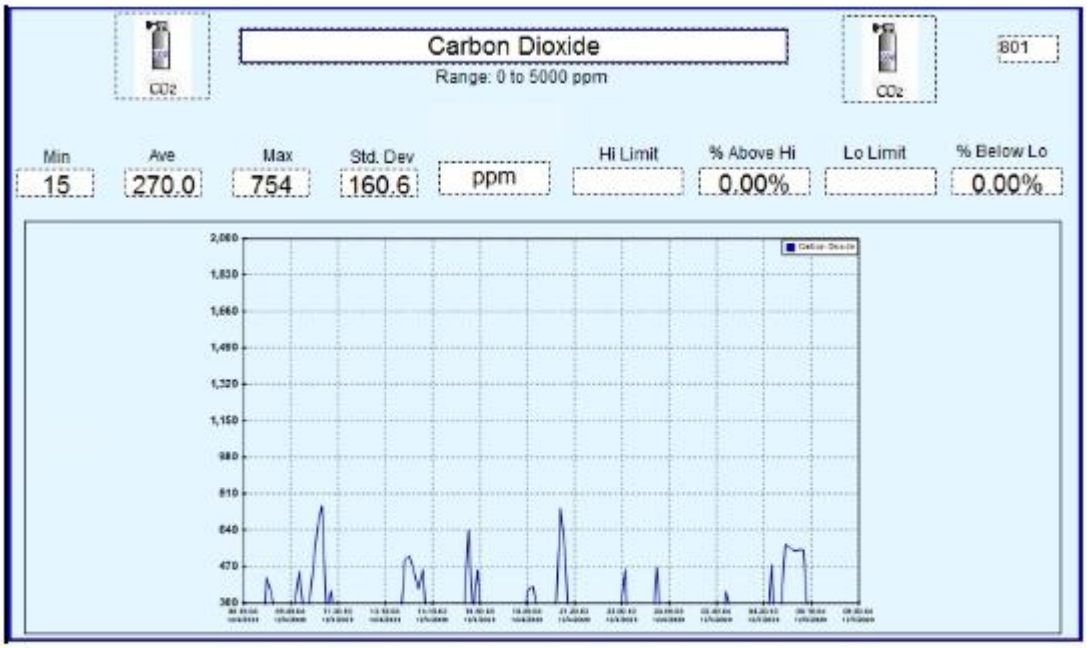
Environmental Report

Start: 8/18/2021 9:30:00 AM End: 8/19/2021 9:30:00 AM

Collected by:

Logger ID 915099 Record Count 135





Environmental Report

Start: 8/18/2021 9:30:00 AM End: 8/19/2021 9:30:00 AM

Collected by:

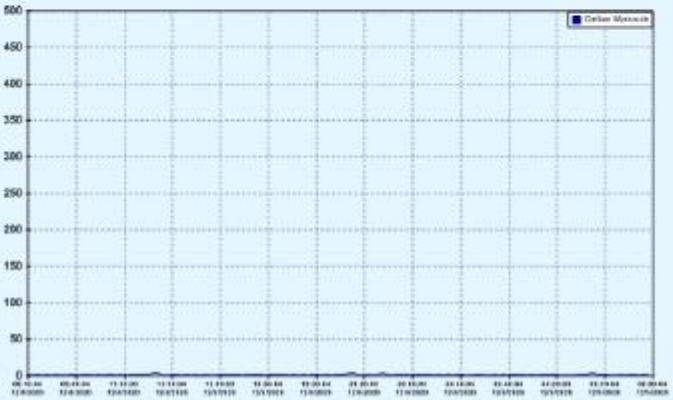
Logger ID 915099 Record Count 135

Carbon Monoxide

Range: 0 to 10000 ppb

905

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
1	1.4	4	0.77	ppb		0.00%		0.00%

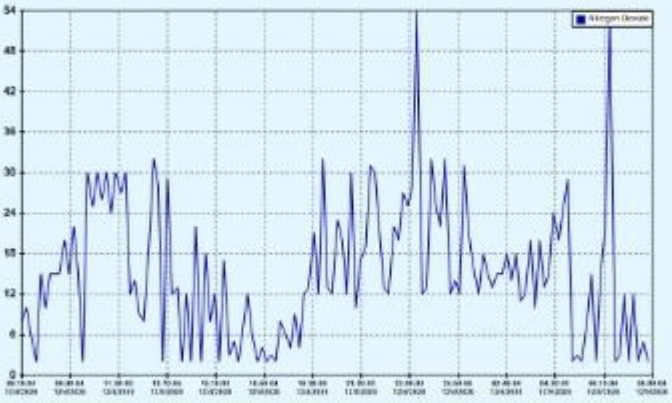


Nitrogen Dioxide

Range: 0 to 5000 ppb

1401

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
2	24.01	54	10.19	ppb		0.00%		0.00%



Environmental Report

Start: 8/18/2021 9:30:00 AM End: 8/19/2021 9:30:00 AM

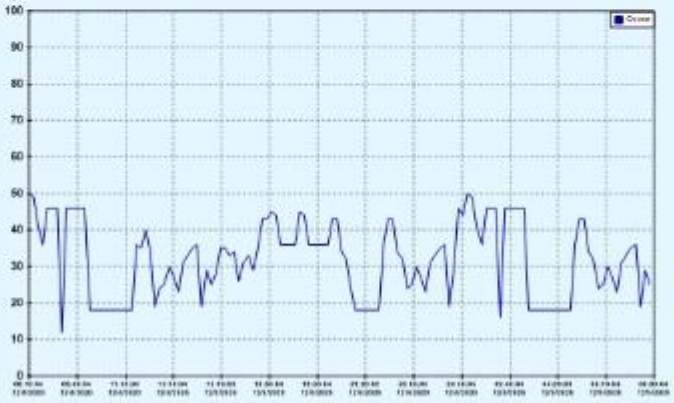
Collected by:

Logger ID 915099 Record Count 135

Ozone 601

Range: 0 to 150 ppb

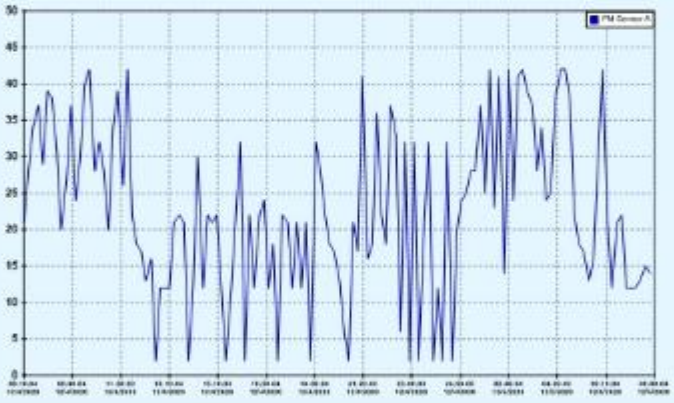
Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
12	31.07	50	10.36	ppb		0.00%		0.00%



PM Sensor A 2312

Range: 0 to 5000 uG/m3

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
2	36.05	42	11.32	uG/m3		0.00%		0.00%



Environmental Report

Start: 8/18/2021 9:30:00 AM End: 8/19/2021 9:30:00 AM

Collected by:

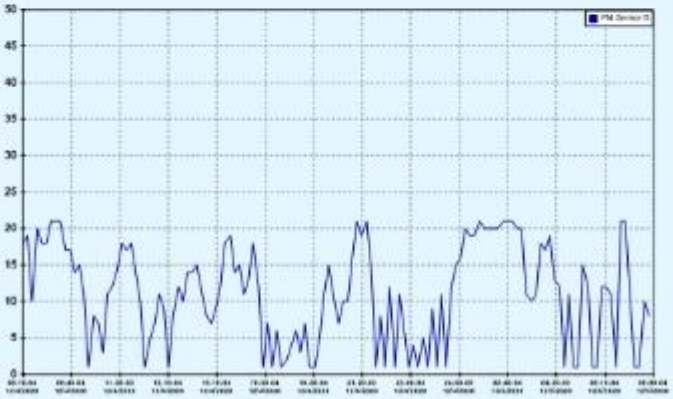
Logger ID 915099 Record Count 135

PM Sensor B

Range: 0 to 5000 uG/m3

2313

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
1	17.01	21	6.66	uG/m3		0.00%		0.00%

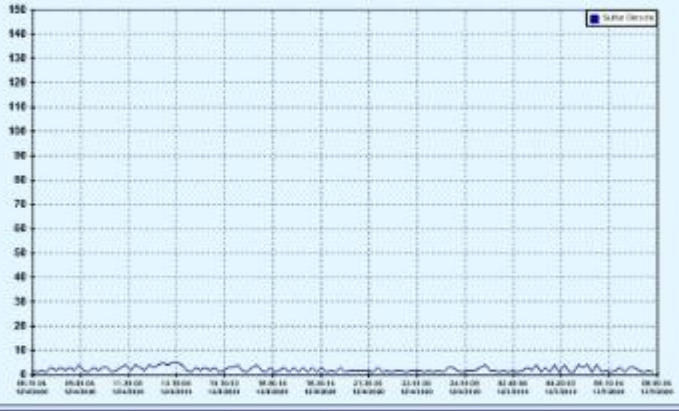


Sulfur Dioxide

Range: 0 to 5000 ppb

2101

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
1	2.105	5	1.06	ppb		0.00%		0.00%



APPENDIX C

Construction State of Project Photos

APPENDIX D

HRD Environmental Training and Services Co., Ltd. Profile

THE REPUBLIC OF THE UNION OF MYANMAR
Ministry of Natural Resources and Environmental Conservation
Environmental Conservation Department

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION
(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 00071 Date 24 MAY 2019

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the organization under Environmental Impact Assessment Procedure, Notification No. 616/2015.
(ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို ထုတ်ပေးလိုက်သည်။)

(a)	Name of Organization (အဖွဲ့အစည်းအမည်)	HRD Environmental Training and Services Co., Ltd
(b)	Name of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏အမည်)	Dr. Aung Lay Tin
(c)	Citizenship of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏နိုင်ငံသား)	Myanmar
(d)	Identity Card /Passport Number of the representative person in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	7/ PAKHATA(N) 042418
(e)	Address of organization (ဆက်သွယ်ရန်လိပ်စာ)	Room.3, Bdg.2, Quarter 3, Insein Road, Mayangon Township, Yagon, Myanmar. Telephone (office): 09256036414, 09975851368 Mobile phone: 09256036414 E mail: aunglaytin@gmail.com
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Organization
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 December 2019

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 0065 Date 1.1.2018

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၅၁၆/၂၀၁၅ အရ သယ်ဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	Dr. Aung Lay Tin
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	7/ Pa Kha Ta (N) 042418
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	No. 14 (B) YTU Campus, GyoKone, Insine Township, Yangon. aunglaytin@gmail.com , 09 975851368
(e)	Organization (အဖွဲ့အစည်း)	Associate Professor Mining Engineering Department Yangon Technological University
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

EXTENSION

The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)

For Director General
(Soe Naing, Director)
Environmental Conservation Department

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

အိတ်ချ်အာဒီ အင်ဗာရော်မယ်တယ် ထရိန်နင် အန်လ် ဆားဗစ် ကုမ္ပဏီ လီမိတက်

HRD ENVIRONMENTAL TRAINING AND SERVICES COMPANY LIMITED

Company Registration No. 117441881

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

အိတ်ချ်အာဒီ အင်ဗာရော်မယ်တယ် ထရိန်နင် အန်လ် ဆားဗစ် ကုမ္ပဏီ လီမိတက်

အား ၂၀၁၆ ခုနှစ် နိုဝင်ဘာလ ၄ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

HRD ENVIRONMENTAL TRAINING AND SERVICES COMPANY LIMITED

was incorporated under the Myanmar Companies Act 1914 on 4 November 2016 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

Directorate of Investment and Company Administration

Former Registration No. 3633/2016-2017(YGN)

4109

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

စီမံကိန်းနှင့် ဘဏ္ဍာရေးဝန်ကြီးဌာန

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

အမှတ် ၃၆၃၃ / ၂၀၁၆ - ၂၀၁၇ (ရက)

မြန်မာနိုင်ငံ ကုမ္ပဏီများ အက်ဥပဒေအရ အိတ်ချ်အာဒီ အင်ဗာရော်မယ်တယ် ထရိုင်နင်

အန်လ် ဆားဗစ် ကုမ္ပဏီ လီမိတက် အား ပေးရန်တာဝန် ကန့်သတ်ထားသော လီမိတက်

ကုမ္ပဏီအဖြစ် ၂၀၁၆ နှစ်၊ နိုဝင်ဘာ လ၊ ၄ ရက်နေ့တွင် မှတ်ပုံတင်ခွင့်ပြုလိုက်သည်။

ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)

(နီလာမူ ၊ ညွှန်ကြားရေးမှူး)

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

THE GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF PLANNING AND FINANCE

CERTIFICATE OF INCORPORATION

NO. 3633 of 2016 - 2017 (YGN)

I hereby certify that HRD ENVIRONMENTAL TRAINING AND SERVICES COMPANY LIMITED is this day incorporated under the Myanmar Companies Act and that the company is Limited.

Given under my hand at Yangon this FOURTH day of NOVEMBER, TWO THOUSAND AND SIXTEEN.

For Director General
(Nilar Mu , Director)
Directorate of Investment and Company Administration

HRD Environmental Training and Services Co., Ltd.

Address : No (471), Ground Floor, Aung Myay Thar Street, 2 Quarter, Thamaing, Mayangone Township, Yangon, Myanmar

Phone : +95 9256036414, +95 975851368, +95 975851381
(+95 9777237155 - For Training Informations)

Email : aunglaytin@gmail.com, dawohnmaraung007@gmail.com
(papawytu.pp@gmail.com - For Training Informations)

Welcome to HRD Environmental Training and Services Co., Ltd.

Our Company are a leading environmental Training and Solutions service provider in Myanmar and to Provide brief information on the problem the proposed project/programme is aiming to solve . Our Company deliver a comprehensive range of Environmental challenges and Environmental consultancy and training services . We aim to ensure to maximize our clients' business potential through minimizing the environmental impacts. Our local experienced-with-global-reach team has a good understanding of international regulatory requirements, standards and operations, as well as national legal requirements and local culture.

Our Vision

HRD Company focuses on *the economic social, development and environmental context in which the project would operate and* fulfill current and future needs of our Nation.

Our Mission

- To assist the organizations in accordance with economic growth and project development to be sustainable and environmentally responsible.
- To offer great benefits to our clients, employees, and stakeholders regarding sustainability, responsibility, transparency, trust, and security

Focus

- focuses on the establishment of protocols for the collection, analysis, communication and dissemination of climate risk data to local peoples.

Learning tools

- Local media news items in local language;
- Site field visits;
- Public Consultation & Public Meeting;
- Project management and agriculture briefs with local community groups;
- Public media articles in journals, newspapers and newsletters;
- Awareness actions for private sector entities
- non-governmental community leaders and institutions
- Policy briefs for national decision makers; and
- Best practice guidance materials and tools.

HRD is a multi-disciplinary team organized to provide *comprehensive engineering solutions to Mineral Industries and other industries* toward sustainable development.

Contact

HP: (+95) 09256036414, (+95) 9975851368, 95-9509231
Email: aunglaytin@gmail.com , : dawohnmaraung007@gmail.com

Registered Address

No(98),Room (3), Building (2), Insein Road,
Mayangon Township, Yangon, Myanmar

Alternative Address :

No (471), Ground Floor, Aung Myay Thar Street, 2 Quarter,
Thamaing, Mayangone Township, Yangon, Myanmar

Our Services

HRD Environmental Training and Services Co., Ltd. provides a wide range of **Consultation Services** and **Training** for numerous industries including:

- Feasibility Study , Scoping , Project Development of mineral industry
- Environmental Management Systems for Mineral Industry and others
- IEE, EIA, SIA and ESIA Services

HRD EIA & SIA SERVICES GROUP

THE OBJECTIVES OF HRD EIA & SIA SERVICES ARE:

- Environmental monitoring so as to establish the baseline environmental status to the study area
- Identify various existing pollution loads due to industrial and domestic activities
- Prediction of impacts on environmental attributes
- Evaluate the predicted impacts on the various environmental attributes in the study area by using scientifically developed and widely accepted Environmental Impact Assessment(EIA) Methodologies
- Preparation on Environmental Management Plan(EMP) outlining the measures for improving the environmental quality

METHODOLOGY OF THE HRD EIA & SIA STUDY ARE:

The various steps involved in the study for a particular project are divided into four following phases

- Questionnaire Preparation, Preliminary Study, Scoping, Public Participation, Households Survey
- Identification of Significant environmental parameters and assessing the status within the study area.
- Prediction of Impacts envisaged due to proposed scheme on various environmental parameters.
- Evaluation of impacts after superimposing the predicted scenario over the base line scenario to preparation of Environmental Management Plan.

STRUCTURE OF HRD EIA & SIA REPORT ARE:

The Environmental Impact Assessment(EIA) Report contains baseline data, assessment of likely impacts, Preparation of environmental management plan and the disaster management plan are as follow:

Executive Summary

Describes the Project Introduction, Project Information, Background, Methodology and Objectives of Proposed Project, etc..

Project Description

Gives a brief description of the location, approachability, and details of Project Activities, equipments and machinery

Baseline Environmental Status of Project Area

Presents details of the baseline environmental status of all environmental attributes i.e. Micro climate condition, air quality, traffic, water quality, soil quality, flora, fauna and socio-economics status etc.

Impact Identification

Discusses the potential impacts of the proposed projects and other activities, which can cause significant environmental concerns , are identified and discussed. This discussion will form the basic for environmental management activities.

Impacts Evaluation

Discusses environmental impacts due to the proposed Projects activities have been quantified under two scenarios(1) without environmental Management Plan and (2) with environmental management plan using modified Impact Matrix to establish cause effect relationship.

Environmental Management Plan

Deals with the Environmental Management Plan(EMP) for the proposed projects activities, indicates measures proposed to minimize the likely impacts on the environment. It also describes the proposed environmental monitoring programme.

No (471), Ground Floor, Aung Myay Thar Street, 2 Quarter, Thamaing, Mayangone Township, Yangon, Myanmar
Phone : +95 9256036414, +95 975851368, +95 975851381
(+95 9777237155 - For Training Informations)

Disaster Management Plan

Deals with Disasters Management Plan(DMP) for proposed expansion of Projects activities, indicates measures proposed to minimize the manmade and natural disaster.