

# **SUNNY ARTS AND CRAFTS COMPANY LIMITED**

## **Environmental Management Plan**

**Manufacturing of Christmas Handicrafts, Material  
Plasticine Modeling Clay on CMP Basis**



**Myanwei Environmental Solutions Co., Ltd.**

**22-Oct-21**

Date: 22, 10, 2021

Attention: Dear Director

Environmental Conservation Department

Subject: Environmental Management Plan (EMP) Report in respect to manufacture of Christmas Handicrafts, Material Plasticine Modeling Clay by Sunny Arts and Crafts Company Limited.

EMP report describes the environmental condition of a project, including significant impact, formulation of mitigation measures and preparation of institutional requirements and environmental monitoring.

Myanwei Environmental Solutions Company Limited has prepared this report with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking into account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

We strongly commit that this report was prepared in compliance with Myanmar Environmental Laws and Regulations.

  
  
**LIN HTET SEIN**  
**DIRECTOR**  
**MYANWEI ENVIRONMENTAL SOLUTIONS**  
**COMPANY LIMITED.**

# SUNNY ARTS & CRAFTS COMPANY LIMITED

Plot No. (102), Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon, Myanmar. Email. mikelucnmc@gmail.com

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Date: 22, 10, 2021

Dear: Director  
Environmental Conservation Department  
Nay Pyi Taw

Subject: Environmental Management Plan (EMP) Report in respect to manufacture of Christmas Handicrafts, Material Plasticine Modeling Clay

We refer to the captioned EMP report, which has been prepared by Myanwei Environmental Solutions Co., Ltd. (Third Party Consultant) in compliance with EIA procedure (2015) and other related laws/rules.

We believe, to the best of our knowledge at the time of writing, that;

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

Sunny Arts and Crafts Company Limited will at all time comply fully with all commitment and obligations in the EMP report.

We acknowledge and understand that



MR LU CHONGGAO  
Director  
Sunny Arts & Crafts Company Limited

Sunny Arts and Crafts Company Limited

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## Abbreviation

1. CEMP	= Construction Environmental Management Plan
2. CMP	= Contract Manufacturing Process
3. CSR	= Corporate Social Responsibility
4. ECC	= Environmental Compliance Certificate
5. ECD	= Environmental Conservation Department
6. EIA	= Environmental Impact Assessment
7. EMoP	= Environmental Monitoring Plan
8. EMP	= Environmental Management Plan
9. GIIP	= Good International Industry Practices
10. HSE	= Health, Safety and Environment
11. IEE	= Initial Environmental Examination
12. IFC	= International Finance Corporation
13. NEQG	= National Environmental Quality (Emission) Guidelines
14. MIC	= Myanmar Investment Commission
15. MOECF	= Ministry of Environmental Conservation and Forestry
16. MONREC	= Ministry of Natural Resources and Environmental Conservation
17. OEMP	= Operation Environmental Management Plan
18. OSHA	= Occupational Safety and Health Administration
19. PPE	= Personal Protective Equipment
20. WHO	= World Health Organization
21. YCDC	= Yangon City Development Committee
22. YESB	= Yangon City Electricity Supply Board



## အစီရင်ခံစာအကျဉ်းချုပ်

### နိဒါန်း

အဆိုပြုလုပ်ငန်းသည် CMP စနစ်ဖြင့် အရုပ်အမျိုးမျိုး ထုတ်လုပ်ခြင်းလုပ်ငန်း အတွက် ရင်းနှီးမြှုပ်နှံသော ကုမ္ပဏီဖြစ်ပါသည်။ ရင်းနှီးမြှုပ်နှံမှုလိုင်စင်ကို ၂၀၁၉ခုနှစ်၊ဒီဇင်ဘာလ ၉ ရက်နေ့တွင် (အတည်ပြုမိန့်အမှတ် ရကတ-၂၉၉/၂၀၁၉)ဖြင့် ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှုကော်မတီမှ ရရှိပြီးဖြစ်ပါသည်။ လုပ်ငန်းလည်ပတ်ရန်အတွက် မြန်မာနိုင်ငံသယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) ၏ အတည်ပြုချက်ရယူရန် လိုအပ်ကြောင်း ကော်မရှင်မှ မှာကြားခဲ့ပါသည်။

ထို့ကြောင့် မြန်မာနိုင်ငံ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဥပဒေ (၂၀၁၂)အရ ၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ပြုလုပ်ရန်လိုအပ်ကြောင်း ၂၀၁၉ ခုနှစ်၊ နိုဝင်ဘာလ ၂၅ ရက်နေ့တွင် စာအမှတ်၊ ရက-၁/၃/၄ (အီးအိုင်အေ) (၂၅၉၅/၂၀၁၉) ဖြင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန ရန်ကုန်တိုင်းဒေသကြီးမှ သဘောထားမှတ်ချက် ရရှိပြီးဖြစ်ပါသည်။ ထို့ကြောင့် EMP အစီအရင်ခံစာရေးဆွဲရန် တတိယအဖွဲ့အစည်းဖြစ်သော Myanwei Environmental Solutions Company Limited (MYANWEI) မှ တာဝန်ယူရေးဆွဲခဲ့ပါသည်။

EMP အစီအစဉ်တွင် Sunny Arts and Crafts Company Limited ၏ အရုပ်အမျိုးမျိုးထုတ်လုပ်ခြင်းစီမံကိန်းအတွက် MYANWEI မှရေးသားပြုစုထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီရင်ခံစာဖြစ်သည်။ အဆိုပါ လေ့လာဆန်းစစ်ခြင်း၏ ရည်ရွယ်ချက်များမှာ-

- ✓ သဘာဝပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားပတ်ဝန်းကျင်အပေါ်စီမံကိန်းဆောင်ရွက်ချက်များကြောင့် ထိခိုက်မှုများကိုလေ့လာရန်။
- ✓ ထိုထိခိုက်မှုများကို လျှော့ချနိုင်ရန် လျှော့နည်းစေမည့်နည်းလမ်းများကို ဖော်ပြရန်။
- ✓ စီမံကိန်းအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို ပြင်ဆင်ရန်နှင့် အကောင်အထည်ဖော်ရန်။
- ✓ စီမံကိန်းအတွက်ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အစီရင်ခံစာလုပ်ဆောင်ရာတွင်လုံလောက်မှုရှိစေရန်။
- ✓ ဒေသခံများ၏ လူမှုရေးသက်သာချောင်ချိမှုများ တိုးမြှင့်ရန် နှင့် ဒေသအတွင်း ဖွံ့ဖြိုးတိုးတက်မှုများ အတွက်မရှိမဖြစ် အရေးပါသော လူမှုစီးပွားတာဝန်ယူမှု အစီအစဉ်အား အကောင်အထည်ဖော်ရန်တို့ ဖြစ်ပါသည်။

အဆိုပြုထားသော စီမံကိန်း၏ ရည်ရွယ်ချက်သည် CMP စနစ် (ဖြတ်-လုပ်-ထုတ်) စနစ်ကို အသုံးပြု၍ အရုပ်အမျိုးမျိုးကို ထုတ်လုပ်ပီး နိုင်ငံခြားသို့ ၁၀၀% တင်ပို့ရန်ဖြစ်ပါသည်။

### ဥပဒေနှင့် မူဝါဒဆိုင်ရာ အချက်အလက်များ

EMP ရေးဆွဲခြင်း၏ရည်ရွယ်ချက်မှာ နိုင်ငံတော်နှင့် နိုင်ငံတကာမှ ချမှတ်ထားသော ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအစီအစဉ်များ၊ စည်းမျဉ်းစည်းကမ်းများ၊ ဥပဒေနှင့် နည်းဥပဒေများကို လိုက်နာပြီး

**Environmental Management Plan**

ပတ်ဝန်းကျင်နှင့် လိုက်ရောညီထွေမှုရှိသော ထိခိုက်မှု လျော့ချရေး အစီအစဉ်များ ပြုလုပ်ရန်ဖြစ်ပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အစီရင်ခံစာ ရေးသားပြုစုသူများ၏ ကျွမ်းကျင်မှု နယ်ပယ်ဆိုင်ရာ ဖော်ပြချက်များကို ရေးသားဖော်ပြထားပါသည်။ ဥပဒေနှင့် နည်းဥပဒေ အခန်းတွင် MONREC မှ ထုတ်ပြန်ထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများ၊ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များအပြင်စက်ရုံနှင့် ဆက်စပ်သက်ဆိုင်နေပြီး လိုက်နာရမည့် ဥပဒေနှင့် နည်းဥပဒေများ၊ ဒေသတွင်း သို့မဟုတ် အပြည်ပြည်ဆိုင်ရာ သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုပတ်ဝန်းကျင်ဆိုင်ရာ မူဝါဒများ၊ ဆက်စပ်နေသည့် နိုင်ငံတကာသဘောတူချက်များကို အကျဉ်းချုပ်ရေးသားဖော်ပြထားပါသည်။ စက်ရုံအတွင်းလိုက်နာ ဆောင်ရွက်ရမည့် စည်းမျဉ်းစည်းကမ်းများ၊ လုပ်ငန်းခွင် အန္တရာယ်ကင်းရှင်းရေးနှင့် ကျန်းမာရေးဆိုင်ရာ အခြေခံစည်းမျဉ်းစည်း ကမ်းများလည်း ထည့်သွင်းဖော်ပြထားပါသည်။ Sunny Arts and Crafts Company Limited ၏ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ကတိကဝတ်များအပြင် ပတ်ဝန်းကျင်ထိခိုက်မှုလျော့ချရေး မူဝါဒများကိုလဲ ထည့်သွင်းဖော်ပြထားပါသည်။

1. The Constitution Law, 2008
2. The Environmental Conversation Law, 2012
3. The Environmental Conversation Rule, 2014
4. Environmental Impact Assessment Procedure, 2015
5. National Environmental Quality (Emission) Guideline, 2015
6. National Myanmar Environmental Policy, 2019
7. Foreign Investment Law, 2012
8. Foreign Investment Rule, 2013
9. Myanmar Investment Rule, 2017
10. Myanmar Insurance Law, 1993
11. Payment of Wages Law, 2016
12. The Payment of Wages Act, 1936
13. Yangon City Development Committee Law, 2018
14. The Amended Law for Factories Act, 1951 (2016)
15. The Private Industrial Enterprise Law
16. The Export and Import Law, 2012

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17. The Prevention of Hazard from Chemical and Related Substances Law, 2013
18. The Underground Water Act
19. Myanmar Fire Brigade Law, 2015
20. Fire Safety Procedure
21. The Electricity Law, 2014
22. Labor Dispute Settlement Law, 2012
23. The Law Amending the Settlement of Labor Dispute Law, 2019
24. The Social Security Law, 2012
25. The Employment and Skill Development, 2013
26. The Worker's Compensation Act, 1923
27. The Leave and Holidays Act (1951, partially reused in 2014)
28. The Minimum Wage Law, 2013
29. Public Health Law, 1972
30. Prevention and Control of Communicable Disease Law (1995 Amendment in 2011)
31. Occupational Safety and Health Law, 2019
32. The Law on Standardization
33. လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများဆိုင်ရာ ဥပဒေ၊ (2018)
34. The Motor Vehicles Law, 2015
35. The Conservation of Water Resources and River Law, 2006
36. The Commercial Tax Law (1990 Amended 2014)

**စီမံကိန်းဆိုင်ရာအချက်အလက်**

ရင်းနှီးမြှုပ်နှံသူ၏ အချက်အလက်

ရင်းနှီးမြှုပ်နှံသူ အမည်	Mr. Lu Chonggao
ID No.:	120567470/EB0146186
နိုင်ငံသား	တရုတ်နိုင်ငံသား

## Environmental Management Plan

မှတ်ပုံတင်သွင်းသည့် လိပ်စာ	Room 1002, Unit 4, Building 2, No.1, Jida Road, Zhuhai, Guangdong, China.
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အဆိုပြုထားသော စီမံကိန်း၏ အဓိကလက္ခဏာများ

အဆိုပြုထားသော စီမံကိန်း	CMPစနစ်ဖြင့်အရုပ်အမျိုးမျိုးထုတ်လုပ်ခြင်းလုပ်ငန်း (Christmas handicrafts, material plasticine modeling clay)
ရင်းနှီးမြှုပ်နှံမှုပုံစံ	၁၀၀% နိုင်ငံခြားသားရင်းနှီးမြှုပ်နှံမှု
ရှယ်ယာအမျိုးအစား	ပုံမှန်အစုရှယ်ယာ
မြေနေရာပုံစံ	စက်မှုဇုန်မြေ
စုစုပေါင်းမြေကွက်ဧရိယာ	၁.၁၀၄ ဧက (၄၄၆၇.၇၃ စတုရန်းမီတာ)
မြေငှားကာလ	၁၅ နှစ်
တည်ဆောက်မှုကာလ	၁ နှစ်
အဆိုပြုရင်းနှီးမြှုပ်နှံမှုကာလ	၁၅ နှစ်
စီမံကိန်း တည်နေရာ	မြေကွက်အမှတ်၁၀၂၊မြေတိုင်းရပ်ကွက်အမှတ်အပိုင်း-၄၊လှိုင်သာယာစက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။
ဆက်သွယ်ရန် ဖုန်းနံပါတ်	Mr. Guo Hom Yuom ၀၉-၉၆၈၀၅၉၈၇ 2297885789@qq.com

Sunny Arts and Crafts Company Limited ၏ အရုပ်စက်ရုံသည် မြေကွက်အမှတ်၁၀၂၊မြေတိုင်းရပ်ကွက်အမှတ်အပိုင်း-၄၊လှိုင်သာယာစက်မှုဇုန်၊လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးတွင် တည်ရှိပါသည်။ စက်ရုံ၏အကျယ်အဝန်းမှာ ၁.၁၀၄ ဧက (၄၄၆၇.၇၃ စတုရန်းမီတာ) ရှိပြီး ဝန်းအတွင်းတွင် (၈၀ပေ x ၂၀၀ပေ) ရှိသော (၁) ထပ်အဆောက်အဦး (၁) လုံး၊ (၃၉ပေ x ၂၈ပေ) ရှိသော (၂) ထပ် အဆောက်အဦး (၁) လုံး၊ စုစုပေါင်းအဆောက်အဦး (၂) လုံး ရှိပါသည်။



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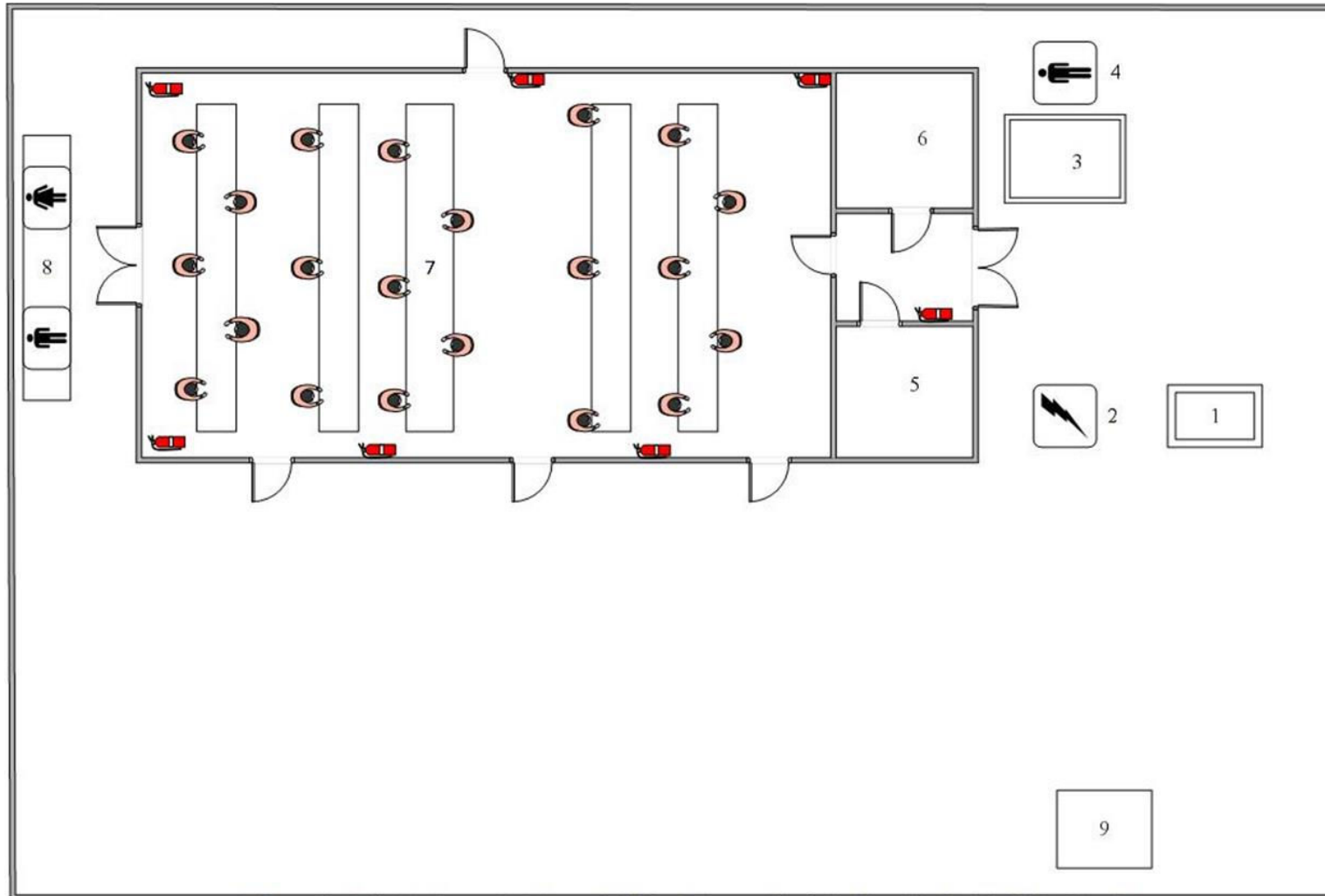
စက်ရုံတည်နေရာပြ မြေပုံ





စက်ရုံတည် ဆောက်ထားမှု ပုံစံ

Environmental Management Plan



1. Security Gate 2. Generator Room 3. Water Storage Tank 4. Security Toilet 5. Meeting Room  
6. Office 7. Operation Area 8. Toilets 9. Transformer

စက်ရုံတည်ဆောက်ထားမှု မြေပုံ

## Environmental Management Plan

Sunny Arts and Crafts Company Limited ၏ကုန်ကြမ်းပစ္စည်းများမှာ PVC paste resin, Zinc stearate, White Carbon Black, Titanium dioxide ဆိုးဆေး, အရောင်တင်အမှုန့်, Plasticizer, Polypropylene, Iron fittings, Bubble Film, Polyအိတ်, Polystyrene နှင့် ကတ်ထုပုံးများဖြစ်ပြီး တရုတ်နိုင်ငံ မှ တင်သွင်းပါသည်။ ကုန်ကြမ်းများကို ကုန်ကြမ်းသိုလှောင်ခန်းတွင် စနစ်တကျ သိုလှောင်ထားရှိပါသည်။

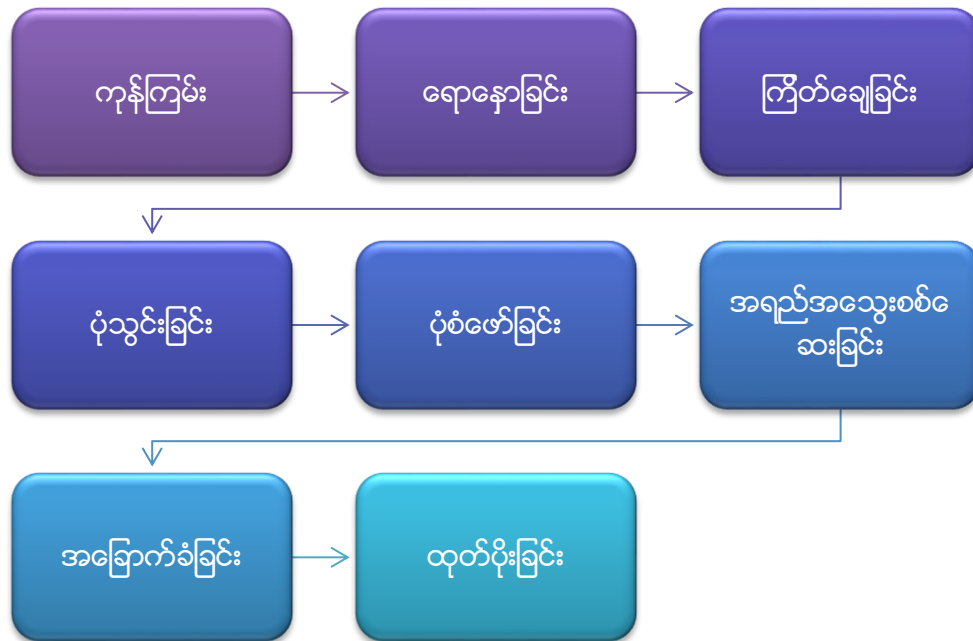


## ကုန်ကြမ်းထားရှိမှု စာတံပုံ

Sunny Arts and Crafts Company Limited ၏အဓိကထုတ်ကုန်များမှာ Christmas Decorations (Clay dough Christmas ornaments) ဖြစ်ပါသည်။ အဆိုပြုလုပ်ငန်းအတွက် တည်နေရာနှင့် စက်ရုံအတွင်းပါရှိသည့် အဆောင်များ၊ စားသောက်ဆောင်၊ စတိုး၊ ပြုပြင်ထိန်းသိမ်းရေးအခန်း၊ မီးဖိုချောင် အစရှိသည်တို့ကိုသီးခြားဖော်ပြထားပါသည်။ ထို့အပြင် ထုတ်လုပ်မှုနည်းလမ်းများ၊ လိုအပ်သည့်ကုန်ကြမ်းများ၊ နှစ်စဉ်ထွက်ကုန်များ နှင့် စက်ပစ္စည်းများအား ဖော်ပြထားပါသည်။ အဆိုပြုလုပ်ငန်းအတွက်လိုအပ်သည့် စွမ်းအင်နှင့် အသုံးပြုသည့်ပမာဏများကိုလဲ ထည့်သွင်းဖော်ပြထားပါသည်။ ကျန်လုပ်ငန်းသုံးယာဉ်နှင့် ရုံးသုံးပစ္စည်းများကို ပြည်တွင်းမှ ဝယ်ယူအသုံးပြုပါသည်။ ကုန်ထုတ်လုပ်ခြင်းလုပ်ငန်းမှာ automatic machine နှင့် လူစွမ်းအားကို အသုံးပြုသော လုပ်ငန်းမျိုးဖြစ်ပါသည်။ ထုတ်လုပ်ပုံအဆင့်ဆင့်ကို အောက်ဖော်ပြပါ ပုံပြဇယားဖြင့် ဖော်ပြထားပါသည်။



## Environmental Management Plan



## ထုတ်လုပ်ပုံ လုပ်ငန်းအဆင့်ဆင့်

လုပ်ငန်းမှ ပထမနှစ်မှ ၆ နှစ်အတွင်းအရုပ်အရေအတွက် (၄၀၀,၀၀၀) မှ (၁,၂၂၀,၇၀၃) အထိ တိုးမြှင့်ထုတ်လုပ်သွားမည်ဖြစ်သည်။ နိုင်ငံခြားသားလုပ်သား (၁၀)ဦး နှင့် နိုင်ငံသား (ပြည်တွင်း)လုပ်သား (၃၀၀) ဦးဖြင့် ဆောင်ရွက်သွားမည်ဖြစ်သည်။ EMPအတွက်ကွင်းဆင်းလေ့လာချိန်တွင် စက်ရုံ၌ လက်ရှိ လူဦးရေဖြင့် ထုတ်လုပ်မှုအချို့ပြုလုပ်နေပြီး ပြင်ဆင်မှုများလဲပြုလုပ်နေသည်ကို တွေ့ရှိခဲ့ပါသည်။ စက်ရုံ၏ လုပ်ငန်းလည်ပတ်မှုကြောင့်လည်း သဘာဝပတ်ဝန်းကျင်အပေါ် ဆိုးဆိုးဝါးဝါးထိခိုက်မှု မရှိကြောင်း လေ့လာတွေ့ရှိခဲ့ပါသည်။





ထုတ်ကုန်ဓာတ်ပုံ

### အနီးပတ်ဝန်းကျင် အခြေအနေ

ကနဦးစစ်တမ်းကောက်ယူခြင်းနှင့် ဒေသဆိုင်ရာမှအချက်အလက်များရယူခြင်းသည် အလွန်အရေးကြီးပါသည်။ ပတ်ဝန်းကျင်အရည်အသွေး တိုင်းတာခြင်းကဲ့သို့သော ကနဦးစစ်တမ်းကောက်ယူခြင်းသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီရင်ခံစာတွင် အရေးပါသောအခန်းအဖြစ် တည်ရှိနေသည်။ ထို့အတွက် စီမံကိန်းဒေသသို့ ကွင်းဆင်းလေ့လာမှုများကို ၉ ရက်၊ ဇူလိုင်လ၊ ၂၀၂၀ တွင် လက်တွေ့ကွင်းဆင်းလေ့လာခဲ့ပြီး လိုအပ်သည့် လေအရည်အသွေး၊ ဆူညံမှု၊ အလင်း၊ အပူချိန်နှင့် စိုထိုင်းမှု အစရှိသည့် အချက်အလက်များကို ရယူခဲ့ပါသည်။ ကွင်းဆင်းလေ့လာထားသည့် အချက်အလက်များကို သက်ဆိုင်ရာခေါင်းစဉ်အလိုက် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များနှင့် နှိုင်းယှဉ်၍ ဖော်ပြထားပါသည်။ ထို့အပြင် စက်ရုံတည်နေရာနှင့် သက်ဆိုင်သည့် အချက်အလက်များဖြစ်သော လူမှုစီးပွားအခြေအနေ၊ ရူပပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များ၊ ဇီဝပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များ၊ ရာသီဥတုဆိုင်ရာ အချက်အလက်များ အစရှိသည်များကို

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ရန်ကုန်တိုင်းဒေသကြီး၊ လှိုင်သာယာမြို့နယ်မှ တရားဝင်ပြဌာန်းထားသော မြို့နယ်ဆိုင်ရာအချက်အလက်များမှ ကိုးကားဖော်ပြထားပါသည်။

## အဆိုပြုလုပ်ငန်း၏စစ်တမ်းကောက်ယူမှု

အမျိုးအစား	ရလဒ်
<b>ရာသီဥတုအခြေအနေ</b>	
အပူချိန်	၄၂.၃ °C
စိုထိုင်းဆ	၅၆ %
<b>ရူညံသံ</b>	
လုပ်ငန်းဆောင်ရွက်ရာနေရာ	၆၄.၁ dBA
<b>လေထုအရည်အသွေး</b>	
PM10	၁၅.၉၉ µg/m <sup>3</sup>
PM2.5	၁၀.၉၅ µg/m <sup>3</sup>

## ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့် လျော့ချရေး အစီအစဉ်

အဆိုပြု စီမံကိန်း၏ အဓိကဖြစ်ပေါ်စေနိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုကို အခြေခံစစ်တမ်းများ ပေါ်မူတည်၍ ယေဘုယျ နည်းလမ်းများအတိုင်း လျော့ချမှုများ ပြုလုပ်သွားပါမည်။ ပတ်ဝန်းကျင် ထိခိုက်မှုကို လေ့လာဆန်းစစ်ရာတွင် စီမံကိန်းကာလအတွင်း ထိခိုက်မှု တစ်ခုချင်းစီ၏ ပမာဏ၊ ကြာမြင့်ချိန်၊ ကျယ်ပြန့်မှုနှင့် ဖြစ်နိုင်ချေတို့အား ဖော်ပြထားပါသည်။

အကဲဖြတ်ခြင်း	အတိုင်းအတာ				
	၁	၂	၃	၄	၅
ပမာဏ	မလုံလောက်သော	အနည်းငယ်နှင့် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	အသင့်အတင့်နှင့် အနည်းငယ် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	မြင့်မားသော သိသာစွာလုပ်ငန်းခွင်ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	အလွန်မြင့်မားသော အမြဲတမ်းလုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော
အချိန်	၀-၁ နှစ်	၂-၅ နှစ်	၆-၁၅ နှစ်	လုပ်ငန်း လည်ပတ်စဉ် ကာလ တစ်လျှောက်	လုပ်ငန်းပိတ်သိမ်းခြင်းကာလအထိ
ကျယ်ပြန့်မှု	လုပ်ငန်းခွင်အတွင်း	ဒေသအတွင်း	မြို့နယ်အတွင်း	နိုင်ငံအတွင်း	နိုင်ငံတကာအတွင်း
ဖြစ်နိုင်ချေ	လုံးဝ မဖြစ်နိုင်သော	မဖြစ်နိုင်သော	ဖြစ်နိုင်သော	ဖြစ်နိုင်ချေမြင့် သော	အတိအကျ

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$$\text{သတ်မှတ်ချက်} = (\text{ပမာဏ} + \text{အချိန်} + \text{ကျယ်ပြန့်မှု}) * \text{ဖြစ်နိုင်ချေ}$$

ပတ်ဝန်းကျင်ထိခိုက်မှုကို အောက်ပါအတိုင်း ခွဲခြားနိုင်သည်။

သတ်မှတ်ချက်	ထိခိုက်မှုအဆင့်
<၁၅	အလွန်နိမ့်
၁၅ - ၂၉	နိမ့်
၃၀ - ၄၄	အလယ်အလတ်
၄၅ - ၅၉	မြင့်
၆၀	အလွန်မြင့်

ပတ်ဝန်းကျင် လက္ခဏာ	လုပ်ငန်းလုပ်ဆောင်မှု	ထိခိုက်မှုအဆင့်	လျော့ချရေးနှင့် ထိန်းချုပ်မှု
တည်ဆောက်ရေးကာလ။ ။ပတ်ဝန်းကျင်ထိခိုက်မှုလေ့လာချိန်တွင် စက်ရုံတည်ဆောက်ပြီး လုပ်ငန်းလည်ပတ်နေချိန်ဖြစ်သောကြောင့် ဤကာလကိုထည့်သွင်း မစဉ်းစားတော့ပါ။			
လုပ်ငန်းလည်ပတ်ခြင်းကာလ			
လေထုညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>သယ်ယူပို့ဆောင်ရေးသုံး မော်တော်ယာဉ်တို့ကြောင့် ဖုန်မှုန့်နှင့် ဖန်လိုအိမ်ဓာတ်ငွေ့ ထွက်ခြင်း</li> <li>လုပ်ငန်းခွင်အတွင်းဖုန်မှုန့်ထွက်ခြင်း</li> <li>အရေးပေါ်သုံးမီးစက်မှ စွန့်ထုတ်အနီးအငွေ့ထွက်ခြင်း</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>စက်ရုံအတွင်းနှင့် အနီးအနားတွင် သစ်ပင်ပန်းမံ စိုက်ပျိုးခြင်းဖြင့် carbon ထွက်ရှိမှုကို လျော့ချပေးခြင်း။</li> <li>NOx ထွက်ရှိမှုနည်း သော နည်းပညာဖြင့် စက်ပစ္စည်းများသုံးခြင်း။</li> <li>စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း။</li> </ul>
ရေ	<ul style="list-style-type: none"> <li>မိလ္လာစွန့်ထုတ်ရေ</li> <li>စက်ပစ္စည်း၊ မော်တော်ယာဉ်များမှ ဆီယိုဖိတ်ခြင်း</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>လက်ရှိရေဆိုးစွန့်ပစ်မှုပုံစံဖြစ်သော မိလ္လာစနစ်ကို ပုံမှန်စစ်ဆေးပေးခြင်း။</li> <li>မိလ္လာကန်နှင့် မိလ္လာ စနစ်ကိုလူဦးရေနှင့် သင့်တင့်သည့် ပမာဏ ရှိရန် စီစဉ်ထားခြင်း။</li> <li>ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ပေးခြင်း။</li> <li>စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း။</li> </ul>
မြေဆီလွှာညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>မတော်တဆ စက်ပစ္စည်း၊ မော်တော်ယာဉ်များ မှ ဆီယိုဖိတ်ခြင်း</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း။</li> <li>မတော်တဆမှု မဖြစ်စေရန်</li> </ul>



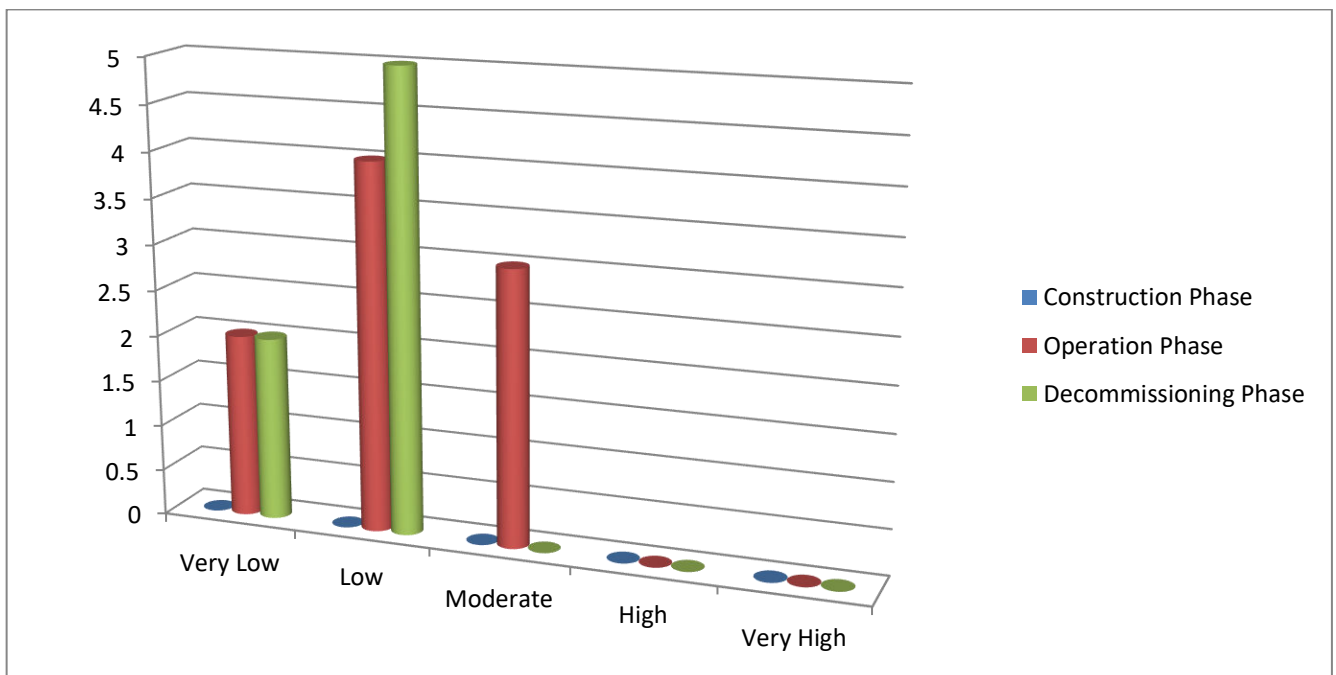
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			ထိန်းသိမ်းခြင်း။
ဆူညံသံ	<ul style="list-style-type: none"> <li>မီးစက်၊ လေမှုတ်စက် နှင့် မော်တော် ယာဉ် အသုံးပြုမှုကြောင့် ပတ်ဝန်းကျင် ဆူညံမှု</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>ဆူညံသံထွက်သောနေရာများကို အကာအကွယ် ဖြင့်ထားရှိခြင်း။</li> <li>စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင်ပေးခြင်း။</li> </ul>
မီးဘေးအန္တရာယ်	<ul style="list-style-type: none"> <li>ကုန်ကြမ်းသိုလှောင်မှု နှင့် လျှပ်စစ်သုံးစွဲ ပေါ့လျော့မှု</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>ကုန်ကြမ်းများအား သီးသန့်ထားရှိခြင်း။</li> <li>လျှပ်စစ်သုံးစွဲမှုများအား စနစ်တကျ အသုံးပြုစေခြင်း။</li> </ul>
စွန့်ပစ်အမှိုက်	<ul style="list-style-type: none"> <li>ထုတ်လုပ်ရာတွင် ထုပ်ပိုးခြင်းမှထွက်ရှိသည့်အမှိုက်များနှင့် ရုံးတွင်းစွန့်ပစ်ပစ္စည်းများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>စွန့်ပစ်အမှိုက်များအား ပြန်လည်သုံးစွဲရန် နှင့် စွန့်ပစ်ရန် အဖြစ်သတ်မှတ်ပြီး သီးခြားစွန့်ပစ်စေခြင်း။</li> </ul>
စွန့်ပစ်အရည်	<ul style="list-style-type: none"> <li>စားသောက်ဆောင် တို့မှစွန့်ထုတ်ရေ။ မိလ္လာကန်စနစ်။</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>စွန့်ပစ်အမှိုက်များအား ပြန်လည်သုံးစွဲရန် နှင့် စွန့်ပစ်ရန် အဖြစ်သတ်မှတ်ပြီး သီးခြားစွန့်ပစ်စေခြင်း။</li> </ul>
အန္တရာယ်ရှိအမှိုက်	<ul style="list-style-type: none"> <li>စက်များမှ ဆီယိုစိမ့်မှုများ၊ မော်တော်ယာဉ်များ ပြုပြင်ထိန်းသိမ်းမှုမှ ထွက်ရှိသည့် အမှိုက်များ။</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စက်သုံးဆီများအားစနစ်တကျ အသုံးပြုစေခြင်း။ စနစ်တကျသိုလှောင်ခြင်း နှင့် အန္တရာယ်ရှိပစ္စည်းများအား စနစ်တကျထားရှိစေခြင်း။</li> </ul>
လူမှုစီးပွားဘဝ	<ul style="list-style-type: none"> <li>ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင်အခွင့်အလမ်းများ ရရှိစေခြင်း</li> </ul>		
<b>လုပ်ငန်းပိတ်သိမ်းခြင်းကာလ</b>			
လေထုညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>အဆောက်အဦများ ဖြိုချမှုများ</li> <li>ဖြိုချပစ္စည်းများ သယ်ယူမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>NOxထွက်ရှိမှုနည်းသောနည်းပညာဖြင့် စက်ပစ္စည်းများသုံးခြင်း။</li> <li>စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း။</li> </ul>
ရေ	<ul style="list-style-type: none"> <li>ဖြိုချပစ္စည်းများနှင့် မိလ္လာဖျက်ဆီးမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ပေးခြင်း။</li> <li>စက်ပစ္စည်းများကို ပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း။</li> </ul>
မြေဆီလွှာညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>အဆောက်အဦနှင့် ဆက်စပ်ပစ္စည်းများ</li> <li>ဖြိုချပစ္စည်းများ သယ်ယူမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>မတော်တဆမှု မဖြစ်စေရန် ထိန်းသိမ်းခြင်း။</li> </ul>
အမှိုက်စွန့်ပစ်မှု	<ul style="list-style-type: none"> <li>အဆောက်အဦများ</li> <li>ဖြိုချပစ္စည်းများ သယ်ယူမှုများ</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စွန့်ပစ်အမှိုက်များအား ပြန်လည်သုံးစွဲရန် နှင့် စွန့်ပစ်ရန် အဖြစ်သတ်မှတ်ပြီး သီးခြားစွန့်ပစ်စေခြင်း။</li> </ul>
အန္တရာယ်ရှိအမှိုက်	<ul style="list-style-type: none"> <li>စက်များမှ ဆီယိုစိမ့်မှုများ။</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စက်သုံးဆီများအားစနစ်တကျ</li> </ul>

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	မော်တော်ယာဉ် များ ပြုပြင်ထိန်းသိမ်းမှု မှ ထွက်ရှိသည့်အမှိုက်များ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ		အသုံးပြုစေခြင်း။ • စနစ်တကျသိုလှောင်ခြင်း နှင့် အန္တရာယ်ရှိပစ္စည်းများအား စနစ်တကျထားရှိစေခြင်း။
မတော်တဆ ထိခိုက်မှုများ	• အဆောက်အအုံများ ဖြိုချမှုများ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ	အနည်းငယ်	• မတော်တဆမှု မဖြစ်စေရန် ထိန်းသိမ်းခြင်း။
လူမှုစီးပွားဘဝ	• ဒေသခံပြည်သူများအတွက်အ လုပ်အကိုင် ခေတ္တရရှိခြင်း		

လုပ်ငန်းလည်ပတ်စဉ်ကာလတွင် သတ်မှတ်ချက်များမှာ အလယ်အလတ်အဆင့် သတ်မှတ်ချက် ၃ခု (မီးဘေးအန္တရာယ်၊ လုပ်ငန်းခွင်ဘေးအန္တရာယ်၊ စွန့်ပစ်အစိုင်အခဲ)၊ အနိမ့်ဆုံးအဆင့် သတ်မှတ်ချက် ၄ခု (လေထုအရည်အသွေး၊ ဆူညံသံနှင့် စွန့်ပစ်အရည်) နှင့် အလွန်နိမ့်သောအဆင့် သတ်မှတ်ချက် ၂ခု (ရေထုညစ်ညမ်းမှု၊ မြေဆီလွှာ၊ ကုန်းနေရေနေသတ္တဝါများ၊ ကျန်းမာရေးနှင့် အန္တရာယ်ရှိစွန့်ပစ်အမှိုက်) များနှင့် လုပ်ငန်းပိတ်သိမ်းစဉ်ကာလတွင် သတ်မှတ်ချက်များမှာ အလွန်နိမ့်သောအဆင့် သတ်မှတ်ချက် ၂ခု (စွန့်ပစ်အမှိုက်နှင့် အန္တရာယ်ရှိစွန့်ပစ်အမှိုက်) နှင့် အနိမ့်ဆုံးအဆင့် သတ်မှတ်ချက် ၅ခု (လေထုအရည်အသွေး၊ ရေထုညစ်ညမ်းမှု၊ မြေဆီလွှာညစ်ညမ်းမှု၊ ဆူညံသံနှင့် လုပ်ငန်းခွင်ဘေးအန္တရာယ်) တို့တွေ့ရှိရပြီး ၎င်းအားပုံနှင့် နှိုင်းယှဉ်ဖော်ပြထားပါသည်။



အဆိုပြုလုပ်ငန်း၏ ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုများအား နှိုင်းယှဉ်ပြပုံ

### ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှု အစီအစဉ်

အဆိုပြုလုပ်ငန်း၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတွက် Environmental Management System (EMS) စက်ဝိုင်းဖြင့် အစီစဉ်တကျ ပြုလုပ်သွားမည်ဖြစ်ပါသည်။ အစီအစဉ်တွင် စက်ရုံကြောင့် ဖြစ်ပေါ်စေနိုင်သော

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ပတ်ဝန်းကျင်နှင့် လူမှုဘဝအပေါ် ဆိုးကျိုးသက်ရောက်မှုများကို လျော့ချရေး၊ စီမံခန့်ခွဲရေးနှင့် စောင့်ကြပ်ကြည့်ရှုရေး အစရှိသည့် အစီအစဉ်များ ပါဝင်ပါသည်။ ၎င်း EMP အစီအစဉ်များကို အကောင်အထည်ဖော်ရန်အတွက် သည် စက်ရုံတွင် ကျန်းမာရေး၊ ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ပတ်ဝန်းကျင်ဆိုင်ရာ အဖွဲ့အစည်းတစ်ခုထားရှိပြီး လျော့ချရေး၊ စီမံခန့်ခွဲရေးနှင့် စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်များကို အကောင်အထည်ဖော်သွားမည်ဖြစ်ပါသည်။ အဆိုပါစက်ရုံ၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို ရေရှည်ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်သော ပတ်ဝန်းကျင် အဖြစ် အကောင်အထည်ဖော်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ဆိုင်ရာ ဆိုးကျိုးသက်ရောက်မှုများကို လျော့နည်းစေရန် စီမံခန့်ခွဲမှုအစီအစဉ်များနှင့် စောင့်ကြပ်ကြည့်ရှုမည့်အစီအစဉ်များကို အောက်ပါအတိုင်းပတ်ဝန်းကျင်ဆိုင်ရာ အကြောင်းအရာတစ်ခုချင်းစီအလိုက် ခွဲခြားထားပါသည်။

၁။ လေထုညစ်ညမ်းမှုနှင့် ဖုန်မှုန့်ဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်

- စက်ရုံတွင် ကာဗွန် နှင့် လေထုညစ်ညမ်းမှု လျော့ချရန် သစ်ပင်ပန်းပင်များ စိုက်ပျိုးထားရှိခြင်း
- စက်ရုံအတွင်း မည်သည့် စွန့်ပစ်အမှိုက်များကို မီးရှို့ဖျက်စီးခြင်းအား မပြုလုပ်စေခြင်း
- အမှုန်များသောနေရာများတွင် လုပ်ငန်းလုပ်ဆောင်ရမည့် လုပ်သားများကို မျက်နှာအုပ် (Mask) များတပ်ဆင်စေခြင်း

၂။ ရေသုံးစွဲမှုဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်

- ရေအသုံးပြုမှု အတွက် ရေအသုံးပြုမှု ထိန်းချုပ်သည့် ပစ္စည်း တပ်ဆင်ထားရှိစေခြင်း
- ရေအသုံးပြုသည့် နေရာများ ၊ အိမ်သာများတွင် ရေကို သင့်လျော်သော နည်းလမ်းနှင့် အသုံးပြုခြင်း နှင့် ထိန်းသိမ်းစောင့်ရှောက်ခြင်း ဆိုင်ရာ နည်းလမ်းများ သိရှိစေခြင်းနှင့် သင်တန်းပို့ချခြင်း

၃။ ရေဆိုးစွန့်ပစ်မှုဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်

- စက်ရုံ၏ မိလ္လာစနစ်နှင့် ရေစီးကြောင်းများနှင့် အနီးဝန်းကျင်ရှိ ရေမြောင်းစနစ်များကို ရေလုံစေခြင်းနှင့် လုံလောက်သော အရွယ်အစား ထားရှိစေခြင်း
- မိလ္လာလိုအပ်ချက်များကို ပုံမှန်စစ်ဆေးပေးခြင်းနှင့် ပြုပြင်ထိန်းသိမ်းခြင်း

၄။ အမှိုက်စွန့်ပစ်မှုဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်

- စက်ရုံအတွင်း မည်သည့်စွန့်ပစ်ပစ္စည်းများကို မြစ်၊ ချောင်း၊ အင်းအိုင် အတွင်းသို့ မစွန့်ပစ်ရ
- စွန့်ပစ်ပစ္စည်းများအား ပြန်လည်အသုံးပြုရန်နှင့် အန္တရာယ်ရှိစွန့်ပစ်ပစ္စည်းအဖြစ် ခွဲခြားစွန့်ပစ်စေခြင်း
- အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများ(ပလတ်စတစ်အိတ်ခွံ၊ စက္ကူဘူးခွံ)အား ပြည်တွင်းဝယ်ယူသူများထံ ပြန်လည်ရောင်းချစေခြင်း

## Environmental Management Plan

- အိမ်သုံးစွန့်ပစ်အမှိုက်နှင့် လုပ်သားစွန့်ပစ် အမှိုက်များကို YCDC နှင့် နေ့စဉ် စွန့်ပစ်ခြင်း
- အမှိုက်စွန့်ပစ်ခြင်းနှင့် ပတ်သက်၍ သင်တန်းပို့ချပေးခြင်း

## ၅။ ဆူညံမှုထိန်းချုပ်ခြင်းဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်

- မီးစက်အသုံးပြုမှုအတွက် အသံလုံခြုံရေးများဆောက်လုပ်ထားရှိခြင်း
- လုပ်ငန်းသုံးသည့်ယာဉ်များကို သတ်မှတ်အရှိန်ထက် ကျော်လွန်၍ မမောင်းနှင်စေခြင်း
- လုပ်ငန်းခွင်အတွင်း လုပ်သားများအတွက် တစ်ကိုယ်ရေသုံး ကာကွယ်ရေးပစ္စည်း (PPE) များလုံလောက်စွာ ထားရှိပေးခြင်း
- လုပ်သားများကို PPE အသုံးပြုမှုနှင့် ပတ်သက်၍ သင်တန်းများပို့ချပေးခြင်းနှင့် ဆူညံသံများသော နေရာတွင် အလုပ်လုပ်စဉ်တွင် PPE များကိုသေချာစွာ အသုံးပြုစေခြင်း

## ၆။ အရေးပေါ်တုံ့ပြန်ရေး အစီအစဉ်

- မီးသတ်ကိရိယာများနှင့် မီးသတ်နည်းစနစ်များကို လုပ်ငန်းဆောင်ရွက်သည့် နေရာတိုင်းတွင် ထားရှိပေးခြင်းနှင့် သိရှိစေခြင်း
- မီးဘေးကာကွယ်ရေး လမ်းကြောင်းမြေပုံ အသေးစိတ်ကို ပြုလုပ်ထားရှိရန်နှင့် လုပ်သားများကို အသိပေးထားခြင်း
- လုပ်သားများကို ငလျင်လှုပ် လျှင် လုပ်ဆောင်ရမည့် အချက်များကို အသိပေးထားခြင်း
- စက်ရုံ၏ ဆေးဘက်ဆိုင်ရာ အဖွဲ့အစည်းမှ ရှေးဦးသူနာပြုစုနည်းများ အတွက် ပြင်ဆင်ထားရှိခြင်း
- မီးသတ်တပ်ဖွဲ့ ၊ ကယ်ဆယ်ရေးအဖွဲ့များ ဖြင့် လုံခြုံရေးကော်မတီ ဖွဲ့စည်းခြင်း၊ ကော်မတီမှ လုံခြုံရေး စီမံခန့်ခွဲရေး နှင့် ပတ်သက်သည်များ ဆွေးနွေးရန် လစဉ် အစည်းအဝေးများ ပြုလုပ်စေခြင်း

## ၇။ စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်

## ၈။ လူမှုအကျိုးတူ ပူးပေါင်းပါဝင်မှု အစီအစဉ် CSR Plan

## ၉။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတွက် ငွေကြေးလျာထားမှု

## ၁၀။ မကျေနပ်မှု ဖြေရှင်းခြင်း နည်းလမ်း

အဆိုပြုလုပ်ငန်း၏ လူထုအကျိုးတူပူးပေါင်းပါဝင်မှုများအဖြစ် အကျိုးအမြတ်၏ ၂% ကို ကျန်းမာရေး၊ ပညာရေးနှင့် နယ်ပယ်ဖွံ့ဖြိုးတိုးတက်ရေးများတွင် ထည့်ဝင်လှူဒါန်းသွားမည်ဖြစ်ပါသည်။ အဆိုပြုလုပ်ငန်း၏ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးလုပ်ဆောင်ရမည့် လုပ်ငန်းစဉ်များနှင့် ဖြေရှင်းရမည့်နည်းလမ်းများကိုလဲ ထည့်သွင်းဖော်ပြထားပါသည်။



## Environmental Management Plan

သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း

သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း အစီအစဉ်ကို ၁၇ ရက်၊ ဇူလိုင်လ၊ ၂၀၂၀ ခုနှစ်တွင် လှိုင်သာယာမြို့နယ်၊ SKY Hotel အစည်းအဝေးခန်းမတွင် ပြုလုပ်ခဲ့ပါသည်။ တွေ့ဆုံပွဲ အစည်းဝေးတွင် သက်ဆိုင်ရာ အစိုးရအဖွဲ့ရုံး၏ တာဝန်ရှိပုဂ္ဂိုလ်များ၊ စက်မှုဇုန်စီမံခန့်ခွဲမှုကော်မတီ၏ တာဝန်ရှိပုဂ္ဂိုလ်များမှ လိုအပ်သည်များကို အကြံပေးခြင်း၊ စီမံကိန်း၏ အစီရင်ခံစာတွင် လိုအပ်သည်များကို ဖြည့်စွက်ပေးရန် အကြံပြုချက်များပေးခဲ့ပါသည်။ ပြုလုပ်ခဲ့သည့် အစီအစဉ်အကျဉ်းကိုပါ ထည့်သွင်းဖော်ပြထားပါသည်။

လူထုတွေ့ဆုံပွဲအကျဉ်းချုပ်

အချိန်	သောကြာနေ့၊ ဇူလိုင်လ ၁၇ရက်၊ ၂၀၂၀ ပြည့်နှစ်။
နေရာ	SKY Hotel အစည်းအဝေးခန်းမ၊ လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်မြို့။
အစီအစဉ်အကျဉ်း	<ul style="list-style-type: none"> <li>• စက်ရုံနောက်ခံအကြောင်း</li> <li>• စက်ရုံလုပ်ငန်းအကြောင်း</li> <li>• ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့် လျော့ချရေးအစီအစဉ်</li> <li>• ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်</li> <li>• အမေးအဖြေကဏ္ဍ</li> </ul>

နိဂုံး

စီမံကိန်းဖော်ဆောင်သည့် အချိန်အတွင်း ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုများ၊ လျော့ချရေး နည်းလမ်းများ၊ အစီအစဉ်များ၊ တိုင်းတာမှုများ စသည့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်များကို လုပ်ဆောင်ရပါသည်။ Sunny Arts and Crafts Company Limited မှ စက်ရုံတွင် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတွက် အဖွဲ့အစည်းဖွဲ့စည်းခြင်း၊ ပုံမှန်ဆန်းစစ်လေ့လာခြင်းများ ပြုလုပ်သွားမည်ဖြစ်ပါသည်။ ပတ်ဝန်းကျင် လေထုအရည်အသွေး၊ မိလ္လာစနစ်၊ စွန့်ပစ်အပိုင်အခဲ စွန့်ပစ်မှုများကို စက်ရုံ၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အဖွဲ့အစည်းမှ ဆန်းစစ်သွားမည်ဖြစ်ပါသည်။ အဆိုပြုစီမံကိန်းမှ လူထုအကျိုးပြုလုပ်ငန်းများ နှင့် အရေးပေါ်ဆောင်ရွက်ချက်များ၊ ဒေသဆိုင်ရာ အကျိုးပြုလုပ်ငန်းများကို လုပ်ဆောင်သွားမည်ဖြစ်ပါသည်။

အကျဉ်းချုပ်အားဖြင့် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်၏ လမ်းညွှန်ချက်များ၊ ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသော မူဝါဒလမ်းညွှန်ချက်များအတိုင်း ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှု အလေ့အကျင့်များ၊ လုပ်ငန်းစဉ်များနှင့် လိုက်နာဆောင်ရွက်ကျင့်သုံးရန်တာဝန်များကို ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်တွင် ဖော်ပြရှင်းလင်းတင်ပြထားပါသည်။ စီမံကိန်းနှင့် သက်ဆိုင်သူများအား စီမံကိန်းဆိုင်ရာ အကြောင်းအရာများ ရှင်းလင်းတင်ပြခြင်း၊ အကြံပြုချက်များနှင့် ဆွေးနွေးတင်ပြလာသည့် သဘောထား အကြံဉာဏ်များကိုရယူပြီး အစီအရင်ခံစာတွင် ဖော်ပြထားပါသည်။

## Environmental Management Plan

အကြံပြုချက်များအရ-

- အစီရင်ခံစာတွင် ဖော်ပြထားသည့် ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် ကတိကဝတ်များကို စီမံကိန်း၏ သက်တမ်းတလျှောက်တွင် အကောင်အထည်ဖော် ဆောင်ရွက်ပါမည်။
- အစိုင်အခဲနှင့် အရည် စွန့်ပစ်ပစ္စည်းများကို ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးကော်မတီ၏ စည်းကမ်းများအတိုင်း စွန့်ပစ်ပါမည်။
- အလုပ်သမားများအား သင့်တော်သော သင်တန်းများပေးခြင်း၊ လုပ်ငန်းခွင်အတွင်း တစ်ကိုယ်ရည် ကာကွယ်ရေး ပစ္စည်းများ အသုံးပြုစေခြင်းများ ဆောင်ရွက်ပါမည်။
- ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်များကို နေ့စဉ်၊ လစဉ်နှင့် နှစ်စဉ် လုပ်ငန်းခွင်အတွင်း လုပ်ဆောင်မည်။
- ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ် မှတ်တမ်းများကို သေချာသိမ်းဆည်း၍ တတိယအဖွဲ့အစည်း သို့ တင်ပြမည်။
- ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်၏ လမ်းညွှန်ချက်များ၊ ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသော မူဝါဒ လမ်းညွှန်ချက်များအတိုင်း ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှု အလေ့အကျင့်များ၊ လုပ်ငန်းစဉ်များနှင့် လိုက်နာဆောင်ရွက်ပါမည်။

အချုပ်အားဖြင့်ဆိုသော် အဆိုပြုသူသည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာနမှ ညွှန်ကြားလာသော အဆိုပြုချက်များ၊ အကြံပြုချက်များကို လိုက်နာဆောင်ရွက်ရမည်။ ထိရောက်သော ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုကို အဆိုပြုသူမှ ဆောင်ရွက်ရမည်။ အဆိုပြုသူသည် ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်၏ လမ်းညွှန်ချက်များ၊ ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသော မူဝါဒ လမ်းညွှန်ချက်များအတိုင်း လိုက်နာဆောင်ရွက်မည်။

## EXECUTIVE SUMMARY

### Introduction

Environmental Management Plan is required for ensuring sustainable development. It should not affect the surrounding environment adversely. The management plan presented in this chapter needs to be implemented by the proposed expansion of Sunny Arts and Crafts Company Limited. The Environmental Management Plan (EMP) aims at controlling pollution at source with available and affordable technology followed by treatment measures. Waste minimization and waste recycling measures are emphasized. In addition to the industry specific control measures, the proposed industry should adopt following guidelines.

The project is new investment for Manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis 100% Export from China. The project is issued by the Yangon Region Investment Committee (YRIC) on 09 December 2019 with the Endorsement No. (YGN- 299/2019). YRIC notified for the environmental approval and comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC) on the proposed project and had approved the proposal for investment in Manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis under the name of Sunny Arts and Crafts Company Limited as a solely owned foreign investment from the China.

According to the Myanmar Environmental Conservation Law (2012), it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry of Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD), said project requires an Environmental Management Plan (EMP) to meet the environmental assessment requirements of Notification No. Yaka- 1/3/4 (EIA) (2595/2019) on 25 November 2019. Therefore, Sunny Arts and Crafts Company Limited commissioned Myanwei Environmental Solutions Company Limited (MYANWEI) for EMP report study. The specific objectives of this study are;

- ✓ Identify the major impacts that are may arise from the activities of the proposed project on natural environmental and socio-economic environment of the project area
- ✓ Describe the mitigation measures to minimize these impacts
- ✓ Prepare and implement Environmental Management Plan for the project
- ✓ Make sure that EMP is developed sufficiently and sound for the proposed project and
- ✓ Corporate Social Responsibility Plan (CSR Plan) plays an essential part for the improvement of the social welfare of community as well as development of the region.

The proposed project aims to Manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis and 100% export to foreign country.

The main purpose of this EMP report is to obey the rule and regulation of Local and International Environmental Protection programs and harmonize with the environmental and also describes the responsible person and his responsibility.

**Policy, Legal and Institutional Framework**

National Laws and Regulations, International Guidelines are referred for Environmental Management Plan of the proposed project.

1. The Constitution Law, 2008
2. The Environmental Conversation Law, 2012
3. The Environmental Conversation Rule, 2014
4. Environmental Impact Assessment Procedure, 2015
5. National Environmental Quality (Emission) Guideline, 2015
6. National Myanmar Environmental Policy, 2019
7. Foreign Investment Law, 2012
8. Foreign Investment Rule, 2013
9. Myanmar Investment Rule, 2017
10. Myanmar Insurance Law, 1993
11. Payment of Wages Law, 2016
12. The Payment of Wages Act, 1936
13. Yangon City Development Committee Law, 2018
14. The Amended Law for Factories Act, 1951 (2016)
15. The Private Industrial Enterprise Law
16. The Export and Import Law, 2012
17. The Prevention of Hazard from Chemical and Related Substances Law, 2013
18. The Underground Water Act
19. Myanmar Fire Brigade Law, 2015
20. Fire Safety Procedure
21. The Electricity Law, 2014
22. Labor Dispute Settlement Law, 2012
23. The Law Amending the Settlement of Labor Dispute Law, 2019

**Environmental Management Plan**

24. The Social Security Law, 2012
25. The Employment and Skill Development, 2013
26. The Worker's Compensation Act, 1923
27. The Leave and Holidays Act (1951, partially reused in 2014)
28. The Minimum Wage Law, 2013
29. Public Health Law, 1972
30. Prevention and Control of Communicable Disease Law (1995 Amendment in 2011)
31. Occupational Safety and Health Law, 2019
32. The Law on Standardization
33. လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများဆိုင်ရာ ဥပဒေ (2018)
34. The Motor Vehicles Law, 2015
35. The Conservation of Water Resources and River Law, 2006
36. The Commercial Tax Law (1990 Amended 2014)

**Project Description****Information of Investor**

Investor Name:	Mr. Lu Chonggao
ID No.:	120567470/ EB0146186
Citizenship:	Chinese
Address of Registration office:	Room 1002, Unit 4, Building 2, No.1, Jida Road, Zhuhai, Guangdong, China.

**Salient Features of the Proposed Project**

Type of Proposed Business	Manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis
Type of investment	100% foreign investment
Type of Share	Ordinary Share
Type of land	Industrial Land
Total land area	1.104 Acres (4467.73 sq-meter)
Land lease year	15 years
Construction period	1 year
Investment Period	15 years
Address	Plot No. (102), Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar

**Environmental Management Plan**

	Township, Yangon Region.
Contact person	Mr. Guo Hom Yuom 09-96805987 2297885789@qq.com

Sunny Arts and Crafts Company Limited is located at North Latitude 16°51'29.97"N and East Longitude 96° 3'27.57"E, Land Plot No.102, Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon Region. The total area of project site is 1.104 acres (4467.73 square meters). There are designed by two buildings. One building has one storey (80ft x 200ft) and another one building has two storeyed (39ft x 28ft) for production. Transformer room and generator room are separated by main factory building structure. The factory layout plan which is also can be seen in this report.



Environmental Management Plan



Location map of Sunny Arts and Crafts Company Limited

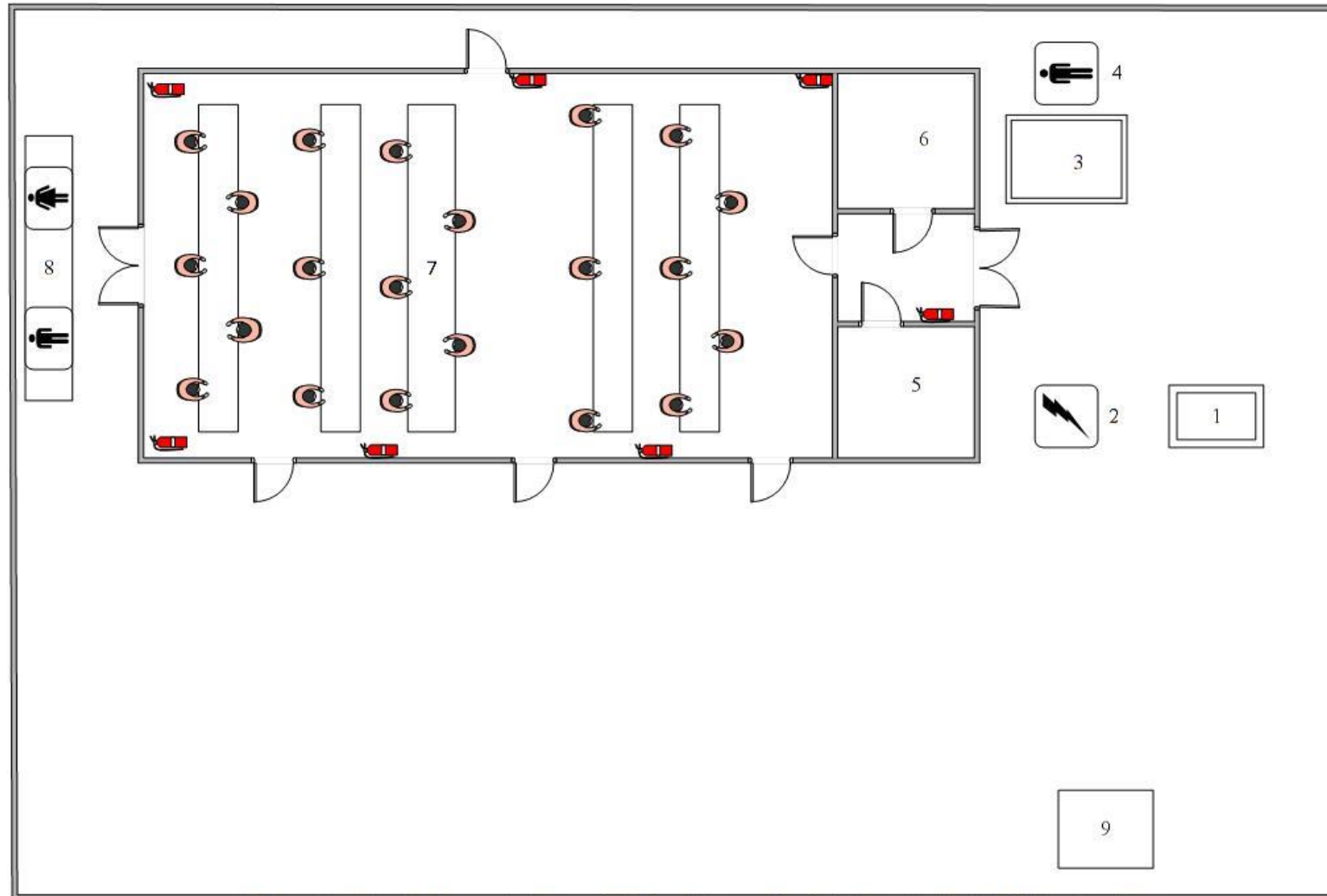




Sunny Arts and Crafts Company Limited Site Layout Drawing



Environmental Management Plan



1. Security Gate 2. Generator Room 3. Water Storage Tank 4. Security Toilet 5. Meeting Room  
6. Office 7. Operation Area 8. Toilets 9. Transformer

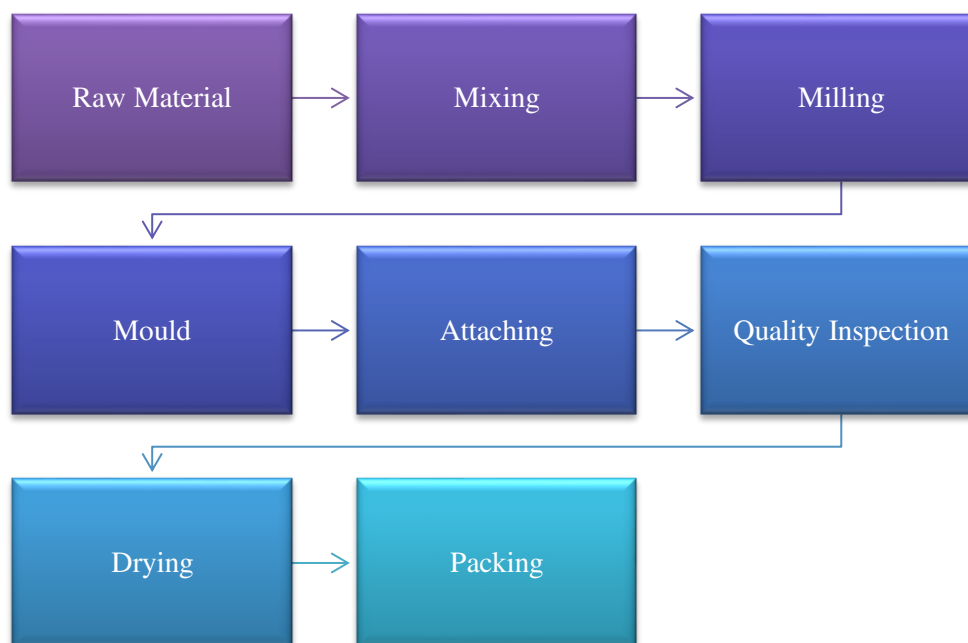
Factory Layout Drawing

**Environmental Management Plan**

The raw main materials of Sunny Arts and Crafts Company Limited are PVC paste resin, Zinc stearate, White Carbon Black, Titanium dioxide pigment, Color powder, Plasticizer, Polypropylene, Iron fittings, Bubble Film, Poly Bag, Polystyrene and Carton which imported from China which are stored in factory warehouse.

**Raw Storage Photo**

The main products of the Sunny Arts and Crafts Company Limited are Christmas Decorations (Clay dough Christmas ornaments). The Utilities for proposed factory include electrical power, fuel oil for emergency used generator and water for domestic use. Electric power is used for the purpose of to provide lighting.

**Production Process**

Production rate of Sunny Arts and Crafts Company Limited is produced between first year of operation and (6) years operation as 400,000 to 1,220,703 pieces annually. It's required of work force (10) foreign technicians and 300 local employees for first year operation to (6) years operation. Moreover, the factory is installed and upgrading for operation with current employees during our site

**Environmental Management Plan**

survey for EMP report. Sunny Arts and Crafts Company Limited is using ground water for both industrial and household purpose, which is supplied by deep tube well. The factory also has generators for electricity generation. The fuel used in the industry is Diesel. The sanitary liquid waste of the factory is stored in septic tank. The wastewater discharge from the factory is estimated about 930m<sup>3</sup> per month.





## Environmental Management Plan



Product Photos

**Brief Description of Surrounding Environment**

For environmental baseline, data were collected by onsite measurements analysis during operation phase on 09 July 2020. On-site measurement was taken by air quality, temperature, humidity, noise level and operation light condition at the factory. Moreover, secondary data collection of proposed project site area such as socio-economic condition, physical/ biological environment, weather data were collected from official township data was obtained from Regional Data of Hlaing Thar Yar Township.

**Survey Result in Proposed Project**

Type	Result
<b>Weather Condition</b>	
Indoor Temperature	42.3 °C
Humidity	56 %
<b>Noise Level</b>	
Project Site (Operation Area)	64.1 dBA
<b>Air Quality</b>	
PM <sub>10</sub>	15.99 µg/m <sup>3</sup>
PM <sub>2.5</sub>	10.95 µg/m <sup>3</sup>

**Potential Environmental Impact and Mitigation Measure**

The development of infrastructure for the proposed project likely to happen changes in the local environment in terms of physical, biological and socio-economic aspects along with the perspective on both positive and negative impacts. The potential environmental impacts brought by various activities of proposed factory project will be identified and judged by site surveying with checklist, meeting with client team, including plant manager and supervisor, representatives from the factory operators and assessing the environmental baseline information for operation and decommissioning phases along with its mitigation measure.

## Environmental Management Plan

## Impact Assessment Parameter and Its skill

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

## Evaluation of Significant Impacts and Mitigation

Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance
		M	D	E	P	SP	
Construction Phase; It is not assessed in this phase, because of construction is already completed during EMP preparation.							
Operation Phase							
Air pollution	<ul style="list-style-type: none"><li>Dust and GHGs emission from vehicles used for transporting raw materials and final products</li><li>Particulate matters emission from the activities of production process</li><li>Emission from emergency diesel generator</li></ul>	2	4	2	3	24	Low
Water pollution	<ul style="list-style-type: none"><li>Sewage disposed of from the toilets</li><li>Oil spill and grease leaks from transporting vehicles and machinery equipment used in operation phase</li></ul>	2	4	2	3	24	Low
Soil Contamination	<ul style="list-style-type: none"><li>Accidental spillage of oil used by vehicles operating</li></ul>	1	4	1	2	12	Very Low
Noise Pollution	<ul style="list-style-type: none"><li>Generating noise from the production machinery</li><li>Noise from the generating of the emergency generators</li></ul>	2	4	1	3	21	Low
Fire Hazard	<ul style="list-style-type: none"><li>Poor electrical installations</li><li>waste disposed area</li><li>Raw materials storage</li></ul>	3	5	2	4	40	Moderate
Solid waste	<ul style="list-style-type: none"><li>Residual pieces of fabric scraps from the production lines</li><li>Waste from packaging materials</li><li>Waste from kitchen, dormitory and office.</li></ul>	2	4	1	4	28	Low

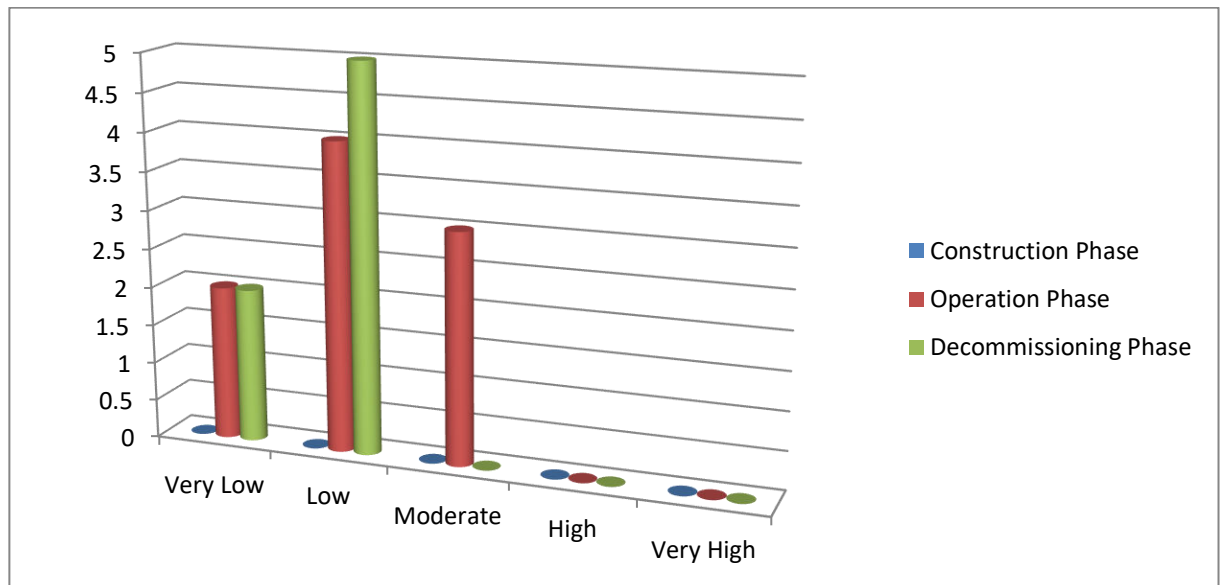
## Environmental Management Plan

Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance
		M	D	E	P	SP	
Liquid waste	<ul style="list-style-type: none"> <li>Septic system and sewage.</li> <li>Domestic liquid waste disposal from office, kitchen and dormitory.</li> </ul>	2	4	2	4	32	Moderate
Hazardous waste	<ul style="list-style-type: none"> <li>Engine oil leaks, spills at diesel storage and during fuel refueling.</li> <li>Used oil and lubricant discharged from the maintenance of vehicles and machines.</li> </ul>	2	4	1	2	14	Very Low
Occupational Health and Safety (Accidents, Injuries)	<ul style="list-style-type: none"> <li>Accidental cases cause by operating machines.</li> <li>Electricity and emergency diesel generators.</li> <li>Unloading, mixing, cutting, pressing and packaging activities.</li> <li>Accidental cases of thermic fluid heater</li> </ul>	3	4	1	4	32	Moderate
Social-economic Condition	<ul style="list-style-type: none"> <li>Job opportunities for local people</li> </ul>	-	-	-	-	-	Positive Impact
<b>Decommissioning Phase</b>							
Air pollution	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	4	20	Low
Water pollution	<ul style="list-style-type: none"> <li>Sewage form decommissioning workers</li> <li>Demolition machinery equipment</li> </ul>	3	1	1	3	15	Low
Soil Contamination	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Noise Pollution	<ul style="list-style-type: none"> <li>Decommission activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Waste disposal	<ul style="list-style-type: none"> <li>Sewage system</li> <li>Demolished debris such as bricks, concrete materials</li> </ul>	2	1	1	3	12	Very Low
Hazardous waste	<ul style="list-style-type: none"> <li>Used lubricants from decommissioning vehicles and machines</li> </ul>	2	1	1	3	12	Very Low
Occupational Health and Safety (Accidents, Injuries)	<ul style="list-style-type: none"> <li>Decommissioning activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	2	3	18	Low
Social-economic Condition	<ul style="list-style-type: none"> <li>Temporary job opportunities for local people</li> </ul>	-	-	-	-	-	Positive Impact

The assessment of each impact is based on consideration of the magnitude, duration, extent and probability of activities, which are going to be carried out during operation phase. In operation phase, there are 2 very low significant impacts on environment and human (Water pollution, Soil, flora

### Environmental Management Plan

and fauna on terrestrial and aquatic life, health and hazardous waste), 4 low significant impacts on environment and human (Air, Noise and vibration and liquid waste) and 3 moderate significant impacts on environment and human (Fire, Occupational safety and solid waste). In decommissioning phase 2 very low significant impacts on environment and human (waste disposal and hazardous waste). 5 low significant impacts on environmental and human (air, water pollution, soil contamination, noise and vibration and occupational health and safety). Significance impacts on environmental and human and detail impact assessment for operation phases and decommissioning can be seen in above tables. All of the impacts during operation phases and decommissioning phase can be minimized by using mitigation measures and implementing Environmental Management Plan.



**Comparison of Impact Significant of Proposed Project**

### Environmental Management Program

The proposed project of environmental management plan, which need to made the Environmental Management System (EMS). In that plan, it includes not only reducing to the environmental and social-economic impact but also includes the environmental management plan and the monitoring plan. In this EMP to implement the health, safety and occupational for the industry, they need to create a team and to must be implemented that. The EMP for Sunny Arts and Crafts Company Limited has been prepared to address potential issues based upon discussion with factory management, workers, local community's view, stakeholder consultation and from the site visit of experts. The EMP is additional to and compliments the factory's safety management system. The following environmental issues that require environmental management plans based upon the potential impacts of activities by for Sunny Arts and Crafts Company Limited are as follows:

1. Air pollution/Dust Management Plan
2. Water Consumption Management Plan
3. Wastewater Management Plan
4. Solid Waste Management Plan
5. Noise Management
6. Emergency Response Plan
7. Environmental Monitoring and Reporting
8. Corporate Social Responsible (CSR) Plan

**Environmental Management Plan**

9. Budget Plan
10. Grievance Redress Mechanism

Sunny Arts and Crafts Company Limited will contribute 2% of our Net Profit to social welfare activities that will help society and country of Myanmar.

**CSR plan of Sunny Arts and Crafts Company Limited**

No.	Particle	Contribution
1.	Public school	0.5%
2.	Non-profit training	1
3.	Employee healthcare	0.5%

**Public Consulting**

This chapter presents results of public consultation and information disclosure conducted for the Sunny Arts and Crafts Company Limited. Public participation can consider as the required element of the EMP process. In this study various stakeholder participation were made. Public consultation during preparation of EMP report was conducted on July 17, 2020, following the EIA procedure. The project's stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EMP process for environmental and social clearance and issuing operation permits for proposed development projects. For this factory, relevant key offices at the national level are Environmental Conservation Department (ECD) and Industry Supervision and Inspection Department. Relevant key office at the regional level is Yangon City Development Committee (YCDC), General Administrative Department, Fire Department, Factories and General Labor Law Inspection Department, Public Health Department, Industrial Supervision and Inspection Department.

**Summary of Public Consultation**

Time and Date	Friday, July 17, 2020 10:30-12:30
Venue	SKY Hotel Meeting Room, Hlaing Tharyar Township, Yangon.
Agenda	Presentation on the Background Information of Project Project Description Impact Assessment, Environmental Mitigation Environmental Management Plan and Monitoring Plan Received and Answer from feedback of participants

**Conclusion & Recommendation**

In Conclusion, the environmental management practices, procedures and responsibilities are defined here in to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar. All the feed backs, desired and needs of local public recorded in public consultation meetings are well addressed and incorporated in formulation of EMP. It has been figured out that, the proposed garment factory is going to generate local employment opportunities and enhance capabilities and working skills of employees. Consequently, their socio-economic standard is expected to be improved and undertaking corporate social responsibilities (CSR)



**Environmental Management Plan**

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as recommended. The study further concluded that positive impacts will be of immense benefit to the local community and national development as well.

This is recommended that;

- All appropriate environmental management measures detailed in this report, together with any other environmental management commitments should be implemented throughout the entire life of the factory
- Solid wastes and liquid wastes need to dispose according to YCDC rules and regulation
- Workers should be provided proper training and it should be ensured that workers use PPE during factory operation area.
- Daily, monthly and annual action plan shall be formulated based on this EMP and practiced at operation level.
- Keep full records of environmental management activities and present to annual independent third-party environment audit.
- Abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

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

## 1. INTRODUCTION

Everyone wants to live in a place that's clean and healthy. That is why one of the world's primary concerns is the environment. As sad as it is, the world today is dying. The environment is slowly decaying, and it's all because of human negligence. Environmental Management Plan is required for ensuring sustainable development. It should not affect the surrounding environment adversely. The management plan presented. Which needs to be implemented by the proposed expansion of Sunny Arts and Crafts Company Limited. The Environmental Management Plan (EMP) aims at controlling pollution at source with available and affordable technology followed by treatment measures. Waste minimization and waste recycling measures are emphasized. In addition to the industry specific control measures, the proposed industry should adopt following guidelines.

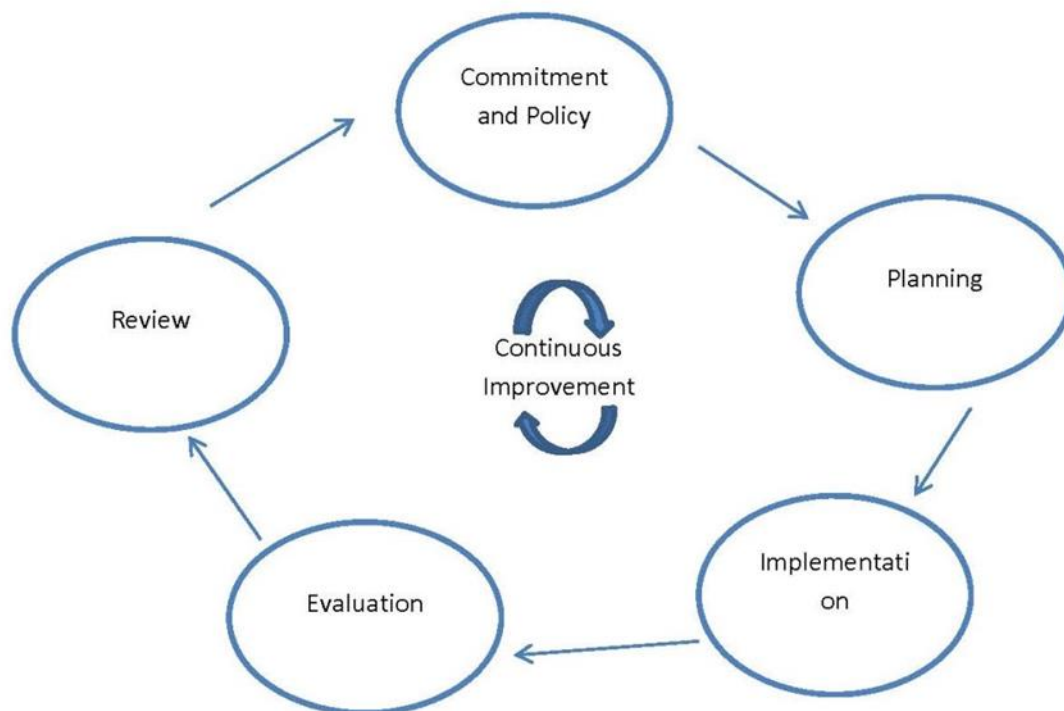
### 1.1. AIM OF ENVIRONMENTAL MANAGEMENT PLAN

- Provide environmental management plan that minimize the environmental impact of the works and identify those responsible for its implementation.
- Define the monitoring program, which assess the implementation.

### 1.2. OBJECTIVE OF ENVIRONMENTAL MANAGEMENT PLAN

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

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



**Figure 1-1 Continuous Improvement Circle**

- **Commitment and Policy** – Top management commits to environmental improvement and establishes the organization's environmental policy. The policy is the foundation of the EMS.
- **Planning** – An organization first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste that can have negative impacts on people and the environment. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. For example, an organization may choose worker health and safety, environmental compliance, and cost as its criteria. Once significant environmental aspects are determined, an organization sets objectives and targets. An objective is an overall environmental goal (e.g., minimize use of chemical X). A target is a detailed, quantified requirement that arises from the objectives (e.g., reduce use of chemical X by 25% by September 1998). The final part of the planning stage is devising an action plan for meeting the targets. This includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the targets.
- **Implementation** – An organization follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.
- **Evaluation** – A company monitors its operations to evaluate whether targets are being met. If not, the company takes corrective action.

**Environmental Management Plan**

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- **Review** – Top management reviews the results of the evaluation to see if the EMS is working. Management determines whether the original environmental policy is consistent with the organization's values. The plan is then revised to optimize the effectiveness of the EMS. The review stage creates a loop of continuous improvement for a company.

**1.2.1. Institutional Requirement**

Sunny Arts and Crafts Company Limited will manage the development of the proposed project. The project proponent should appoint Health, Safety and Environment (HSE) issues throughout the duration of the project phases. HSE team is responsible for implementation and monitoring of EMP and Environmental Monitoring Plan (EMP) as well as coordination with local authorities and the nearby communities. The HSE Team also makes regular review of EMP to cover all potential impacts, amendments and modifications.

**1.2.2. Responsibilities of the EMP**

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

**Sunny Arts and Crafts Company Limited:** The proponent will be charged with the responsibility for ensuring that the proposed development has been accomplished in an environmentally sound manner. This can be achieved by inclusion of environmental specifications in the tender specifications, selection of environmentally conscious contractors, and supervision to ensure that the objectives of this EMP are met. The implementation of Environmental Management Plan (EMP) process will prepare and follow up by appointed persons for health, safety, and environmental management under the instruction of management team of Sunny Arts and Crafts Company Limited for EMP implementation facilities.

**ECD (Yangon Region):** The responsibility of ECD is to exercise general supervision and coordinating over all matters relating to the environment and to be instrumental in providing guidance for recognized regulatory frameworks.

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

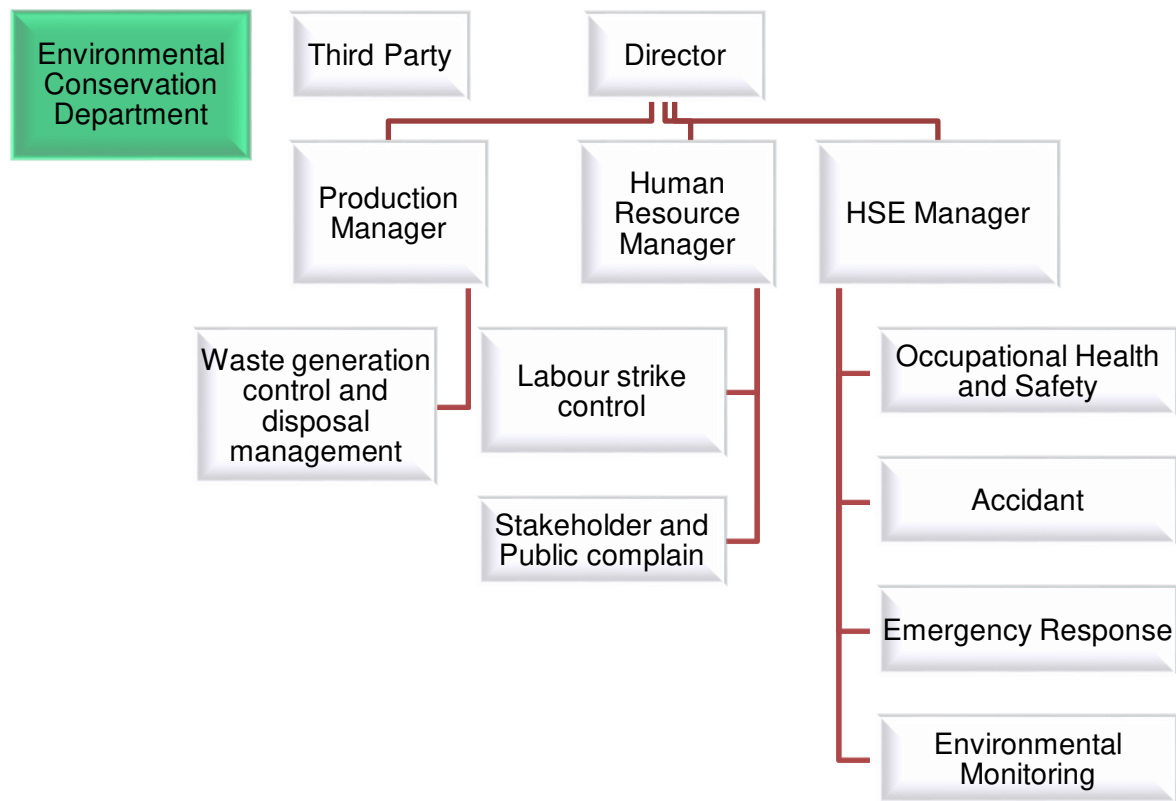
**1.2.3. Structure and Responsibilities for the EMP Development and Implementation**

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

- Ensure a monitoring system is in place to track and report all health, safety and environmental incidents;
- Carry out a thorough initial site inspection of environmental controls prior to work commencement;

**Environmental Management Plan**

- Record and provide a written report to the General Manager and production team of non-conformances with the EMP and require the HR supervisor to undertake mitigation measures to avoid or minimize any adverse impacts on environment or report required changes to the EMP.

**Figure 1-2 Organization Structure of Environmental Management Plan****Table 1-1 Responsibilities of HSE Members**

<b>Roles</b>	<b>Responsibilities</b>
General Manager	<p>The General Manager will be assisted by the Operations Manager and also the HR and HSE Officer. In terms of environmental protection commitments, the Operation Manager will be the key driving force and will be responsible for:</p> <ul style="list-style-type: none"> <li>• Establishing overall environmental direction and policy</li> <li>• Ensuring the implementation of the EMP</li> <li>• Ensuring investigation of all environmental incidents are reviewed and that reports are submitted on time</li> <li>• Ensuring an effective system of internal and external communication is in place</li> <li>• Providing advice regarding the environmental program</li> </ul>
Operation Manager	<p>The Operation Manager will assist the General Manager in looking into the overall environmental matters during the operational phase of the Project. The Operation Engineer will also be responsible for:</p> <ul style="list-style-type: none"> <li>• Adherence to the overall environmental direction and policy</li> <li>• Ensuring the implementation of the recommended actions in the investigation of all environmental incidents</li> <li>• Managing resources for operation wastes</li> </ul>
HR Manager	<p>The HR Manager will carry out the day-to-day management of workers and social issues in the factory. The HR Manager will be responsible for:</p> <ul style="list-style-type: none"> <li>• Assisting the management in publicising and implementing corporate and local policies,</li> </ul>



**Environmental Management Plan**

<b>Roles</b>	<b>Responsibilities</b>
	objectives and programs <ul style="list-style-type: none"> <li>• Maintaining key environmental-related documents and information</li> <li>• Communicating/ liaising with the local authorities on environmental issues</li> </ul>
HSE Officer	The HSE Officer will be the key person in charge of all environmental matters pertaining to the site. The HSE Officer will be responsible for: <ul style="list-style-type: none"> <li>• Coordinating the implementation of environmental programs, including monitoring of the project site environmental performance</li> <li>• Performing periodic internal environmental audits and inspections to ensure compliance with the legal environmental requirements</li> <li>• Ensure a monitoring system is in place to track and report all health, safety and environmental incidents;</li> <li>• Carry out a thorough initial site inspection of environmental controls prior to work commencement;</li> <li>• Record and provide a written report to the General Manager and production team of non-conformances with the EMP and require the HR Manager to undertake mitigation measures to avoid or minimize any adverse impacts on environment or report required changes to the EMP.</li> </ul>

**1.3. PROJECT BACKGROUND**

Sunny Arts and Crafts Company Limited is a new investment for manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis 100% export company from China. The Yangon Region Investment Committee (YRIC) issues the project on 09 December 2019 with the Endorsement No. (YGN- 299/2019). YRIC notified for the environmental approval and comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC) on the proposed project and had approved the proposal for investment in manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis under the name of Sunny Arts and Crafts Company Limited.

According to the Myanmar Environmental Conservation Law (2012), it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry of Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD), said project requires an Environmental Management Plan (EMP) to meet the environmental assessment requirements of Notification No. YaKa- 1/3/4 (EIA) (2595/2019) on 25 November 2019. Therefore, Sunny Arts and Crafts Company Limited commissioned Myanwei Environmental Solutions Co., Ltd (Myanwei) for EMP report study.

**1.3.1. Project Proponent Profile**

This is the information of project proponent from the MIC's registration that is describing in below Table 1-2 and Table 1-3. The estimated authorized capital investment is 1.2 million US Dollar (Table 1-3). Organization chart of Sunny Arts and Crafts Company Limited is presented in Figure 1-3.

**Table 1-2 Information of Investor**

Investor Name:	Mr. Lu Chonggao
ID No.:	120567470/ EB0146186
Citizenship:	Chinese

**Environmental Management Plan**

Address of Registration office:	Room 1002, Unit 4, Building 2, No.1, Jida Road, Zhuhai, Guangdong, China.
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**Table 1-3 Salient Features of the Project**

Type of Proposed Business	Manufacturing of Christmas Handicrafts, Material Plasticine Modeling Clay on CMP Basis
Type of investment	100% foreign investment
Type of Share	Ordinary Share
Type of land	Industrial Land
Total land area	1.104 acres (4467.73 sq. meter)
Total building area	Two Buildings One storeyed building (80 ft × 200 ft) and Two storeyed building (39 ft × 28 ft)
Land lease year	15 years
Construction period	1 year
Operation starting date	15 years investment permit
Address	Land Plot No.102, Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon Region.
Contact person	Mr. Guo Hom Yuom 09-96805987 2297885789@qq.com

## Environmental Management Plan

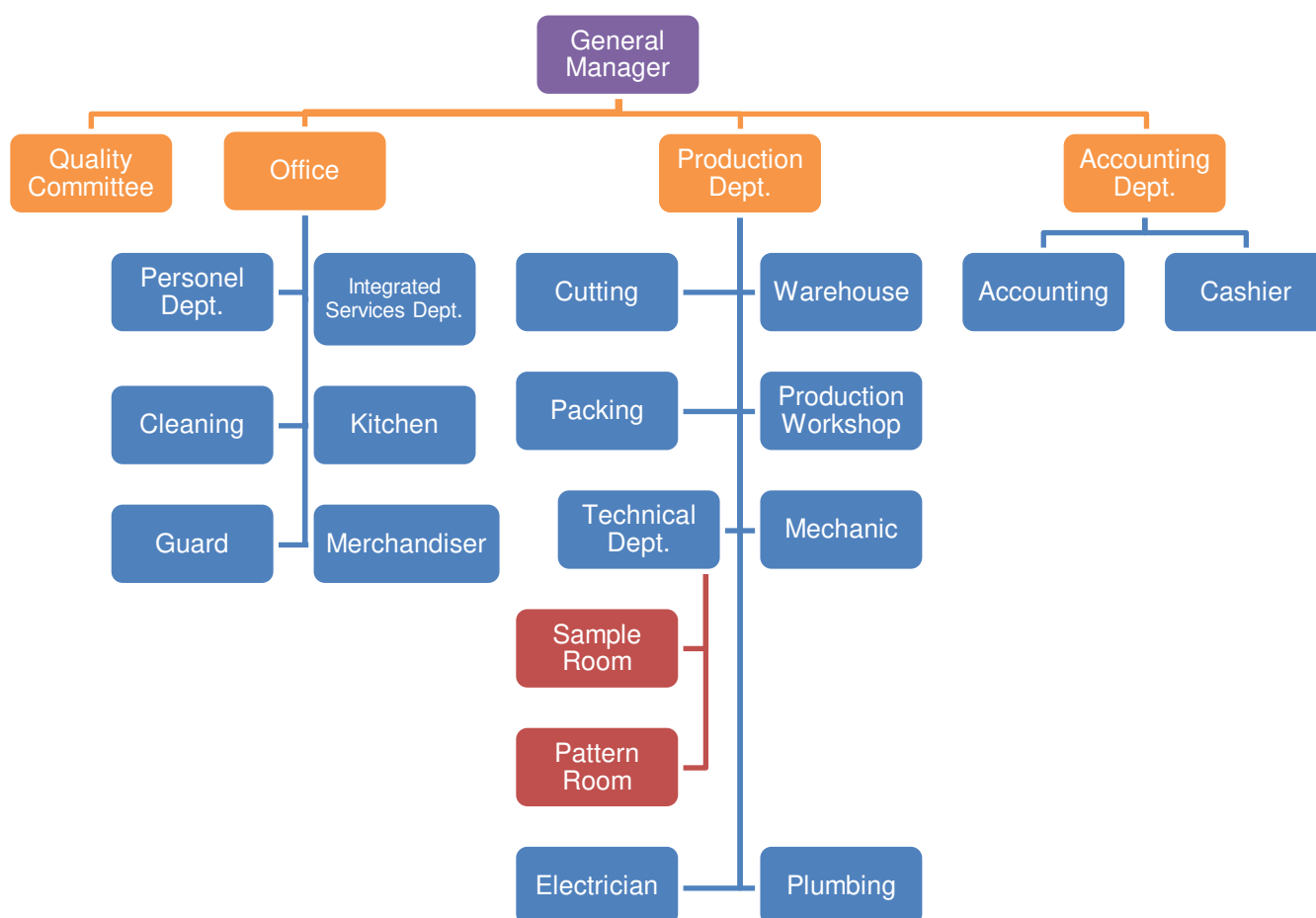


Figure 1-3 Organization chart of Sunny Arts and Crafts Company Limited

## 1.3.2. Environmental Consultant Profile

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED prepares the EMP for the proposed project. The field studies were carried out by MYANWEI having experiences in conducting environmental assessments for various types of projects in Myanmar. The MYANWEI team conducted field survey, assessment activities, and prepared the report. A reconnaissance study was performed on the proposed project site and baseline environmental data were also collected from possible sources using the appropriate measuring devices. Data interpretation and analysis were made based on those collected data for the present and potential future conditions. Suitable measures were proposed for the impacts to be mitigated to reduce to acceptable ones. The environmental study was carried out by the study team and the following is a summary of team member's responsibilities during the study period.

Myanwei Environmental Solutions Company Limited	No. 36-38, 9 <sup>th</sup> floor (A), Grand Myay Nu Condo, Myay Nu Street, Sanchaung Township, Yangon, Myanmar.	01-501221 env@myanweiconsulting.com www.myanwweiconsulting.com.
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Table 1-4 Member of EMP Study Team

Name	Qualification	Responsibility
MYANWEI	Transition Consultant Registration	EIA Organisation

## Environmental Management Plan

Name	Qualification	Responsibility
<b>ENVIRONMENTAL SOLUTIONS LIMITED</b>	<b>Certificate No. 0069</b>	
Mr. Lin Htet Sein	MSc (Regional Geology) BSc (Hons) Geology Dip in Environmental Science Certificate in Environmental & Social Assessment <b>TCR No. 0048</b>	Project Director, Environmental consultant, project management
Dr. Hein Lynn Aung	M.B, B.S (Yangon), Business Management (International Collage of Management Sydney, Australia)	Project Director, Public health consultant, project management
Ms. Wah Wah Zaw	B.E Material and Metallurgy Engineering Diploma in Environmental Planning and Management M.S Environmental Planning and Management	Senior Environmental Consultant, Social and Environmental Research, Quality control, Environmental planning and Management
Ms. Khin Thu Zar Myint	B.E(Materials and Metallurgy) Dip in Environmental Planning and Management	Senior Environmental Consultant, Social Research, Public consultation, social economic investigation
Ms. Su Myat Hlaing	B.E. Civil Engineering B. Tech Civil Engineering	Environmental Engineer
Mr. Kyaw Win Han	B.E. Chemical Engineering B. Tech Chemical Engineering	Junior Environmental Consultant, Team leader of baseline survey, monitoring measure
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Mr. Myat Ko Ko	B.Sc (Hons) Geology M.Sc. Geology (Economic and Mining) Certificate of Environment Management	Junior Environmental Consultant, monitoring measure, document administration
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## 2. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

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

### 2.1. MYANMAR REGULATORY FRAMEWORK

Myanmar has 24 ministries under the Office of the President as of May 2016. The leading ministries in-charge of environmental and social considerations is the Environmental Conservation Department (ECD) of the MONREC that was reorganized Ministry of Environmental Conservation and Forestry (MOECF) in April 2016.

#### 2.1.1. Laws and Regulations Related to Environmental and Social Considerations

Requirements related to environmental (and social) impact management for development projects are described in **Error! Reference source not found..**

**Table 2-1 List of Myanmar's Law Relating to Environmental Management**

Law and Regulation	Description
National Environmental Policy of Myanmar, (Notification No. 26/94 dated 5 December 1994)	To achieve harmony and balance between socioeconomic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all its citizens.
<b>Constitution 2008</b>	
Section 37, (a)	The Union is the ultimate owner of all lands and all-natural resources above and below the ground, above and beneath the water and in atmosphere in the Union.
Section 37, (b)	The Union shall permit citizens rights of private property, right of inheritance, right of private initiative and patent in accord with the laws.
Section 372	The Union guarantees the right to ownership, the use of property and the right to private invention and patent in the conducting of business if it is not contrary to the provisions of this Constitution and the existing laws.
Section 45	The Union shall protect and conserve natural environment.
Section 390, (a), (b), (c), (d)	Every citizen has the duty to assist the Union in preserving and safeguarding the cultural heritage, conserving the environment, striving for the development of human resources, and protecting and preserving the public property.
<b>Environmental Conservation Law, 30 March 2012</b>	
Objectives	to contract a healthy and clean environmental and to conserve natural and cultural heritage for the benefit of present and future generations; to maintain the sustainable development through effective management of natural resources and to enable to promote international, regional and bilateral cooperation in the matters of environmental conversation.
Section 3	c) to enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations; (d) to reclaim ecosystems as may be possible which are starting to degenerate and disappear; (e) to enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially;



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Law and Regulation	Description
Provisions of Duties and Powers relating to the Environmental Conservation of the Ministry: Section 7	<p>(a) To specify categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture, mineral production, sanitation and other activities;</p> <p>(b) To prescribe categories of hazardous substances that may affect significantly at present or in the long run on the environment;</p> <p>(c) To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances;</p> <p>(j) To prescribe the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms;</p> <p>(m) To lay down and carry out a system of EIA and SIA as to whether or not a project or activity to be undertaken by any Government department, organization or person may cause a significant impact on the environment;</p> <p>(o) To manage to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works.</p>
Chapter VI Environmental Quality Standards: Section 10	<p>The Ministry may, with the approval of the Union Government and the Committee, stipulate the following environmental quality standards:</p> <p>(a) suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public;</p> <p>(b) water quality standards for coastal and estuarine areas;</p> <p>(c) underground water quality standards;</p> <p>(d) atmospheric quality standards;</p> <p>(e) noise and vibration standards;</p> <p>(f) emissions standards;</p> <p>(g) effluent standards;</p> <p>(h) solid wastes standards;</p> <p>(i) other environmental quality standards stipulated by the Union Government.</p>
Section 14	A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.
Section 15	The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.
Section 16	<p>A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry:</p> <p>(a) is responsible to carry out by contributing the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste;</p> <p>(b) shall contribute the stipulated users' charges or management fees for the environmental conservation according to the relevant industrial estate, SEZ and business organization;</p> <p>(c) shall comply with the directives issued for environmental conservation according to the relevant industrial estate, SEZ or business.</p>

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Law and Regulation	Description
Section 24	The project proponent has to allow relevant governmental organization or department to inspect whether performing is conformity with the terms and condition include in prior permission, stipulated by the ministry, or not.
Section 25	The project proponent has to comply with the terms and conditions include in prior permission.
Section 29	The project proponent has to abide by the stipulations included in the rules, regulations, by-law, order, notification and procedure, which are issued by said law.
<b>Environmental Conservation Rules, 2014</b>	
Rules 58	The Ministry shall form the EIA Report Review Body with the experts from the relevant Government departments, organizations.
Rules 59	The Ministry may assign duty to the Department to scrutinize the report of EIA prepared and submitted by any organization or person relating to EIA and report through the EIA Report Review Body.
Rules 61	The Ministry may approve and reply on the EIA report o IEE or EMP with the guidance of the Committee.
Sub-rule (a) of rule 68	The project proponent has to avoid emit, discharge or dispose the materials which can pollute to environment, or hazardous waste or hazardous material prescribed by notification in the place where directly or indirectly injure to public.
Sub-rule (b) of rule 68	The project proponent has to avoid performing to damage to ecosystem and the environment generated by said ecosystem.
<b>Environmental Impact Assessment Procedure (December 2015)</b>	
Objectives	<p>The project proponent has to be liable for all adverse impacts caused by doing or emitting of project owner or contractor, sub-contractor, officer, employee, representative or consultant who is appointed or hired to perform on behalf of project owner, under sub-paragraph (a) of paragraph 102.</p> <p>The project proponent has to support, after consulting with effected persons by project, relevant government organization, government department and other related persons, to resettlement and rehabilitation for livelihood until the effected persons by the project receiving the stable socio-economy which is not lower than the status in pre-project, under sub-paragraph (b) of paragraph 102</p> <p>The project proponent has to fully implement all commitments of project and conditions included in EMP. Moreover, the project proponent has to be liable for contractor and sub-contractor who perform on behalf of him/her have to fully abide by the relevant laws, rules, this procedure, EMP and all conditions, under paragraph 103.</p> <p>The project proponent has to be liable and fully &amp; effectively implement all requirements included in ECC, relevant laws and rules, this procedure and standards under rule 104.</p> <p>The project proponent has to inform the completed information, after specifying the adverse impacts caused by the project, from time to time, under paragraph 105.</p> <p>The project proponent has to continuously monitor all adverse impacts in the pre-construction phrase, construction phrase, operation phrase, suspension phrase, closure phrase and post-closure phrase, moreover has to implement the EMP with abiding the all conditions included in ECC, relevant laws &amp; rules and this procedure, under paragraph 106.</p> <p>The project proponent has to submit, as soon as possible, the failures of his or her responsibility, other implementation, ECC or EMP. If dangerous impact</p>

## Environmental Management Plan

Law and Regulation	Description
	<p>caused by this failure or failure should be known by the Ministry the project proponent has to submit within 24 hours and other than this situation has to submit within 7 days from knowing it, under paragraph 107.</p> <p>The project proponent has to submit the monitoring report dually or prescribed time by Ministry in line with the schedule of EMP, under paragraph 108.</p> <p>The project proponent has to prepare the monitoring report in accord with the rule 109.</p> <p>The project proponent has to show this monitoring report in public place such as library, hall and website and office of project for the purpose to know this report by public within 10 days from the date which the report is submitted to the Ministry. Moreover, has to give the copy of this report, by email or other way which way agreed with the asked person, to any asked person or organization, under paragraph 110.</p> <p>The project proponent has to allow inspector to enter and inspect in working time and if it is needed by Ministry has to allow inspector to enter and inspect in the office and work-place of project and other work-place related to this project in any time, under paragraph 113.</p> <p>The project proponent has to allow inspector to immediately enter and inspect in any time if it is emergency or failure to implement the requirements related to social or environment or caused to it, under paragraph 115.</p> <p>The project proponent has to allow inspector to inspect the contractor and sub-contractor who implement on behalf of project, under paragraph 117.</p>
Screening: Section 23	<p>a) The project proponent shall submit the Project Proposal to the Ministry for Screening.</p> <p>b) The Ministry will send the Project Proposal to the Environmental Conservation Department to determine the need for environmental assessment.</p> <p>c) Following the preliminary Screening and verification that the Project Proposal contains all required documents and related materials, subject to Articles 8, 9, 10, 11, 26 and 27 the Department shall make a determination in accordance with Annex 1=‘Categorization of Economic Activities for Assessment Purposes’, taking into account Article 25 and the additional factors listed in Article 28 in order to designate the Project as one of the following, and then submit it to the Ministry:</p> <p>i) An EIA Type Project, or</p> <p>ii) An IEE Type Project, or</p> <p>iii) A Non IEE or EIA Type, and therefore not required to</p>
<b>National Environmental Quality (Emission) Guidelines (NEQG) (December 2015)</b>	
Objectives	To provide the basis for regulation and control of noise and vibration, air emissions, and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.
<b>National Myanmar Environmental Policy (2019)</b>	
National Environmental Policy Vision & mission	<p><b>Vision</b></p> <p>A clean environment, with healthy and functioning ecosystem, that ensures includes development and wellbeing for all people in Myanmar.</p> <p><b>Mission</b></p> <p>To establish national environmental policy principle for guiding environmental protection and sustainable development and for mainstreaming environmental consideration into all policies, laws, regulation, plans, strategic, programmes and projects in Myanmar.</p>

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Law and Regulation	Description
<b>Foreign Investment Law, 2012</b>	
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 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.
<b>Foreign Investment Rule, 2013</b>	
Rule 54	The promoter or investor shall: (a) comply with Environmental Protection Law in dealing with environmental protection matters related to the business; (b) shall carry out socially responsible investment in the interest of the Union and its people; (c) shall co-operate with authorities for occasional or mandatory inspection; (d) shall exercise due diligence to be in conformity and harmony with norms and standards prescribed by relevant Union Ministry in conducting construction of factories, workshops, buildings, and other activities; (e) shall enforce Safety and Health
<b>Myanmar Investment Rules, 2017</b>	
Rule 202	The project proponent has to comply with the conditions of the permit issued by the MIC and applicable laws when making the investment
Rule 203	The project proponent has to fully assist while negotiating with the authority for settling the grievance of the local community which has been affected due to investment
Rule 206.	The project proponent has to submit the passport, expert evidence or document of degree and profile to the MIC office for approval if decide to appoint a foreigner as senior management, technician expert or consultant according to subsection (a) of section 51 of Myanmar Investment Law
<b>Myanmar Insurance Law (1993)</b>	Section 15 - If the project proponent uses the owned vehicles the project owner has to ensure the insurance for the injured person. Section 16 - The project proponent has to ensure insurance to compensate for general damages because the project may cause damages to the environment and injury to the public.
<b>Payment of Wages Law (2016)</b>	
Section 3 & 4	The project proponent has to pay the wages in accord with section 3 and 4 of said law,
Section 5	The project proponent has to submit with the agreements of employees & reasonable ground to the department if it is difficult to pay because of force majeure included in a natural disaster

## Environmental Management Plan

Law and Regulation	Description
Section 7-13	The project proponent has to abide by the provisions of section 7 to 13 in the chapter (3) in respect of deduction from wages.
Section 14	The project proponent has to pay the overtime fees, prescribed by law, to the employees who work over working hours
<b>Yangon City Development Committee Law (2018)</b>	
Section (317)	The proponent shall not block the natural river channel, change the course, and disrupt the water channel, filling with soil within the city boundaries without the consent of the Committee
Section (318)	The project proponent shall not construct buildings, factories, and industries without sewage, toilet, septic tanks, and wastewater treatment system
Section (322)	The project proponent is not allowed to make activities that will produce noise pollution, water pollution, air pollution, and soil pollution to impact the environment within the city's boundaries
<b>The Amended Law for Factories Act, 1951 (2016)</b>	
Hygiene in Working Environment: Section 3	Mentions responsibilities of employer and manager regarding waste disposal, ventilation, extreme temperature, dust and gas generation, minimum space for each worker, lighting, portable drinking water and toilets for employees.
Safety in Working Environment: Section 4	States responsibilities of employer and manager concerning with machine guarding, personal protective equipment, housekeeping, aisles and exits, chemical storage and fire protection system to avoid accident.
<b>The Private Industrial Enterprise Law, 1990</b>	
Basic Principles: Section 3	Private Industrial Enterprises shall be conducted in accordance with the following basic principles: (a) to enhance the higher proportion of the manufacturing value added in the gross national product and value of services, and to increase the production of the respective economic enterprises which are related to the industrial enterprise; (b) to acquire modern technical know-how for raising the efficiency of industrial enterprises and to establish the sale of finished goods produced by the industrial enterprise not only in the local market, but also in the foreign market; (d) to cause narrowing down of the gap between rural development and urban development by causing the development and improvement of industrial enterprises; (e) to cause opening up of more employment opportunities; (f) to cause avoidance of or reduction of the use of technical know-how which cause environmental pollution; (g) to cause the use of energy in the most economical manner.
<b>The Export and Import Law (2012)</b>	
Objectives	The objectives of this law are as follows: a) To enable to implement the economic principles of the State successfully. b) To enable to lay down the policies relating to export and import that supports the development of the State. c) To cause the policies relating to export and import of the State and activities are to be in conformity with the international trade standards.



## Environmental Management Plan

Law and Regulation	Description
	d) To cause to be streamlined and speedy in carrying out the matters relating to export and import.
Prohibitions: Section 5	No persons shall export or import restricted, prohibited and banned goods.
Prohibitions: Section 6	Without obtaining license, no person shall export or import the specified goods which are to obtain permission.
Prohibitions: Section 5	A person who obtained any license shall not violate the conditions contained in the license.
<b>The Prevention of Hazard from Chemical and Related Substances Law, 2013</b>	
<p>This law was enacted with the objectives of:</p> <ul style="list-style-type: none"> <li>a. To protect from being damaged the natural environment resources and being hazardous any living beings by chemical and related substances;</li> <li>b. To supervise systematically in performing the chemical and related substances business with permission for being safety;</li> <li>c. To perform the system of obtaining information and to perform widely educative and research for using the chemical and related substance systematically;</li> <li>d. To perform the sustainable development for the occupational safety, health and environmental conservation.</li> </ul> <p>Regarding the chemical management and storage, currently, regulations governing chemicals management are divided between various Acts, mostly dating from colonial times; hence the legislation is in many respects related to the British framework. The Factory Act and the Public Health Act contain the provisions for chemicals management and storage. Some chemicals are likely to require permits.</p>	
<b>Underground Water Act</b>	
<p>The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of Burma. This act prohibits sinking of a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township Officer or sub-divisional officer had power to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land-revenue.</p>	
<b>Myanmar Fire Brigade Law (2015)</b>	
<p>The Pyidaungsu Hluttaw enacted this law by Law No.11/2015 on the date of 17th March, 2015 with the following objectives:</p> <ul style="list-style-type: none"> <li>(a) to take precautionary and preventive measures and loss of state own property, private property, cultural heritage and the live and property of public due to fire and other natural disasters</li> <li>(b) to organize fire brigade systemically and to train the fire brigade</li> <li>(c) to prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs</li> <li>(d) to educate, organize and inside extensively so as to achieve public corporation</li> <li>(e) to participate if in need for national security, peace for the citizens and law and order</li> </ul>	
<b>Section-8 Fire Safety Procedures</b>	
Rule17	<p>The relevant Government Department or organization shall, for the purpose of precaution and prevention obtain the approval of the Fire Force Department before granting permission for the following cases:</p> <ul style="list-style-type: none"> <li>a. Constructing three-storied and above buildings market and condominium buildings,</li> <li>b. Operating hotel, motel, guest house enterprise</li> <li>c. Constructing factory, workshop, storage facilities and warehouse</li> <li>d. Operating business expose to fire hazard by using in inflammable materials or explosive materials</li> </ul>

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Law and Regulation	Description
	e. Producing and selling fire-extinguishing apparatuses f. Doing transport business, public utility vehicles train, airplane, helicopter, vessel, ship, tonkin tug
Rule18	The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans
<b>The Electricity Law (2014)</b>	
In 2014, the new Electricity Law, a comprehensive piece of legislation covering licensing, a new regulatory commission, standards, inspection, tariff, and restrictions, replaced the Electricity Law of 1984. The Electricity Law divides projects into “small” (up to 10 MW), “medium” (between 10 MW to 30 MW) and large (upwards of 30 MW); the states and regions can issue permits for small and medium power plants. In case these plants are not connected to the national grid, the Union Government Ministry is not the primary authority involved. The authorities have a legal right to use land for the purpose of power plants under the Electricity Law, and have the right to expand and maintain their facilities. The law also provides that the authorities can build transmission lines in accordance with existing laws.	
<b>Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)</b>	
The Pyidaungsu Hluttaw hereby enacts this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly.	
<b>The Social Security Law (2012)</b>	
The Social Security Law, enacted in 2012, was amended the Social Security Act in 1954. It stipulates the formation and implementation of social security systems.	
Section 53(a)	The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment;
<b>Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)</b>	
This law was enacted for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. It stipulates that employer in which more than 30 workers are employed shall form the workplace coordinating committee consisting of the representatives of workers and the representatives of employer.	
Section 23	A party, employer or worker, may complain individual dispute relating to his grievance to the Conciliation Body and if he is not satisfied with the conciliation of such body in accord with stipulated manners, may apply to the competent court in person or by the legal representative.
Section 24	The relevant Conciliation Body shall, in respect of the collective dispute known or received by the complaint of either party, employer or worker, in respect of the dispute; information sent by the Minister or the Region or State Government or any other means, carry out as follows: (a) conciliating so as to be settled within three days, not including the official holidays, from the day of knowing or receipt of such dispute; (b) concluding mutual agreement if the settlement is reached in conciliating under sub-section (a), before the Conciliation Body.
Section 25	The Conciliation Body shall refer the collective dispute which does not reach settlement to the relevant Arbitration Body and inform the persons relating to the dispute.

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Law and Regulation	Description
Section 38	No employer shall fail to negotiate and coordinate in respect of the complaint within the prescribed period without sufficient cause.
Section 39	No employer shall alter the conditions of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under investigation of the dispute before the Arbitration Body or Tribunal, to affect the interest of such workers immediately.
Section 40	The project proponent has to not close the work without negotiation, discussion on dispute in accord with this law, decision by Tribunal
Section 51	The project proponent has to pay the compensation decided by Tribunal if violates any act or any omission to damage the interest of labour by reducing of product without efficient cause.
Section 46	Any employer who violates any prohibition contained in sections 38 and 39 shall, on conviction, be punished with a fine for a minimum of one-lakh kyats.
<b>The Employment and Skill Development (2013)</b>	
This law was enacted for safeguarding the right of workers or having skillful of workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. Employer shall conduct occupational training to enhance the skills of workers.	
Section 5	The project proponent has to appoint employees with the contract in line with the provision of section 5 of said law.
Section 14	Employer shall conduct occupational training to enhance the skills of workers who are to be employed as well as workers who are presently employed in accordance with the requirements of the enterprise and the policy of the Skills Development Agency.
<b>The Worker's Compensation Act, 1923</b>	It stipulates that employer is required to make payments to employees who become injured or who die in any accidents arising during and in consequence of their employment. Such compensation also must be made for diseases which arise as a direct consequence of employment, such as carpal tunnel syndrome.
<b>The Payment of Wages Act, 1936</b>	The Payment of Wage Act defines the payment obligation to the workers employed in the factories or railway administration. It stipulates the method of payment stating that the payment should be made in cash on a regular payday, and allows legal action against delayed payment or un-agreeable deduction.
<b>The Leave and Holidays Act (1951, partially revised in 2014)</b>	This act has been used as the basic framework for leaves and holidays for workers with minor amendment in 2006 and 2014. This defines the public holidays that every employee shall be granted with full payment. It also defines the rules of leaves for workers including medical leave, earned leave and maternity leave.
<b>The Minimum Wage Law (2013)</b>	The minimum wage law, passed in March 2013, was replaced the 1949 Minimum Wage Act. The law provides a framework for minimum wage determination: the presidential office establishing a tripartite minimum wage committee shall decide minimum wage with industrial variation based on a survey on living costs of workers possibly every two years. This also stipulates equal payment.
<b>Public Health Law (1972)</b>	<b>Chapter 2; Prevention of Public Health</b>
Objectives	To ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. This law focuses as follows The project owner has to cooperate with the authorized person or organization

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Law and Regulation	Description
	<p>in line with the section 3 and 5 of said law.</p> <p>The project proponent has to abide by any instruction or stipulation for public health under the section 3 of said law.</p> <p>The project proponent has to allow any inspection, anytime, anywhere if it is needed under the section 5 of said law.</p>
<b>Prevention and Control of Communicable Disease Law 1995 (Amendment in 2011)</b>	
Chapter 2 Prevention	<p>4. When a Principal Epidemic Disease of a Notifiable Disease occurs; Immunization and other necessary measures shall be undertaken by the Department of Health, in order to control the spread thereof;</p> <p>The public shall abide by measures undertaken by the Department of Health under sub-section (a).</p>
Chapter 4 Environmental Sanitation	<p>For prevention of the outbreak of Communicable Disease and effective control of Communicable Disease when it occurs, the public shall under the supervision and guidance of the Health Officer of the relevant area, undertake the responsibility of carrying out the following environmental sanitation measures;</p> <p>Indoor, outdoor sanitation or inside the fence outside the fence sanitation;</p> <p>Well, ponds and drainage sanitation;</p> <p>Proper disposal of refuse and destruction thereof by fire;</p> <p>Construction and use of sanitary latrines;</p> <p>Other necessary environmental sanitation measures.</p>
<b>Occupational Safety and Health Law (2019)</b>	
Purpose:	To effectively implement measures related to safety and health in every industry and to set occupational safety and health standards;
Section-26 Sub-section (e)	The project proponent has to provide adequate and relevant personal protective equipment to workers free of charge and make them wear it during work so as not to expose workers to any serious occupational diseases or hazards.
Section-26 Sub-section (1)	The project proponent has to arrange and display occupational safety and health instructions, warning signs, notices, posters, and signboards.
Section-30 Sub-section (a)	The worker shall wear or use at all times any protective clothes, equipment and tools provided by the employer for the purpose of safety and health.
Section-30 Sub-section (d)	The worker shall proper and systematic use any equipment and tools, machines, any parts of the machines, vehicles, electricity and other substances being used at the workplace.
Section-30 Sub-section (e)	The worker shall take reasonable care for the safety and health of himself/ herself and of other persons who may be affected by his/ her acts or omissions at work.
<b>The law on Standardization</b>	
Objectives	<p>The Objectives of this Law are as follows:</p> <ul style="list-style-type: none"> <li>to enable to determine Myanmar Standard</li> <li>to enable to support export promotion by enhancing quality of production organizations and their product, production processes and services</li> <li>to enable to protect the consumers and user by guaranteeing imports and products are not lower than prescribed standard, and safe from health hazards</li> <li>to enable to support protection of environment related to products, production process and services from impact, and conservation of natural resources</li> </ul>

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Law and Regulation	Description
	<p>to enable to protect manufacturing, distributing and importing the disqualified goods which do not meet the prescribed standard and those which are not safe and endangered to the environment</p> <p>to support on establishing the ASEAN Free Trade Area and to enable to reduce technical barriers to trade</p> <p>to facilitate technological transfer and innovation by using the standards for the development of national economic and social activities in accordance with the national development programme.</p>
Chapter 7 Taking Action by Committee No. 19	<p>The committee may, if it is found out that holder of certificate of certification violates any term or condition contained in the relevant recommendation, pass any of the following administrative order:</p> <p>warning</p> <p>suspending the certificate of certification for limited period</p> <p>cancelling the certificate of certification</p>
<b>လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများဆိုင်ရာဥပဒေ (၂၀၁၈)</b>	
ရည်ရွယ်ချက်	<p>လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများကို စနစ်တကျပြုလုပ်ခြင်း၊ တင်သွင်းခြင်း၊ သယ်ယူခြင်း၊ သိုလှောင်ခြင်းနှင့် သုံးစွဲခြင်းတို့ပြုနိုင်ရန်။</p> <p>ယမ်းဘီလူးနှင့် ဆက်စပ်သုံးပစ္စည်းများ အသုံးပြုသည့် လုပ်ငန်းခွင်ဘေးအန္တရာယ် ကင်းရှင်း၍ လုံခြုံမှုရှိစေရန်။</p> <p>လုပ်ငန်းခွင်သုံး ပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများ ပြုလုပ်သုံးစွဲမှုများကို စနစ်တကျ ကြီးကြပ်နိုင်ရန်။</p>
အခန်း ၇ တားမြစ်ချက်များ အမှတ် ၁၈	လိုင်စင်ရရှိသူနှင့် ခွင့်ပြုချက်ရရှိသူ မည်သူမျှ စစ်ဆေးရေးအရာရှိချုပ် သို့မဟုတ် စစ်ဆေးရေးအရာရှိ၏ စစ်ဆေးခြင်းကို ခံယူရန် ငြင်းပယ်ခြင်းမပြုရ။
အမှတ် ၁၉ (ခ)	ပုဒ်မ ၈ အရ ကာကွယ်ရေးဌာနကောင်စီ အမှုဆောင်အဖွဲ့၏ အတည်ပြုချက်မရရှိဘဲ လုပ်ငန်းခွင် ပေါက်ကွဲစေတက်သော ဝတ္ထုပစ္စည်းများကို ဖျက်ဆီးခြင်းမပြုရ။
အမှတ် ၁၉ (ဂ)	ဤဥပဒေအရ ထုတ်ပြန်သည့် နည်းဥပဒေ၊ စည်းမျဉ်း၊ စည်းကမ်း၊ အမိန့်ကြော်ငြာစာ၊ အမိန့်နှင့် ညွှန်ကြားချက်များနှင့်အညီ ဆောင်ရွက်ရန် ပျက်ကွက်ခြင်း မရှိစေရ။
<b>The Motor Vehicles Law (2015)</b>	
Objectives	<p>When the constructions periods and if it is needed in operation and production period for all vehicles</p> <ul style="list-style-type: none"> <li>The project proponent has to promise to abide by the nearly all provisions of said law and rules, especially the provisions related to air pollution, noise pollution and life safety.</li> </ul>
<b>The Conservation of Water Resources and Rivers Law (2006)</b>	
Aims	<p>The aims of this Law are as follows:</p> <ul style="list-style-type: none"> <li>(a) to conserve and protect the water resources and rivers system for beneficial utilization by the public;</li> <li>(b) to smooth and safety waterways navigation along rivers and creeks;</li> <li>(c) to contribute to the development of State economy through improving water resources and river system;</li> <li>(d) to protect environmental impact.</li> </ul>



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Law and Regulation	Description
Chapter 5 Prohibitions No. 8	No person shall: (a) carry out any act or channel shifting with the aim to ruin the water resources and rivers and creeks. (b) cause the wastage of water resources wilfully.
No. 10	No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks.
No.11 (a)	No person shall: dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk.
No. 12	No person shall carry out growing of garden, digging, filling, silt trapping, closing pond, dyke building or erecting spur in the river-creek boundary, bank boundary and waterfront boundary without the permission of the relevant government department and organization.
No. 15	No person shall carry out the construction of switchback, dockyard, wet dockyard, water-tight dockyard, building of jetty, pier, landing stage or vessel landing by drainage in the river-creek boundary, bank boundary and waterfront boundary without the permission of the Directorate.
<b>The Commercial Tax Law (1990) Amended 2014</b>	
Chapter 5 Registration and Intimation of Commencement of Enterprise 11 (b)	Any Person who commences operation of a goods production enterprise or service enterprise shall furnish letter of intimation on the commencement of the operation as such to the relevant Township Revenue Officer as stipulated by regulations.
Chapter 6 Monthly Payment of Tax and Sending of Three-Monthly Return 12 (a)	Any person who has taxable proceed of sale or receipt from service within a year, shall pay due monthly tax within ten days after the end of the relevant month. Moreover, a three-monthly return shall be furnished to the relevant Township Revenue Officer within one month after the end of relevant three-month.
12 (b)	The Township Revenue Officer may intimate any person to pay due monthly tax and send three-monthly return if there is cause to consider that he has taxable proceed of sale or receipt from service within a year.
12 (c)	If it is failed to pay tax under sub-section (a) or (b), or if there is cause to consider that the tax paid is less than the tax payable, the Township Revenue Officer may, based on the information received, estimate and claim the tax payable or the additional tax payable.
12 (d)	The tax paid under sub-section (a), (b) or (c) shall be set-off from the tax due in the assessment.
12 (e)	The tax payable on goods imported under sub-section (c) of section 4 of the Law shall be collected together with the customs duties by the Customs Department in accord with the manner of collecting customs duties.

**2.2. NATIONAL ENVIRONMENTAL QUALITY (EMISSION) GUIDELINES**

As specified in the EIA Procedure, all projects are obliged to use, comply with and refer to applicable national guidelines or standards or international standards adopted by the Ministry. As

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specified in the EIA Procedure, following project approval a project shall commence implementation strictly in accordance with the project EMP and any additional requirements set out in the project ECC, which will encompass conditions relating to emissions. While these Guidelines generally apply to all projects subject to the EIA Procedure, it is the prerogative of the Ministry to decide how the Guidelines should be applied to existing projects as referred to in the EIA Procedure.

According to the Environmental Conservation Law, MOECAP shall set standards of environmental qualities as agreed by the Union Government and the Environmental Conservation Committee to provide the basis for regulation and control of noise and vibration, air emissions and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.

**2.2.1. General Guidelines**

General guidelines of related environmental impact guideline for proposed project are -

**2.2.2. Air Emission**

Projects with significant sources of air emissions, and potential for significant impacts to ambient air quality, should prevent or minimize impacts by ensuring that: (i) emissions do not result in concentrations that reach or exceed national ambient quality guidelines and standards, or in their absence current World Health Organization (WHO) Air Quality Guidelines<sup>1</sup> for the most common pollutants as summarized below; and (ii) emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards (i.e. not exceeding 25 percent of the applicable air quality standards) to allow additional, future sustainable development in the same air shed. Industry-specific guidelines summarized hereinafter shall be applied by all projects to ensure that air emissions conform to good industry practice. Reference should be made to WHO's Air Quality Guidelines for Europe<sup>2</sup> for air pollutants not included in the following Table 2-2.

**Table 2-2 WHO's Air Quality Guideline**

<b>Parameter</b>	<b>Averaging Period</b>	<b>Guideline Value</b>
Nitrogen Dioxide	1-year	40
	1-hour	200
Ozone	8-hour	100
Particulate Matter PM <sub>10</sub> <sup>a</sup>	1-year	10
	24-hour	50
Particulate Matter PM <sub>2.5</sub> <sup>b</sup>	1-year	10
	24-hour	25
Sulfur dioxide	24-hour	20
	10-minute	500

<sup>a</sup> Particulate matter 10 micrometers or less in diameter

<sup>b</sup> Particulate matter 2.5 micrometers or less in diameter

**2.2.3. Wastewater**

Industry-specific guidelines apply during the operations phase of projects and cover direct or indirect discharge of wastewater to the environment. They are also applicable to industrial discharges to sanitary (domestic) sewers that discharge to the environment without any treatment. Wastewater

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generated from project operations includes process wastewater, wastewater from utility operations, runoff from process and storage areas, and miscellaneous activities including wastewater from laboratories, and equipment maintenance shops. Projects with the potential to generate process wastewater, sanitary sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety or the environment. Industry-specific guidelines summarized hereinafter shall be applied by all projects, where applicable, to ensure that effluent emissions conform to good industry practice.

For project types where industry-specific guidelines are not set out in these Guidelines, the following general guideline values, or as stipulated on a case-by-case basis, apply during project operations.

**Table 2-3 Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (general application)<sup>1</sup>**

Parameter	Unit	Guideline Values
5-day Biochemical oxygen demand	mg/l	50
Ammonia	mg/l	10
Arsenic	mg/l	0.1
Cadmium	mg/l	0.1
Chemical oxygen demand	mg/l	250
Chlorine (total residual)	mg/l	0.2
Chromium (hexavalent)	mg/l	0.1
Chromium (total)	mg/l	0.5
Copper	mg/l	0.5
Cyanide (free)	mg/l	0.1
Cyanide (total)	mg/l	1
Fluoride	mg/l	20
Heavy metals (total)	mg/l	10
Iron	mg/l	3.5
Lead	mg/l	0.1
Mercury	mg/l	0.01
Nickel	mg/l	0.5
Oil and grease	mg/l	10
pH	S.U. <sup>a</sup>	6-9
Phenols	mg/l	0.5
Selenium	mg/l	0.1
Silver	mg/l	0.5

<sup>1</sup> Pollution prevention and abatement handbook. 1998. Toward cleaner production. World Bank Group in collaboration with United Nations Environment Programme and the United Nations Industrial Development Organization.

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Sulphide	mg/l	1
Temperature increase	°C	<3 <sup>b</sup>
Total coliform bacteria	100 ml	400
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50
Zinc	mg/l	2

a Standard Unit

b At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity; when the zone is not defined, use 100 meters from the point of discharge

**2.2.4. IFC EHS Guidelines**

The EHS Guidelines<sup>1</sup> by International Finance Cooperation (IFC) are technical reference documents with general and industry-specific examples of Good International Industry practice (GIIP), as defined in IFC's Performance Standard 3: Resources Efficiency and Pollution Prevention. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

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

**Table 2-4 Community health and safety contents**

<b>Contents</b>	<b>Brief Description</b>
Water Quality and Availability	Drinking water sources should at all times be protected so that they meet or exceed applicable national acceptability standards or in their absence the current edition of WHO Guidelines for Drinking-Water Quality.  Project activities should not compromise the availability of water for personal hygiene needs and should take account of potential future increases in demand. The overall target should be the availability of 100 liters per person per day.
Structural Safety of Project Infrastructure	Reduction of potential hazards is best accomplished during the design phase when the structural design, layout and site modifications can be adapted more easily. The following issues should be considered and incorporated as appropriate into the planning, siting, and design phases of a project (1) inclusion of buffer strips or other methods of physical separation around project sites to protect the public from major hazards associated with hazardous materials incidents or process failure (2) incorporation of siting and safety engineering criteria to prevent failures due to natural risks posed by earthquakes, tsunamis, wind, flooding, landslides and fire, and (3) application of locally regulated or internationally recognized building codes, standards and regulations, and mitigation measures.
Traffic Safety	Traffic safety should be promoted by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads. Prevention and control of traffic related injuries and fatalities should include the adoption of safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents.
Transport of Hazardous Materials	Projects should have procedures in place that ensure compliance with local laws and international requirements applicable to the transport of hazardous materials.
Disease	Recommended interventions against the communicable diseases at the project level include

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<b>Contents</b>	<b>Brief Description</b>
Prevention	(1) providing surveillance and active screening and treatment of workers, (2) preventing illness among workers in local communities by undertaking health awareness and education initiatives, training health workers in disease treatment and conducting immunization programs for workers, and (3) providing treatment through standard case management in on-site or community health care facilities.
Emergency preparedness and Response	All projects should have an Emergency preparedness and Response Plan that is commensurate with the risks of the facility and that includes the following basic elements: (1) Administration (policy, purpose, distribution, definitions, etc.) (2) Organization of emergency areas (command centers, medical stations, etc. (3) Roles and responsibilities, (4) Communication systems, (5) Emergency response procedures, (6) Emergency resources, (7) Training and updating, (8) Checklists (role and action list and equipment checklist), and (9) Business Continuity and Contingency.

Source: IFC, Environmental, Health, and Safety (EHS) Guidelines, General EHS Guidelines: Community Health and Safety (April 30.20070)

### 2.3. INSTITUTIONAL ARRANGEMENT

The Ministry of Environmental Conservation and Forestry (MOECF) was reformed as the Ministry of Natural Resources and Environmental Conservation (MONREC) on 30th March, 2016 in order to undertake both environmental and natural resources conservation and management more effectively. Under Section 3 of the Environmental Impact Assessment Procedure (2015), pursuant to section 21 of the law and Articles 52, 53 and 55 of the Environmental Conservation Rules, all projects and project expansions undertaken by any organization, which may cause impact on environmental quality that, are required to obtain prior permission. This is to be in accordance with section 21 of the Environmental Conservation Law, and Article 62 of the Environmental Conservation Rules, having the potential to cause adverse impacts, that are required to undertake IEE or EIA or to develop an EMP, and to obtain an Environmental Compliance Certificate (ECC) in accordance with this EIA procedure.

### 2.4. INTERNATIONAL GUIDELINES

Organization's Guidelines, World Bank Safeguard Policies, IFC Performance Standards and National Environmental Quality (Emission) Guidelines (2015) are referred for EMP of the proposed factory project.

### 2.5. COMMITMENT OF SUNNY ARTS AND CRAFTS COMPANY LIMITED

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

Sunny Arts and Crafts Company Limited shall be responsible for the environmental assessment of factory development as follows:

- Monitoring the factory area operations according to EMP and Environmental Monitoring Plan (EMoP)
- Submitting environmental monitoring reports to ECD



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- Planning and implementation of CSR activities
- To set up welfare plan such as staff medical checkup, training program and Public talk for getting knowledge, risk prevention, bonus and social security services
- To carry out fire safety assessment and ensure adequate and appropriate fire safety measures for employees

### **3. PROJECT DESCRIPTION**

#### **3.1. LOCATION OF PROPOSED PROJECT**

The proposed project is located at North Latitude 16°51'29.97"N and East Longitude 96° 3'27.57"E, Land Plot No. 102, Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon Region. The location map of the proposed project site is shown in Figure 3-1.

#### **3.2. OBJECTIVES OF PROPOSED PROJECT**

The proposed project intends to manufacture Christmas handicrafts, material plasticine modeling clay on CMP basic and to export 100% of the finished products. Zhong Shan Rizhongtian Craft products Co., Ltd will supply raw materials for Christmas handicrafts, material plasticine modeling clay in People Republic of China. Zhong Shan Rizhongtian Craft products Co., Ltd agrees to supply to ready make products and pay CMP charges to Sunny Arts and Crafts Company Limited.

##### **3.2.1. Site Description of Proposed project site**

The total land area is 1.104 acres and build main factory buildings, warehouse, canteen, maintenance house, etc. which were built on its land area. Also, factory layout drawing is able to seen in Figure 3-2 and Figure 3-3.

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Figure 3-1 Location map of Sunny Arts and Crafts Company Limited





Figure 3-2 Sunny Arts and Crafts Company Limited Site Layout Drawing

## Environmental Management Plan

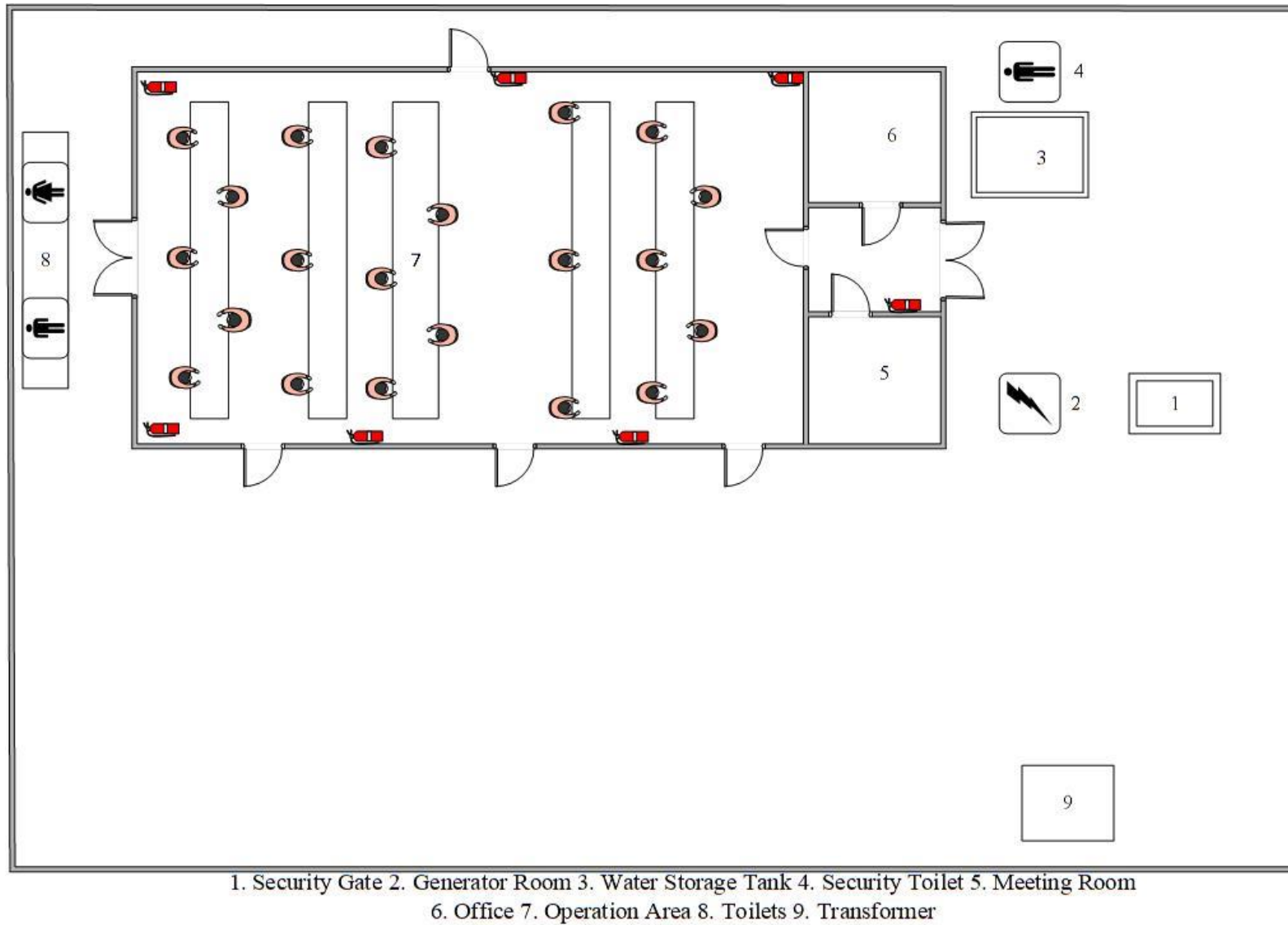


Figure 3-3 Factory Layout Drawing

### 3.3. UTILITIES

The Utilities for proposed factory include electrical power, fuel oil for emergency used generator and water for general uses. Electric power is used for the purpose of to run the machinery and to provide lighting.

#### 3.3.1. Machinery and Equipment

Lists of machinery and equipment required for the Sunny Arts and Crafts Company Limited is following in Table 3-1. The working day of the factory is at least 262 days per year.

**Table 3-1 List of Machinery**

No.	Machinery Name	Unit	Quantity
1.	Diesel generator (28KVA)	Set	1
2.	Mixer	Set	10
3.	Big oven	Set	10
4.	Extruder	Set	5
5.	Flatting mill	Set	5
6.	Blow molding machine A	Set	1
7.	Blow molding machine B	Set	1
8.	Blender	Set	1
9.	Cylinder Tank	Set	1
10.	Air compressor	Set	1
11.	Grinder	Set	1
12.	Cooling-water machine	Set	1
13.	Separator	Set	1
14.	Corner cutting machine	Set	1

#### 3.3.2. Work Force

The proposed Factory of Sunny Arts and Crafts Company Limited has most of the employees are local people, who manage the company by their dynamic, enthusiastic, experienced, and cooperative skills. Currently, one shift (8 hours + overtime 2 hours) of production is running or operating. Human resource required by foreign experts/technicians and local persons for administrative and production process are about 310 persons. Among these there are 10 of foreign persons.

**Table 3-2 Employment Schedule of Sunny Arts and Crafts Company Limited**

No.	Particular	Local	Foreign
1.	Account Manager	1	-
2.	HR Manager	1	1
3.	Interpreter	7	-
4.	Office-Staff	5	-
5.	Purchase Executive	1	-



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No.	Particular	Local	Foreign
6.	Vice Producing Manager	1	-
7.	Vice Producing Supervisor	3	-
8.	Production Line Monitor	5	-
9.	Vice Cutting Workshop Supervisor	1	-
10.	Cutting Table Monitor	4	-
11.	Vice Mechanic Supervisor	1	-
12.	Mechanic	10	-
13.	Vice Warehouse Supervisor	1	-
14.	Warehouse Executive	3	-
15.	Vice Quality Control Manager	1	-
16.	Quality Control, QC	40	1
17.	Driver	4	-
18.	Cleaner	10	-
19.	Skill Worker	20	-
20.	Semi Skill Worker	100	-
21.	Un Skill Worker	40	-
22.	Cutting Operator	20	-
23.	Sealing Section Leader	4	-
24.	Sealing Worker	10	-
25.	Security	7	-
26.	Factory Manager	-	1
27.	Executive Accountant	-	1
28.	Executive Administration	-	1
29.	Production Manager	-	1
30.	Production Dept	-	1
31.	Purchasing Manager	-	1
32.	Factory Engineer	-	1
33.	Store Supervisor	-	1
<b>Total</b>		<b>300</b>	<b>10</b>

## 3.3.3. Water Requirement

Hlaing Thar Yar Industrial Zone, Hlaing Thar Yar Township has no centralized water supply system and the factory gets water from the tube well installed inside the factory compound. The factory has one tube well depth in 150ft. During operation, the water will be pumped from the groundwater; the water is stored in the water storage tank (3,000 gallons). The factory also has a water storage tank (2,000 gallons) for firefighting. The estimated water used for processes is about 2,5000 gallons per year. Daily drinking water requirement of proposed project is about 400 liters per day. Annual drinking water consumption for the whole factory is about 32,158 gallons per year. The main water use in the

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proposed project is for domestic usage such as for personal washing, food preparation, and washing of utensils. Drinking water will be provided by outsource suppliers. Figure 3-4 is described by water filtration system and drinking water supply for Sunny Arts and Crafts Company Limited.



**Figure 3-4 Water Filtration System and Drinking Water Supply**

#### 3.3.4. Electricity and Fuel Requirement

The proposed project intended to get required electricity supply from Yangon City Electricity Supply Board (YESB) and distributed by 315 kVA of Transformer and another sources of energy 30 kVA small generator and 50 kVA big generator which also be kept as the emergency generator if normal electricity supply could not provide for the proposed project. Estimated electricity usage is about 70,000 units per month.

Required petrol and diesel for vehicles and generator are purchased from the nearest petrol station. Fuel requirement is about 600 liters per month. To handle the leakage and spillage of the diesel, an interception with sand is kept under the tank.





Figure 3-5 Electricity Facilities at Sunny Arts and Crafts Company Limited

### 3.4. PRODUCTION PROCESS

#### 3.4.1. Raw Material

The main Raw Materials are PVC paste resin, Zinc stearate, White Carbon Black, Titanium dioxide pigment, Color powder, Plasticizer, Polypropylene, Iron fittings, Bubble Film, Poly Bag, Polystyrene and Carton which imported from China. List of Raw materials are described in **Table 3-3**.

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Figure 3-6 Raw Storage Photo

Table 3-3 List of Raw Materials Requirement

No.	Particular	Unit	Year- 1	Year- 2	Year- 3	Year-4	Year-5	Year- 6-30
1.	PVC paste resin	Kgs	4,800,000	6,000,000	7,500,000	9,375,000	11,718,750	14,648,438
2.	Zinc stearate	Kgs	140,000	175,000	218,750	273,438	341,797	427,246
3.	White carbon black	Kgs	4,800,000	6,000,000	7,500,000	9,375,000	11,718,750	14,648,438
4.	Titanium dioxide pigment	Kgs	9,600,000	12,000,000	15,000,000	18,750,000	23,437,500	29,296,875
5.	Color powder	Kgs	7,200,000	9,000,000	11,250,000	14,062,500	17,578,125	21,972,656
6.	Plasticizer	Kgs	2,400,000	3,000,000	3,750,000	4,687,500	5,859,375	7,324,219
7.	Polypropylene	Kgs	960,000	1,200,000	1,500,000	1,875,000	2,343,750	2,929,688
8.	Iron fittings	Kgs	4,000,000	5,000,000	6,250,000	7,812,500	9,765,625	12,207,031
9.	Bubble film	Kgs	600,000	750,000	937,500	1,171,875	1,464,844	1,831,055
10.	Poly bag	Kgs	92,000	115,000	143,750	179,688	224,609	280,762
11.	Polystyrene	Kgs	520,000	650,000	812,500	1,015,625	1,269,531	1,586,914
12.	Carton	Kgs	6,000,000	7,500,000	9,375,000	11,718,750	14,648,438	18,310,54

## 3.4.2. Production Process

The production process is based on CMP system in which the production on consignment in which the main raw materials (PVC paste resin, Zinc stearate, White Carbon Black, Titanium dioxide pigment, Color powder, Plasticizer, Polypropylene, Iron fittings, Bubble Film, Poly Bag, Polystyrene and Carton) are provided by overseas buyers and imported free of charge, then mix, mill, cut, attach, dry and packed in the domestic factories, after which all of the finished products are exported. The process flow diagram for Christmas handicrafts, material plasticine modeling clay manufacturing is illustrated in Figure 3-7.

## Environmental Management Plan

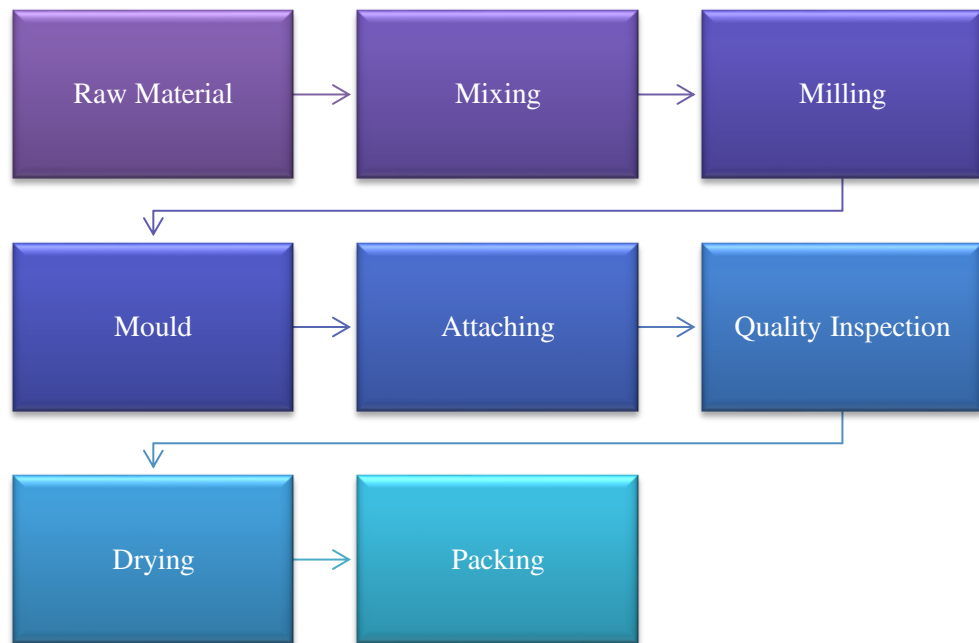


Figure 3-7 Process Flow Diagram of Sunny Arts and Crafts Company Limited



Raw Materials



Mixing



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Milling



Mould

Attaching



Quality Inspection

Packing

Figure 3-8 Production Process Photos



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## 3.4.3. Products

The main products of Sunny Arts and Crafts Company Limited are Christmas Decorations (Clay dough Christmas ornaments). The main products are exported to China Mainland, HKSAR, Japan, Korea, Australia, EU, America, Mexico, Brazil. Table 3-4 is described in annual production rate.

Table 3-4 Annual Production Rate

No.	Particular	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-30
1.	Christmas Decorations (Clay dough Christmas ornaments)	400,000	500,000	625,000	781,250	976,563	1,220,703





Figure 3-9 Products Photo

### 3.5. FACILITIES OF THE FACTORY

#### 3.5.1. Firefighting plan of proposed project

The project proponent has provided fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases. Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire fighting is also constructed with the dimension of 420cm x 400cm x 223cm at the proposed area. The emergency contact numbers of township and district fire services department must be printed and tagged at easily visible places for fire emergency cases. The emergency fire alarms are installed at the factory for alerting the workers in case of fire. The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases. In addition, the project proponent has plans to provide trainings on firefighting for the workers by a professional or otherwise by sending to training courses. The plan to install fire alarm system and fire-fighting system are mentioned in Figure 3-10.





## Environmental Management Plan



Figure 3-10 Firefighting Plan and Escape Plan

## 3.5.2. Toilet Facilities

Currently toilet facilities have hygienic toilets already provided and categorized by gender, marked distinctly for men and women by signs and symbols. In addition, toilet areas will also be provided with water sinks, necessary toiletries, and hand washing soaps, hand drying facilities, and waste bins. Total numbers of toilet for male are 5 rooms and for female are 5 rooms.



Figure 3-11 Toilet Facility Photo

## 3.6. GENERATION OF WASTE, EMISSION, AND DISTURBANCES

Sunny Arts and Crafts Company Limited is using ground water for both industrial and household purpose, which is supplied by deep tube well. The factory also has generators for electricity generation. The fuel used in the industry is Diesel. The sanitary liquid waste of the factory is stored in septic tank. The wastewater discharge from the factory is estimated about 930 m<sup>3</sup> per month.

Solid waste (recycle waste) such as broken machine parts, paper box, plastic bags, etc., are hand over to local waste buyer. Although the factory causes some pollution but also has a positive side and that is the factory has created employment for many people, due to this factory local community has built up daily. Total amount of solid waste discharge from factory is maximum 120.9 kg daily and handover to YCDC two-time per month. Wastes generated from the various kinds of Christmas

**Environmental Management Plan**

handicrafts, material plasticine modeling clay manufacturing factory are recycled wastes from attaching material section. In addition, waste of plastic bags and carton boxes are generated from mixing section and packing section. Total amount of waste about maximum 10 kg per day are generated from operation process.



**Figure 3-12 Solid Waste Disposal at Proposed Project**





## Environmental Management Plan

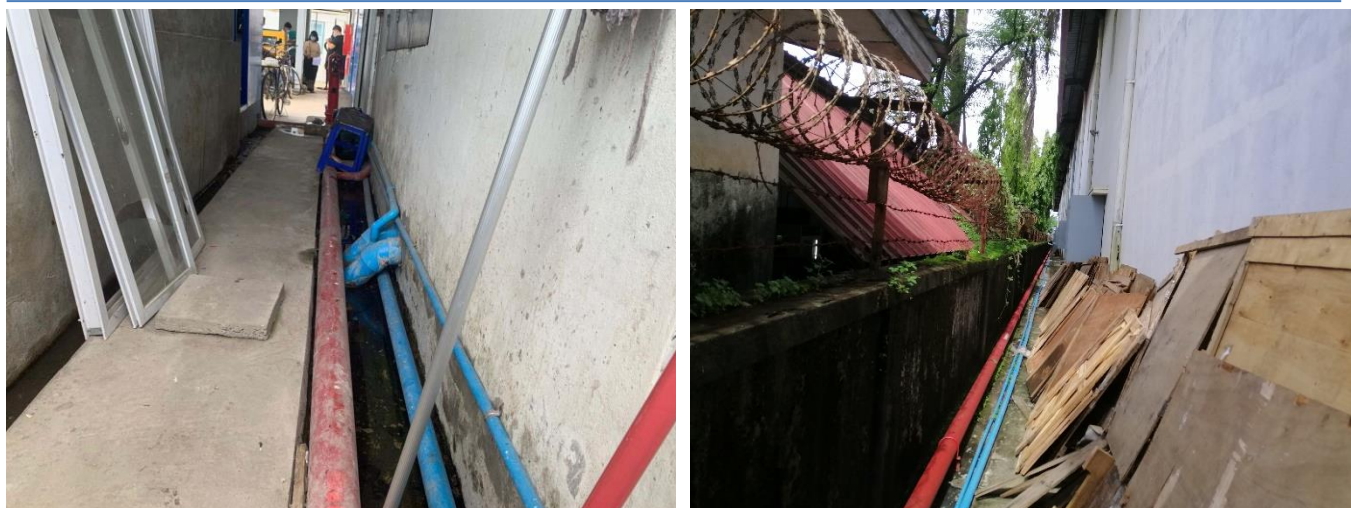


Figure 3-13 Water Drainage System

## 3.6.1. Waste Generation

The project will be generated solid waste, liquid waste and hazardous waste from the operation of the Sunny Arts and Crafts Company Limited. Detail description of waste generation and waste amount are shown in below.

Table 3-5 Waste Generation &amp; Waste Amount

Waste		Type of wastes	Estimated waste amount	Source of generation
Solid Waste	Re-usable	Disposed packaging materials, paper or plastic wrapping	30 kg / month	Attaching material section, Mixing and Packing section
	Non re-usable	Food residues, domestic waste	120.9 kg / day*	Canteen, Kitchens, dormitory
Liquid Waste		Sanitary discharge water	31 m <sup>3</sup> /day*	Toilet facility, kitchen and canteen
Hazardous Waste		Oil leakage and spills	-	Operation of generator and movements of vehicles

\* The Yangon City solid waste generation rate as of 2012 is 0.39 kg per person per day (Pollution Control and Cleansing Department, Yangon City Development Committee, 2014).

\*The domestic wastewater generation was based on typical wastewater generation rate of 0.1 m<sup>3</sup> per person per day (Metcalf & Eddy, 2004)

## 4. BRIEF DESCRIPTION OF SURROUNDING ENVIRONMENT

The purpose of this Chapter is to predict how environmental and socio-economic conditions will affect because of the implementation of the proposed Project. This requires a sound understanding of the baseline conditions at the project site, which established through desktop study research, site surveys, primary data collection and projections for future developments. Findings provide the current and future characteristics of the project site and the value and vulnerability of the key environmental and socio-economic resources and receptors. The following sections provide a description of the environmental and socio-economic aspects of the project.

### 4.1. METHODOLOGY FOR DATA COLLECTION AND ANALYSIS

The followings are methodologies used for the Environmental Management Plan (EMP) report preparation;

- Onsite Measurements and Analysis – Baseline parameters such as air quality and noise quality of the project site during operation phase were measured onsite. The analyzed results are mentioned in this chapter.
- Secondary data collection of proposed project site area – Socio economic condition, physical/biological environment, and weather data are collected from official township data of Hlaing Thar Yar Township, Yangon Region.

### 4.2. BASELINE ENVIRONMENTAL MONITORING

The baseline environmental quality at the Project Site and its immediate surroundings was established by groundwater, wastewater and ambient air quality samples; as well as noise measurements at immediate surrounding areas. The data is presented below.

#### 4.2.1. Weather Condition

The weather condition during 09 July 2020 shows the average temperature of 42.3°C while the average humidity is 56%.

**Table 4-1 Relative Humidity and Temperature Measure at Proposed Project**

Date and Time	Description	Result value	Environmental parameter air station guideline
09 July 2020 (10:00 am to 5:00 pm)	Relative Humidity RH %	56(%)	Present condition
	Temperature	42.3°C	Present condition



## Environmental Management Plan



Figure 4-1 Temperature and Humidity Measurement in Operation Area

## 4.2.2. Noise

The Noise level was measured by using Digital Sound Level Meter on 09 July 2020. The average noise level in the project site area is presented in **Table 4-2** compared with NEQ guideline. However, according to the Noise source monitoring at operation area of noise level is within the acceptable level of National Environmental Quality (Emission) Guideline.

Table 4-2 Noise Level Measurement Result

Date and Time	Location	GPS Value	Result Value	NEQ Guideline
09.07.2020 (10:00 am to 5:00 pm)	Operation Area	16°51'29.97"N and 96° 3'27.57"E	64.1 dBA	70 dBA

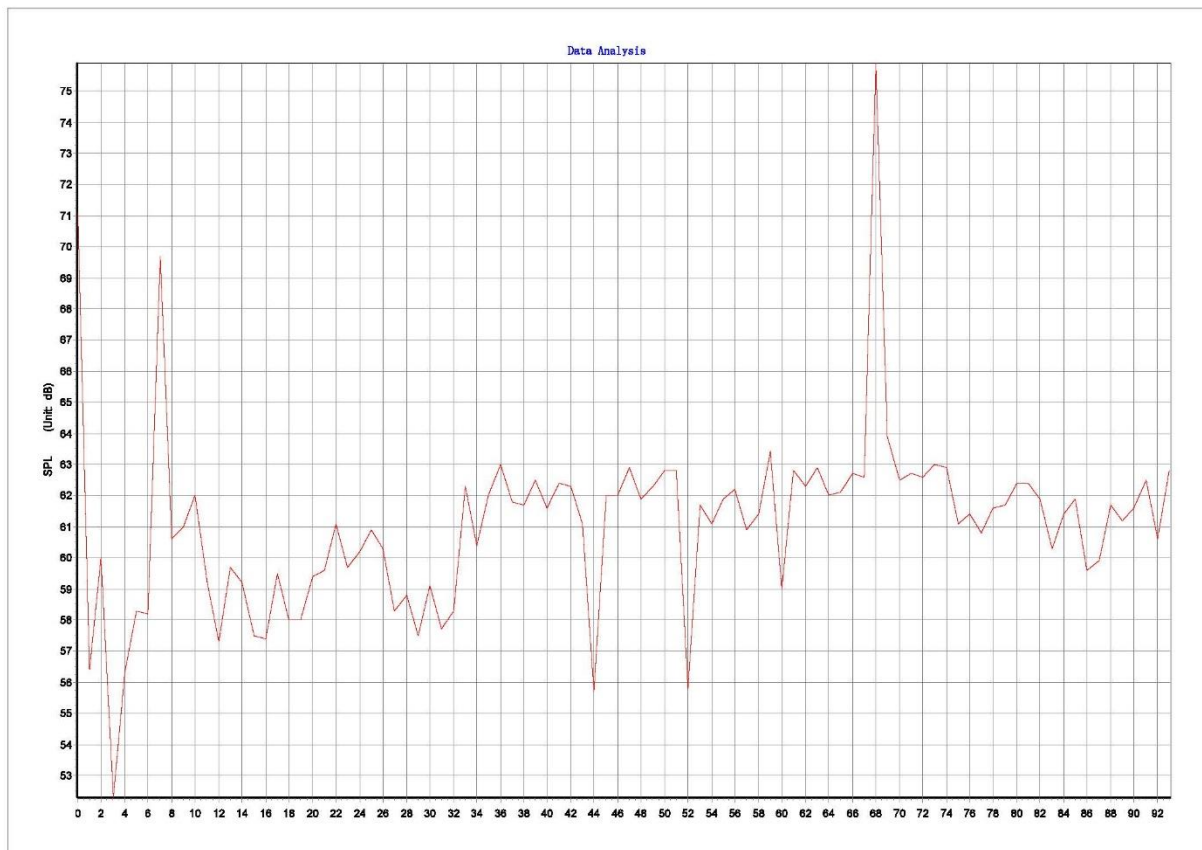


Figure 4-2 Noise level result graph



Figure 4-3 Sound Level Measurement Photo

#### 4.2.3. Air Quality

To determine the existing baseline ambient air quality status within the project site on 09, July 2020, air pollutants level, which include dust (PM<sub>10</sub> and PM<sub>2.5</sub>) and gases (CO, O<sub>3</sub>, SO<sub>2</sub>, NO<sub>2</sub>) were measured at the selected site using the OCEANUS AQM-09 air monitoring station. To reveal the existing status of baseline air quality, the average ambient air qualities measured were compared with

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National Environmental Quality (Emission) Guideline and international ambient air quality standard (NAAQS, ACGIH) guidelines. The measurement location point is situated at North Latitude 16°51'29.97"N and East Longitude 96° 3'27.57"E.

It was observed that the air quality of CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentration levels are within the limit of the National Environmental Quality (Emission) Guideline.

**Table 4-3 Observed Air Quality Results**

Parameters	Observed Value	Guideline Value	Unit	Organization	Period
PM <sub>10</sub>	15.99	50	µg/m <sup>3</sup>	NEQG	7 hours
PM <sub>2.5</sub>	10.95	25	µg/m <sup>3</sup>	NEQG	7 hours
SO <sub>2</sub>	19	20	µg/m <sup>3</sup>	NEQG	7 hours
NO <sub>2</sub>	109	200	µg/m <sup>3</sup>	NEQG	7 hours
O <sub>3</sub>	68.9	100	µg/m <sup>3</sup>	NEQG	7 hours
CO	0.3	-	ppm	-	7 hours

**Figure 4-4 Air Quality Measurement Photo****4.2.4. Light**

Activities of the workers in the Sunny Arts and Crafts Company Limited are highly dependent on the quality of light. Therefore, the consultant conducted the light measurement in the various kinds of Christmas handicrafts, material plasticine modeling clay factory is presented. The illustrates the recommended illumination and limiting glare index applicable to typical works (fairly severe to very severe tasks) in various kinds of Christmas handicrafts, material plasticine modeling clay factory is provided in Table 4-4.

Appropriate lighting is the need for every department, irrespective to the task being handled. Although, there are some areas where focus on maintaining proper illumination is very crucial in various kinds of Christmas handicrafts, material plasticine modeling clay factory, like the inspection points (on-floor and in stores), sampling, and the finishing section, as these areas are crucial for the quality of the production. The tasks involved in these areas require high levels of worker focus and accurate lighting to ensure lower errors and defects passing on to the next stage.



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However, according to the result of light measurement at operation area (inside the production sector) is in good condition and at the acceptable level of standard.

Table 4-4 IEESNA Lighting Handbook

Department	Type of Light	Wattage of Light	Lux Level
Warehouse	Fluorescent tube light	40 W	300
Sewing floor	LED tube light	20 W (T8)	400
Cutting floor	LED tube light	22 W (T8)	1000
Finishing	LED tube light	28 W (T8)	600
Inspection points	LED tube light	28 W (T8)	900 (except 1500 at audit tables)
Sampling	LED tube light	22 W (T8)	500
Office areas	Fluorescent tube light	36 W (T)	300



Figure 4-5 Light Quality Measurement Photos

Table 4-5 Result of Light Measurement in Sunny Arts and Crafts Company Limited

No.	Location	Measured Value (Lux)	Standard*
1.	Warehouse Area	247.6	300
2.	Mixing Area	591	500
3.	Attaching Area	1299	1000
4.	Drying Area	304	600
5.	Quality Inspection Area	314	900
6.	Packing Area	118.4	600

\* Lighting standards and codes usually provide recommended illuminance ratios between the task area and its surroundings (EN 12464-1 2002) (CIBSE 1997) (IESNA 2000, 676708).

### **4.3. PHYSICAL COMPONENT (SECONDARY DATA)**

#### **4.3.1. Topography**

Yangon area is the largest; most populated and urbanized area in Myanmar. There are thirty-three townships in Yangon city were located at the convergence on the Yangon. The proposed project area is situated at Hlaing Thar Yar Industrial Zone, Hlaing Thar Yar Township, and its topographic condition is flat. The proposed project site is primarily agricultural land, but now is initiated into the industrial zone area.

#### **4.3.2. Geology**

In Yangon area mainly composed of Pegu Group, Irrawaddy Formation and Alluvium. Alluvial deposits (Pleistocene to Recent), the non-marine fluvial sediments of Irrawaddy formation (Pliocene), and hard, massive sandstone of Pegu series (early-late Miocene) underlie the Yangon area. Alluvial deposits are composed of gravel, clay, silts, sands and laterite which lie upon the eroded surface of the Irrawaddy formation at 3-4.6 m above mean sea level (MSL). The rock type in Yangon is mainly soft rocks, which consist of sandstone, shale, limestones and conglomerate. Geological map of Yangon Regional area is shown in Figure 4-6.

## Environmental Management Plan

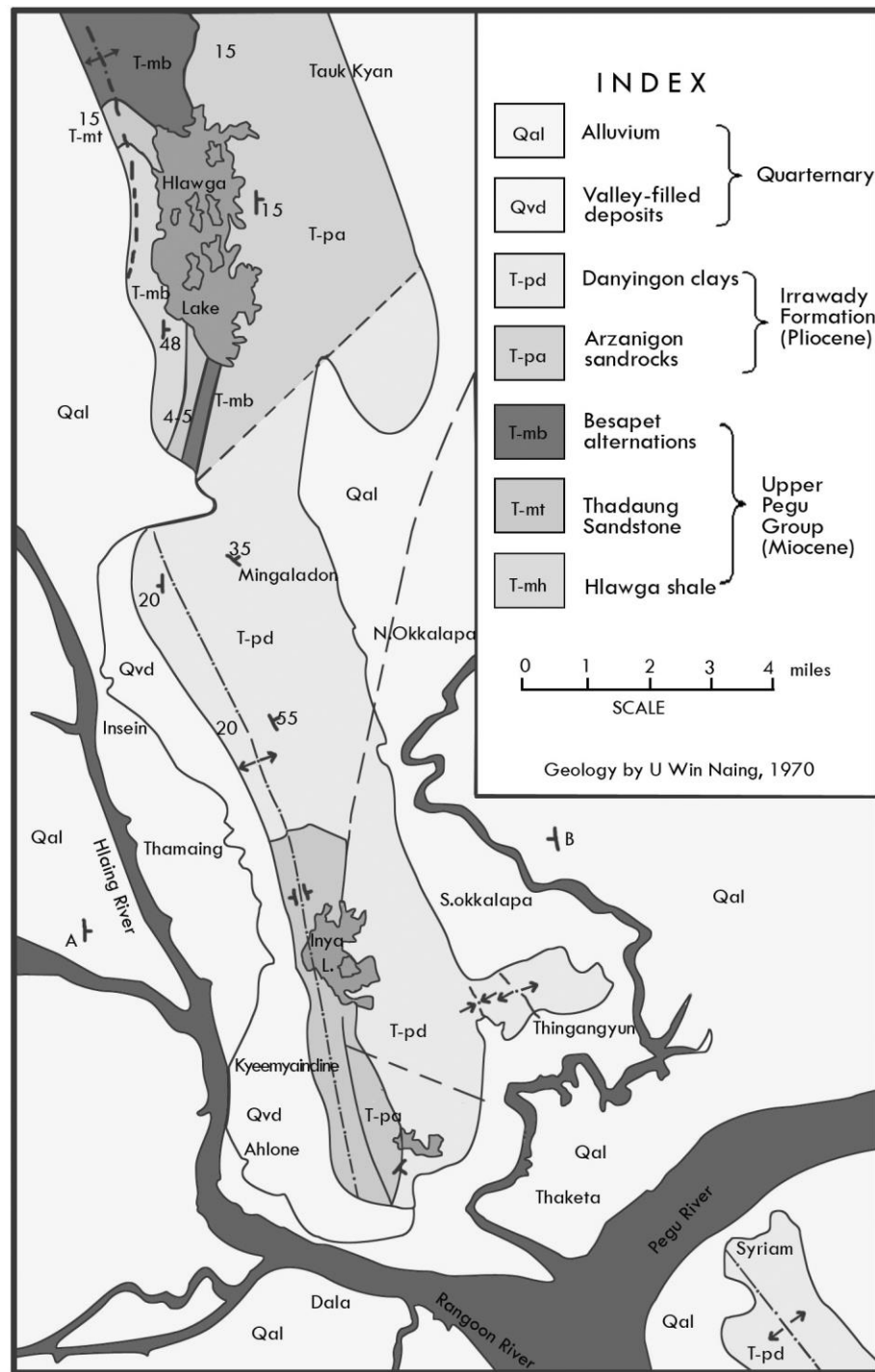


Figure 4-6 Geological Map of Yangon Region

## 4.3.3. Tectonics

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



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## 4.3.4. Soil

The underlying soil type at the Project Site and its surroundings is characterized as the Meadow and Meadow Alluvial Soil. Meadow Soil is soil which occurs near the river plains exposed to occasional tidal floods, is non-carbonate and usually contains a large amount of salt. Both materials mainly comprise silty clay loam and neutral soil rich in plant nutrient. The upper layers (approximately 0 to 7 m) of the soil at the Project Site comprise largely of cohesive layers with traces of sand and gravel, followed by sand layers with low silt content and trace gravel from 7 to 35 m. The lower layers comprise denser silt layer with traces of sand and gravel from approximately 57 to 70 m. Standard Penetration Test (SPT) results obtained from testing at the Project Site indicate that the soil strength generally increases with depth. The STP results showed that the current soil quality can accommodate the construction of the Project. <sup>[2]</sup>

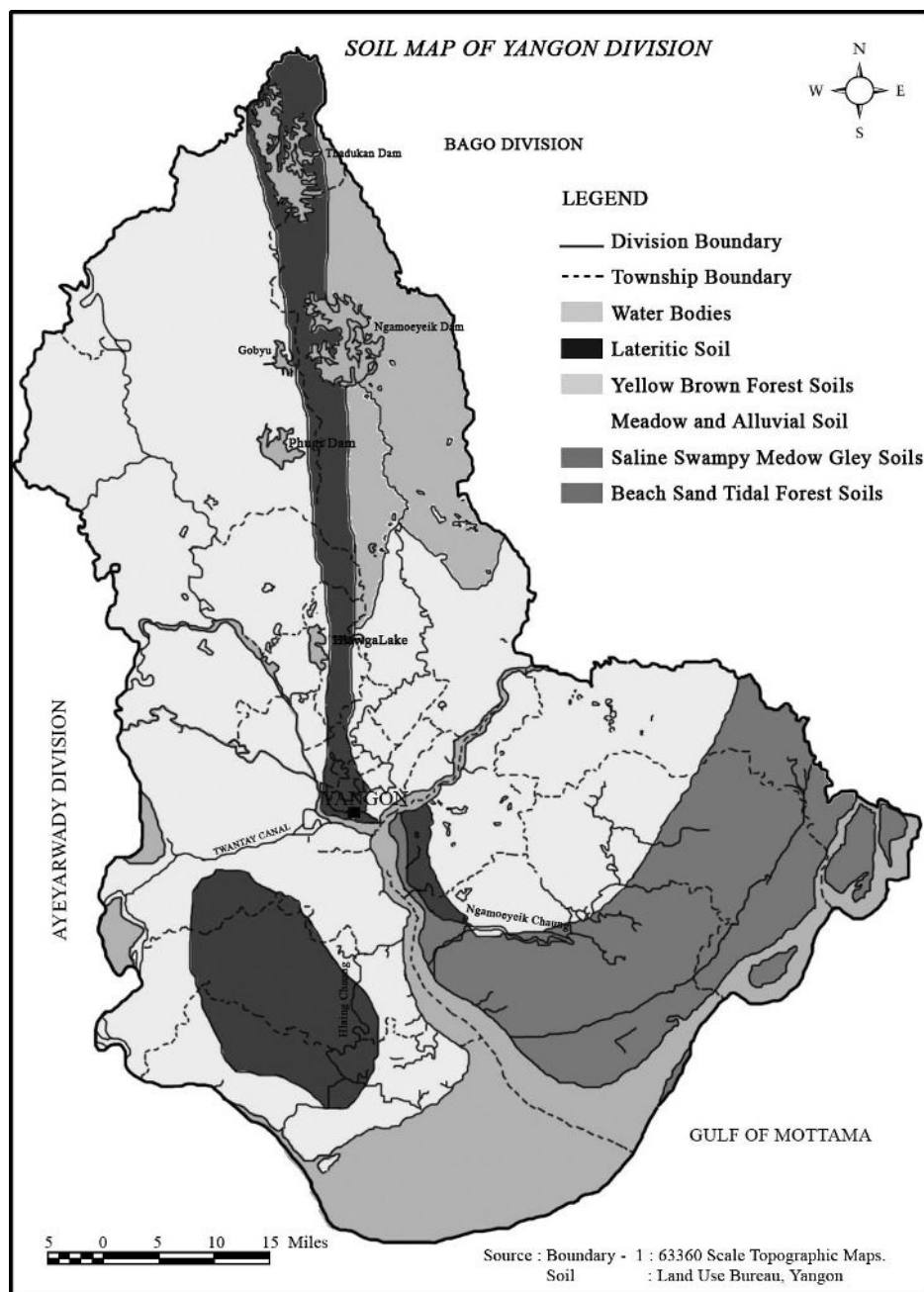


Figure 4-7 Soil Map of Yangon (Source: Land use of Bureau of Yangon)

**Environmental Management Plan**

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**4.3.5. Hydrogeology**

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

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

**Water Supply:** The Yangon City Development Committee (YCDC) has an overall responsibility for the management and distribution of water for Yangon City. Presently, YCDC's water supply is obtained from two main sources: (1) reservoir (Hlawga, Gyobu, Pugyi and Ngameoyeik reservoirs) and, (2) groundwater from YCDC's tube wells. Water from these sources is utilized to varying degrees. Areas not supplied with water from the YCDC rely on shallow surface wells and private boreholes. Water supply for the Project Site will be obtained from onsite borewells for both construction and operations due to the poor reliability of municipal supply. Permitting is part of the Planning Consent Application currently underway. The boreholes will be provided and operated by the Developer.

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

**4.3.6. Climate and Meteorology****4.3.6.1. Average weather in Yangon**

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

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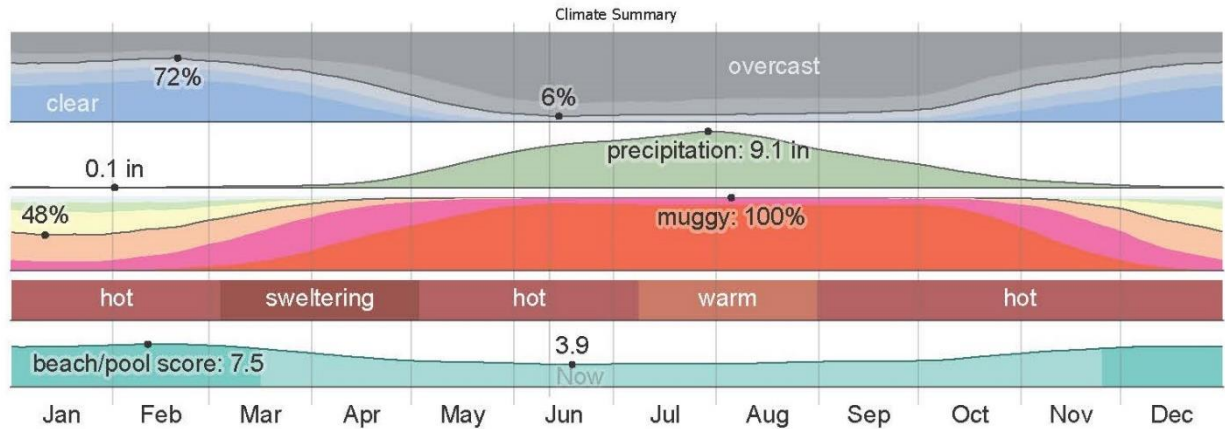


Figure 4-8 Climate Summary of Yangon Region

## 4.3.6.2. Temperature

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

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

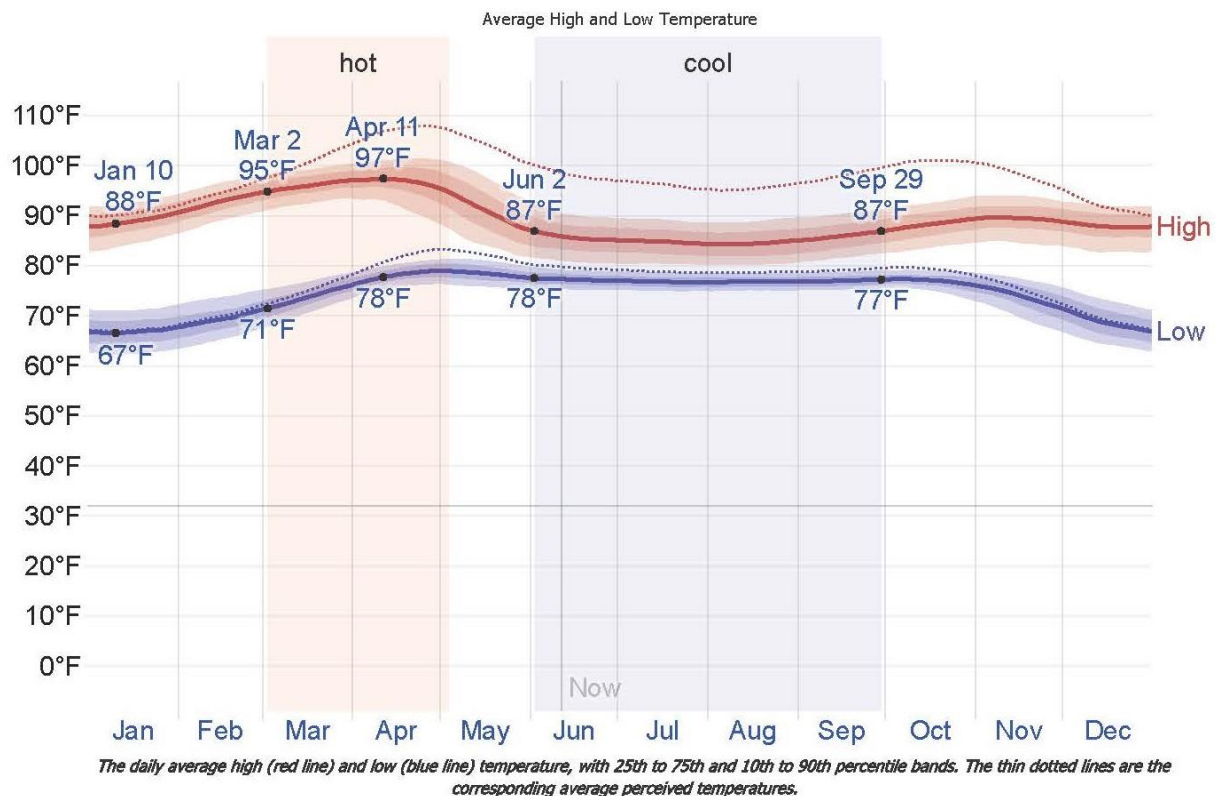


Figure 4-9 Average Temperature of Yangon Region

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## 4.3.6.3. Clouds

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

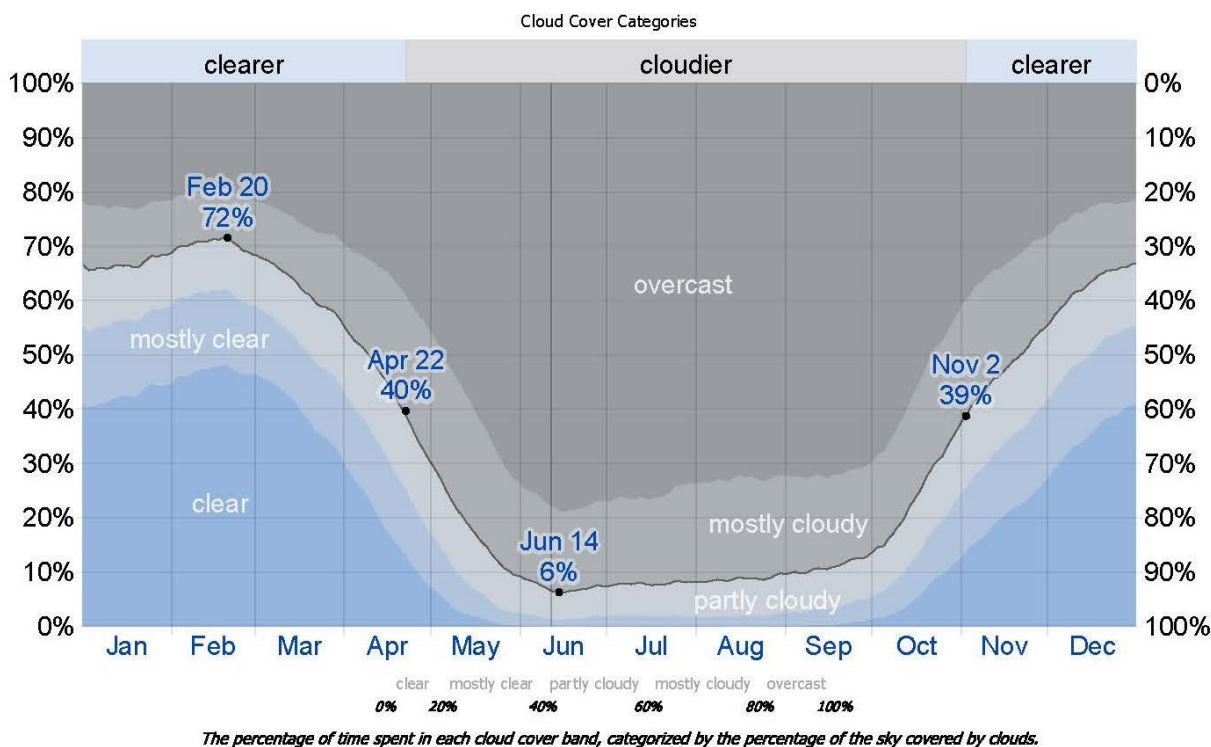


Figure 4-10 Cloud Cover Categories

## 4.3.6.4. Rainfall

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

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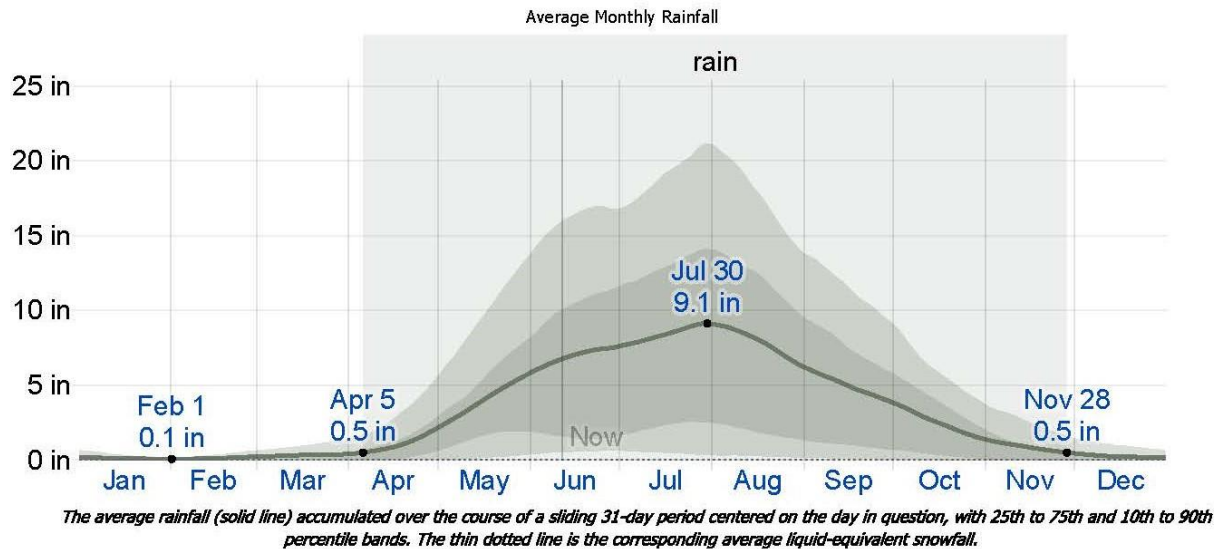


Figure 4-11 Average Monthly Rainfall at Yangon Region

Table 4-6 Annual Rainfall and Temperature

Year	Rainfall		Temperature	
	Raining day	Rainfall value	Summer season Max (°C)	Winter season Min (°C)
2017-2018	102	105.4	41	27
2018-2019	88	84.8	40	26

Source: Department of Administrative Hlaing Thar Yar Township, Regional Data ([www.gad.gov.mm](http://www.gad.gov.mm))

## 4.3.6.5. Humidity

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

Yangon experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 10 months, from February 22 to December 23, during which time the comfort level is muggy, oppressive, or miserable at least 61% of the time. The muggiest day of the year is August 5, with muggy conditions 100% of the time. The least muggy day of the year is January 11, with muggy conditions 48% of the time.



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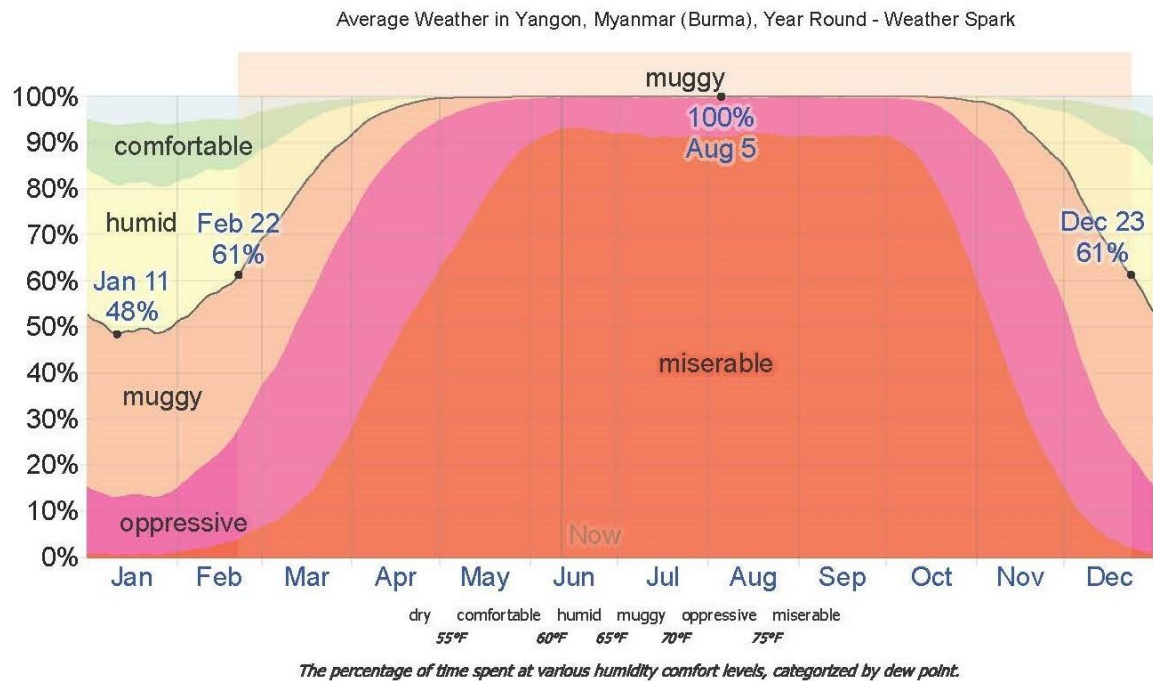


Figure 4-12 Humidity of Yangon

## 4.3.6.6. Wind

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

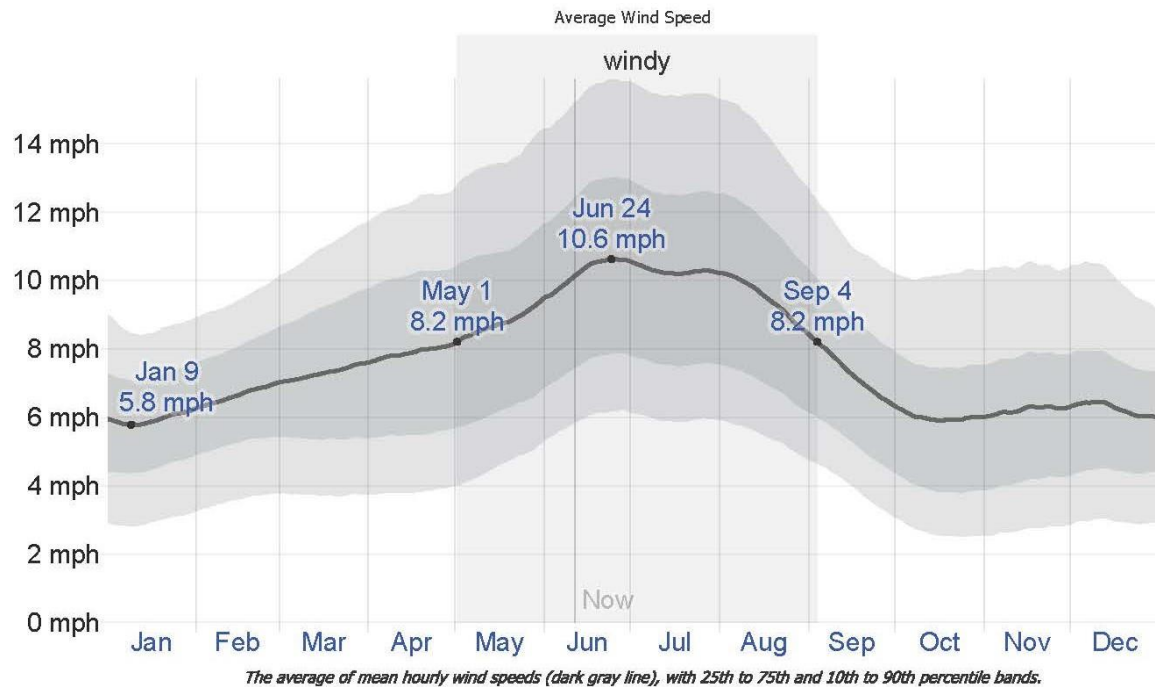


Figure 4-13 Average Wind Speed in Yangon

#### 4.4. BIOLOGICAL COMPONENT (SECONDARY DATA)

As the proposed project area is located in the industrial zone, the information of ecological resources is very unlikely. In addition, within the proposed project area, there are no forests, protected areas and coastal resources. The proposed project site is not located in or near a sensitive ecosystem as the proposed project area is situated in the Hlaing Thar Yar Township. The Project Site is a built-environment and the species of flora surveyed at the site are native species uncommon to the Yangon area.

Ecological Resources	Existing condition
Fisheries, aquatic biology	The nearest river is Pun Hlaing River. Fresh water fish species are residing in the river
Wildlife	Non existence
Forests	Non existence
Rare or endangered species	Non existence
Protected areas	Non existence
Coastal resources	A few mangrove species observed at the river bank of Pun Hlaing River

## 4.5. SOCIO-ECONOMIC COMPONENT

### 4.5.1. Population

Sunny Arts and Crafts Company Limited is located across Hlaing Thar Yar Township in Yangon Region. In 2019, the population of Hlaing Thar Yar Township is about 440949 peoples as present in Table 4-7.

**Table 4-7 Population of Males and Females at Hlaing Thar Yar Township (2019)**

Item	Over 18 year			Under 18 year			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Urban	110193	125186	235379	49964	55193	105157	160157	180379	340536
Rural	34642	32707	67349	16488	16576	33065	51130	49283	100413
Total	144835	157893	302728	66452	71769	138221	211287	229662	440949

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

### 4.5.2. Religion

The different kinds of religion present in Hlaing Thar Yar Township are shown in **Error! Not a valid bookmark self-reference..** More than 90% of the people living in the township are Buddhists. <sup>[1]</sup>

**Table 4-8 Religion in Hlaing Thar Yar Township (2019)**

Township	Buddhist	Christian	Hindu	Muslim	Total
Hlaing Tharyar	422539	6,400	8,320	3,700	440949

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

### 4.5.3. Local Economy

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

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

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## 4.5.4. Public Infrastructure and Access

## 4.5.4.1. Communication and Transportation

Major transportation route in Hlaing Thar Yar Township are railway, port, and car road as presented in Table 4-9. <sup>[1]</sup>

**Table 4-9 Transportation Route**

Categories	Township		Miles
Water Route	From Pun Hlaing River and Hlaing confluence	To Ngwe Pin Lae Industrial	8

No.	Township	Bus Stop	Transportation path	Type of Bus	No. of Bus
1.	Hlaing Thar Yar	16	11	YBS	125

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

## 4.5.5. Electricity

The electricity demand of Hlaing Thar Yar Township is higher and higher due to the normally increased in population and infrastructure. <sup>[1]</sup>

## 4.5.6. Education

Location of major schools were situated i.e. basic education primary school (B.E.P.S.), basic education middle school (B.E.M.S), basic education high school (B.E.H.S) and university, in the Hlaing Thar Yar Township.

**Table 4-10 List of major school in Hlaing Thar Yar Township**

No.	Name of School	Location
1.	West Yangon Technological University	Outside Padan Village Tract
2.	BEHS (1)	No. (2) ward
3.	BEHS (2)	No. (12) ward
4.	BEHS (3)	No. (17). Ward
5.	BEHS (4)	No. (5) ward
6.	BEHS (5)	No. (7) ward
7.	BEHS (6)	Yae Okken
8.	BEHS (7)	No. (16) ward
9.	BEHS (8)	No. (20) ward
10.	BEMS (Branch) (1)	No. (6) Ward
11.	BEMS (Branch) (2)	Nyaung Village Tract
12.	BEMS (Branch) (3)	Dine Su, Nyaung Village
13.	BEMS (Branch) (4)	No. (6) ward
14.	BEMS (Branch) (5)	No. (1) ward
15.	BEMS (Branch) (6)	No. (10) ward

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No.	Name of School	Location
16.	BEMS (Branch) (7)	Outside Padan Village Tract
17.	BEMS (Branch) (8)	No. (18) ward
18.	BEMS (Branch) (9)	Shwe Lin Pan Village Tract
19.	BEMS (Branch) (10)	No. (9) Ward
20.	BEMS (Branch) (11)	No. (12) Ward
21.	BEMS (Branch) (12)	No. (18) Ward
22.	BEMS (Branch) (13)	No. (15) Ward
23.	BEMS (Branch) (14)	No. (14) Ward
24.	BEMS (Branch) (15)	No. (13) Ward
25.	BEMS (Branch) (16)	No. (11) Ward
26.	BEMS (Branch) (17)	No. (7) Ward
27.	BEMS (Branch) (18)	No. (11) Ward
28.	BEPS (1 to 32)	Hlaing Thar Yar
29.	Pre School (1 to 6)	Hlaing Thar Yar

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

## 4.5.7. Health Status

The diseases of high prevalence reported in 2019 are Tuberculosis (TB), followed by Acute Respiratory Infection (ARI), Diarrhea, TB and snakebites. With reference to the Township Health Profile 2019 of Hlaing Thar Yar Township, no accidental work injuries reported to the township hospital in 2019. The common diseases are shown in Table 4-11.

**Table 4-11 Common Diseases in the Hlaing Thar Yar Township**

Disease	Hlaing Tharyar	
	Morbidity	Mortality
Malaria (Per 100000P)	-	-
Dysentery	37	-
Diarrhea (Per 100000P)	21	-
TB (Sputum+) (Per 10000P)	67	-
Hepatitis	5	-

**Table 4-12 Lists of hospital in the Hlaing Thar Yar Township**

Hospital Name	Beds/Services	Responsible
Township Hospital	200	Government
Cottage Hospital (Shwe Lin Pan)	16	Government
Pan Hlaing	95	Private
Tun Foundation	20	Private
Total	330	-

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



#### **4.6. CULTURAL AND VISUAL COMPONENTS**

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

## 5. RISK ASSESSMENT AND MITIGATION MEASURE PLAN

### 5.1. IMPACT IDENTIFICATION

The development of infrastructure for the proposed project likely to happen changes in the local environment in terms of physical, biological and socio-economic aspects along with the perspective on both positive and negative impacts. The potential environmental impacts brought by various activities of proposed factory project will be identified and judged by site surveying with checklist, meeting with client team, including plant manager and supervisor, representatives from the factory operators and assessing the environmental baseline information for operation and decommissioning phases along with its mitigation measure.

#### 5.1.1. Positive Impact

During the project implementation, local people can get job opportunities in administrative sectors, office works, transportation sectors, skill and unskilled workers, etc. Due to the implementation of the project, there will be employment opportunities especially for workers from the local community. Employees will also improve more in their professional knowledge and skills. The net effect of job creation is the improvement of the livelihoods and living standards of the beneficiaries and poverty reduction, development of local people's livelihood. Cause of the proposed project is located in Hlaing Thar Yar Township, there may have business opportunities to local people. Local people can have a market by selling foods, snacks and drinks nearby the factory.

#### 5.1.2. Negative Impact

The following Figure 5-1 briefly described the potential negative impacts of the proposed project. There are four main types of impacts; impact on environmental resources, impact on ecological resource, impact on human and impact of waste generation.

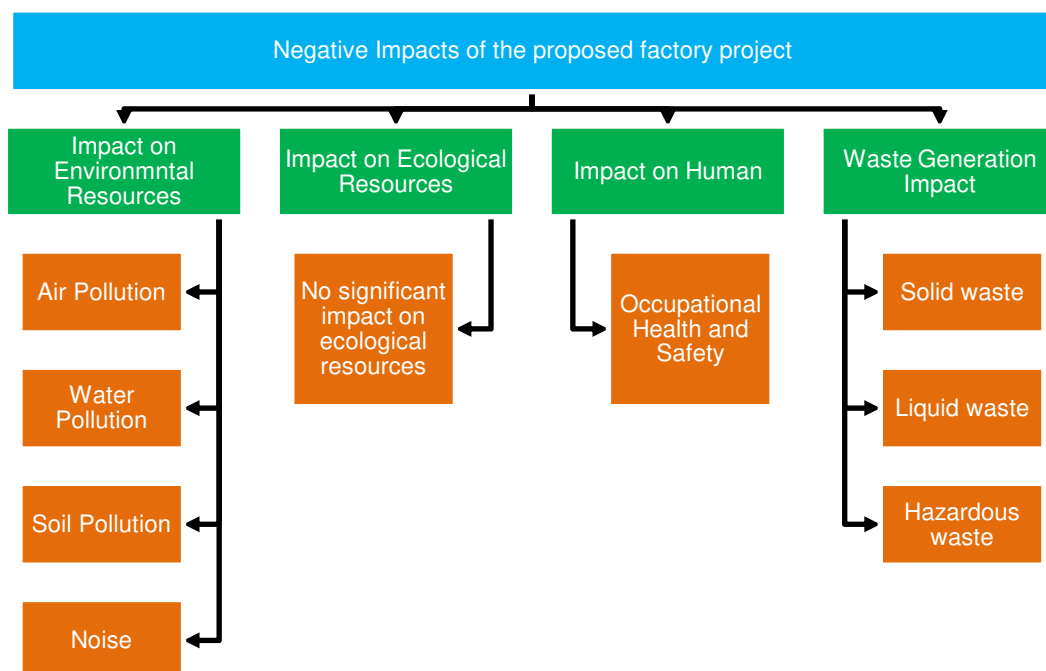


Figure 5-1 Potential negative impact affect from proposed factory project

## 5.2. METHODOLOGY FOR THE ASSESSMENTS

The assessment of each impact is based on consideration of the magnitude, duration, spatial and frequency of activities, which are going to be carried out during three phases and characteristics of the project site. The assessment is qualitative and the significance of each impact is classified into 5 categories in overall.

The following methodology has been applied to assess the environmental impacts of the factory mainly on air, water, land, biodiversity, including human beings. Each source of impact has been assessed by four parameters, magnitude, duration, extent and probability and each assess point have 5 scales as mentioned in Table 5-1.

**Table 5-1 Impact assessment parameters and its scale**

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

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

$$\text{Significant Point (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) * \text{Probability}$$

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

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

### **5.3. POTENTIAL ENVIRONMENTAL IMPACT DURING CONSTRUCTION AND DECOMMISSIONING PHASE**

Construction phase: The project factory is already constructed during environmental assessment study and site visit. Therefore, the proposed project is located in industrial zone and already finished the construction, the potential impact on environment is not assessed and affected must be caused the construction period.

Decommissioning phase: The proposed duration of the investment shall be 15 years. The term of the Lease shall be initial 5 years commencing from the date of signing of the Lease Agreement between Local owner and Sunny Arts and Crafts Company Limited for proposed project site for 1.104 acres (4467.73 sq-m) of land and extendable for two times after expiry of 5 years term of lease. The project of land and building will be restitution to land owner after close the operation. Therefore, the assessment study cannot be needed for environmental impact assessment during decommission phase.

These two phases of operation shall be represented by land owner. If the owner will be demolished their factory, they will need mitigation and monitoring plan for environmental impact. Therefore, Myanwei's environmental assessment team presented for monitoring plan during decommissioning phase.

#### 5.4. SIGNIFICANT IMPACTS OF PROJECT ACTIVITY AND MITIGATION MEASURE

The project activities, their impacts and significance of impact are provided in Table 5-2.

**Table 5-2 Evaluation and Perdition of Significant Impacts and Mitigation Measures on Operation phase**

Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
Impact on Environmental Resource									
Air	<ul style="list-style-type: none"><li>Dust and GHGs emission from vehicles used for transporting raw materials and final products</li><li>Emission from emergency diesel generator and vehicle movement</li></ul>	2	4	2	3	24	Low	<ul style="list-style-type: none"><li>Air pollution in atmosphere.</li><li>Inhaling them can increase the chance you'll have health problems.</li><li>People with heart or lung disease, older adults and children are at greater risk from air pollution.</li></ul>	<ul style="list-style-type: none"><li>To control air pollution, the vehicles, generators and machineries have to check and maintain regularly.</li><li>The factory uses chimney for generator through which the flue gas is emitted for reducing the impact of stack emission on environment.</li><li>Ensuring vehicles, compressor and generator are well maintained.</li><li>The factory has planted trees to reduce carbon emission and minimize air pollution.</li></ul>
Water Pollution	<ul style="list-style-type: none"><li>Production process</li></ul>	2	4	2	3	24	Low	<ul style="list-style-type: none"><li>The factory has not generated wastewater from production process on CMP basic</li></ul>	<ul style="list-style-type: none"><li>No Mitigation Measure</li></ul>
Soil	<ul style="list-style-type: none"><li>Engine oil leaks, spills at diesel</li></ul>	1	4	1	2	12	Very Low	<ul style="list-style-type: none"><li>The factory compound area was</li></ul>	<ul style="list-style-type: none"><li>No Mitigation Measure</li></ul>



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Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
	storage and during fuel refueling.							paved with concrete and hence, contamination due to the oil spillage at this area is insignificant.	
Noise and Vibration	<ul style="list-style-type: none"> <li>Generating noise from the production machinery</li> </ul>	2	4	1	3	21	Low	<ul style="list-style-type: none"> <li>The factory not operate heavy machinery</li> <li>The major noise source of CMP basic operation activities such as cutting, stitching/finishing and packaging by respective machines. There is insignificant impact on surrounding environment</li> </ul>	<ul style="list-style-type: none"> <li>Use noise covering equipment and personal protective equipment (PPE) like ear plug/ earmuffs for factory workers in the noisy workplace.</li> <li>Should be used low noise equipments and built individual rooms like generator and compressor rooms</li> </ul>
<b>Impact on Ecological Resources</b>									
Flora and fauna on terrestrial and aquatic life	Operation of the manufacturing of knitting embroidery business on clothes production	1	4	1	1	6	Very Low	<ul style="list-style-type: none"> <li>Not Significant Impact on Ecological Resources</li> </ul>	<ul style="list-style-type: none"> <li>No Mitigation Measure</li> </ul>
<b>Impact on Human</b>									
Fire	<ul style="list-style-type: none"> <li>Poor electrical installations</li> <li>Waste disposed</li> </ul>	3	5	2	4	40	Moderate	<ul style="list-style-type: none"> <li>Serious damage to property and even injury and death</li> </ul>	<ul style="list-style-type: none"> <li>To provide fire extinguishers, fire hose reels and fire hydrants on the walls of the</li> </ul>

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Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
	area raw materials and chemical storage								factory for fire emergency cases. <ul style="list-style-type: none"> <li>Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening.</li> <li>The emergency fire alarms are installed at the factory for alerting the workers in case of fire.</li> <li>The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.</li> </ul>
Occupational Safety	<ul style="list-style-type: none"> <li>Accidental cases cause by operating machines.</li> <li>Unloading, mixing, cutting, pressing and packaging activities.</li> <li>Accidental cases of thermic fluid heater</li> </ul>	3	4	1	4	32	Moderate	<ul style="list-style-type: none"> <li>Accident in workplace (physical injuries or even death) can occur during operation.</li> </ul>	<ul style="list-style-type: none"> <li>First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers.</li> <li>According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers.</li> <li>Personal Protective Equipment</li> </ul>

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Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
									(PPEs) like earmuffs, safety gloves, helmets and goggles are provided for each department. <ul style="list-style-type: none"> <li>To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.</li> </ul>
Health	<ul style="list-style-type: none"> <li>Influx of people</li> <li>Noise from the generating of the emergency generators</li> </ul>	2	4	1	2	14	Very Low	<ul style="list-style-type: none"> <li>Change in demographic structure, new diseases form immigrant workers</li> <li>To cause a range of health problems ranging from stress, poor concentration, productivity losses in the workplace, and communication difficulties and fatigue from lack of sleep, to more serious issues</li> </ul>	<ul style="list-style-type: none"> <li>Manage the drainage systems of the factory to prevent health risk of the workers.</li> <li>The maximum allowable noise level for workers is 90dB(A) for 8hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas</li> </ul>
<b>Waste Generation</b>									
Solid Waste	<ul style="list-style-type: none"> <li>Residual pieces of fabric scraps from</li> </ul>	2	4	1	4	28	Low	<ul style="list-style-type: none"> <li>Surrounding environmental pollution and soil</li> </ul>	<ul style="list-style-type: none"> <li>Provides separate garbage bins at each building.</li> </ul>

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Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
	the production lines <ul style="list-style-type: none"> <li>Waste from packaging materials</li> <li>Waste from kitchen, dormitory and office.</li> </ul>							contamination	<ul style="list-style-type: none"> <li>All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area</li> <li>Final wastes should be disposed by using YCDC's service.</li> </ul>
Liquid Waste	<ul style="list-style-type: none"> <li>Septic system and sewage.</li> <li>Domestic liquid waste disposal from office, kitchen and dormitory.</li> </ul>	2	4	2	4	32	Moderate	<ul style="list-style-type: none"> <li>Contamination of soil, surface water, ground water</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.</li> </ul>
Hazardous Waste	<ul style="list-style-type: none"> <li>Used oil and lubricant discharged from the maintenance of vehicles and machines.</li> </ul>	2	4	1	2	14	Very Low	<ul style="list-style-type: none"> <li>Reduce the risk of contamination from fuels, oils and hazardous wastes</li> <li>Response effectively to incident and accident</li> </ul>	<ul style="list-style-type: none"> <li>Proper inspection and maintenance in storage of hazardous waste.</li> <li>Dispose of hazardous chemicals and containers in accordance with occupational health, safety and environmental requirements.</li> <li>The empty chemical containers will hand over to suppliers for recycle or appropriate disposal</li> <li>The hazardous wastes are transported by specially licensed carriers and disposed</li> </ul>

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Environmental Impact	Project Activities	Significant Potential Impacts of					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
									in a licensed facility (eg., DOWA and YCDC)

Table 5-3 Evaluation and Prediction of Significant Impacts and Mitigation Measure on Decommissioning Phase

Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	S			
Air pollution	Demolish of buildings and related materials Transportation of demolished materials	3	1	1	4	20	Low	Emissions of particulate matters and carbon dioxide gases into the air	Spray water twice a day Cover mesh trap around the decommission area Install shading net about 2 meters above temporary fence of decommission area Carry broken material with cover by canvas.
Water pollution	Sewage from decommissioning workers Demolition machinery equipment	3	1	1	3	15	Low	Contamination of surface water and ground water	Systematically demolish the septic tanks.
Soil Contamination	Demolished of buildings and related materials Transportation of demolished materials	3	1	1	3	15	Low	Contamination of soil	Manage the spillage of oil and diesel and sewage.
Noise Pollution and Vibration	Decommission activities Transportation of demolished	3	1	1	3	15	Low	Noise pollution to the surrounding	Carry out the activities during day time.



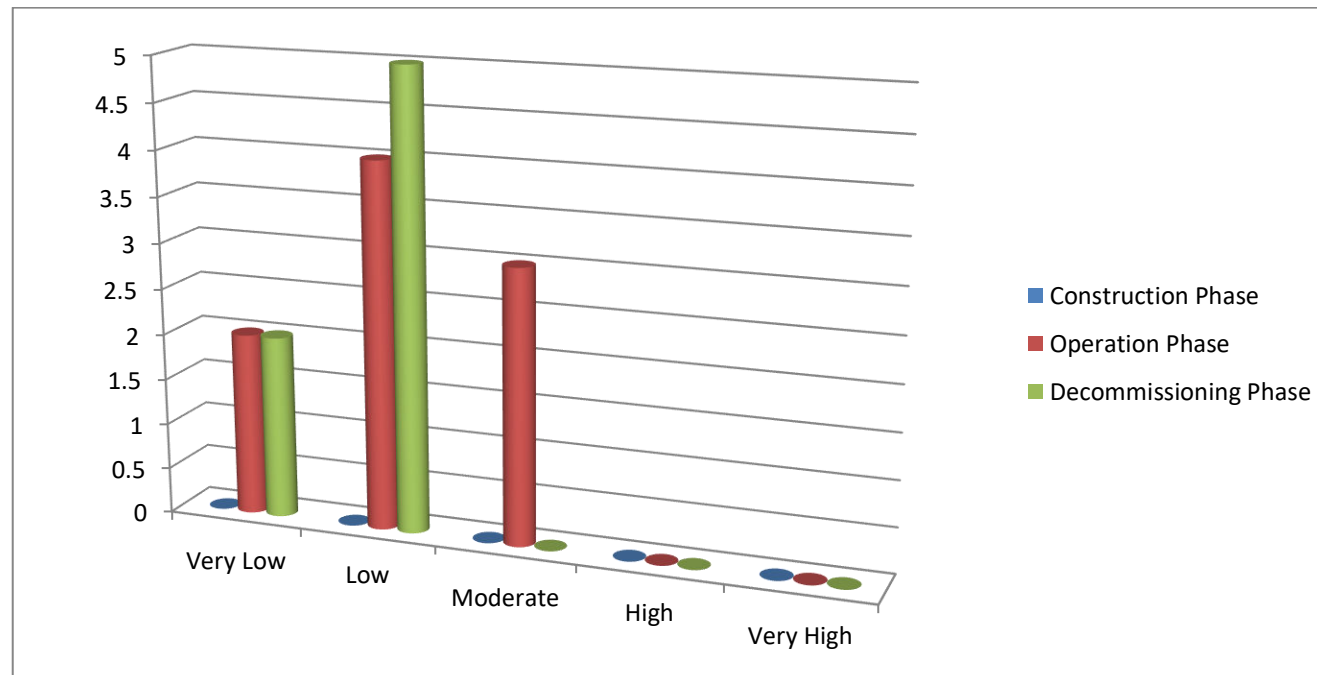
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Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	S			
	materials								Maintain the machines and vehicles to reduce noise pollution. Provide the ear plugs to the workers.
Waste disposal	Demolished debris such as bricks, concrete materials	2	1	1	3	12	Very Low	Dumping to the surrounding environment	Recyclable materials and dispose to the define areas.
Hazardous waste	Used lubricants from decommissioning vehicles and machines	2	1	1	3	12	Very Low	Spillage of lubricant	Manage the disposal way of hazardous waste.
Occupational Health and Safety (Accidents, Injuries)	Decommissioning activities Transportation of demolished materials	3	1	2	3	18	Low	Injuries and accidents	Provide protective fencing or demarcation with tape at the boundaries of dangerous / hazardous zone and the appropriate warning signs, marking and safety signs and installation of the lost time injury notice board.  Clean up excessive waste debris and liquid spills regularly.  Use the third-party expert assisted by trained personnel to identify and remove hazardous materials.

The assessment of each impact is based on consideration of the magnitude, duration, extent and probability of activities, which are going to be carried out during operation phase. In operation phase, there are 2 very low significant impacts on environment and human (Water

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pollution, Soil, flora and fauna on terrestrial and aquatic life, health and hazardous waste), 4 low significant impacts on environment and human (Air, Noise and vibration and liquid waste) and 3 moderate significant impacts on environment and human (Fire, Occupational safety and solid waste). In decommissioning phase 2 very low significant impacts on environment and human (waste disposal and hazardous waste). 5 low significant impacts on environmental and human (air, water pollution, soil contamination, noise and vibration and occupational health and safety). Significance impacts on environmental and human and detail impact assessment for operation phases and decommissioning can be seen in above tables. All of the impacts during operation phases and decommissioning phase can be minimized by using mitigation measures and implementing Environmental Management Plan.



**Figure 5-2 Comparison of Impact Significant of Proposed Project**

## 6. ENVIRONMENTAL MANAGEMENT ACTION

### 6.1. AIR POLLUTION/DUST MANAGEMENT PLAN

Objectives:	<ul style="list-style-type: none"> <li>➤ To minimize the adverse impact to air quality caused by stack gas emission from generator and also dust management generated from vehicular movement.</li> <li>➤ To comply with relevant government rules</li> </ul>	
Relevant government law and rule	<ul style="list-style-type: none"> <li>➤ National Environmental Quality (Emission) Guidelines (2015)</li> <li>➤ Motor Vehicles Act, (2015)</li> </ul>	
Time Frame	➤ Entire life spans of the factory operation	
Management Action	<ul style="list-style-type: none"> <li>➤ Must be plant around the proposed project to reduce carbon emission</li> <li>➤ Should be prohibited burning of waste material at the proposed project site</li> <li>➤ Must be control air pollution, the vehicles, generators and machineries have to check and maintain regularly.</li> <li>➤ The factory should use chimney for generator through which the flue gas is emitted for reducing the impact of stack emission on environment.</li> <li>➤ Must be ensuring vehicles, compressor and generator are well maintained.</li> </ul>	
Monitoring & Reporting	Frequency	Biannually
	Monitoring Point	Indoor and Outdoor of proposed project
	Parameters	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , CO
Estimated cost	1,000,000 Kyats per year	
Responsibility	Management of the factory; <ul style="list-style-type: none"> <li>• Head of maintenance -Total implementation of above of air pollution management plan</li> <li>• Production manager -Air quality in the production area is good enough</li> <li>• Manager -To hire organization/independent third-party testing air quality</li> <li>• EHS officer-Monitor the hygiene of ambient air quality in surrounding of the factory</li> </ul>	

### 6.2. NOISE MANAGEMENT PLAN

Objectives:	<ul style="list-style-type: none"> <li>➤ To avoid nuisance noise to nearby residents generated from generator and other machineries.</li> <li>➤ To comply with noise standard of National Environmental Quality (Emission) Guideline</li> </ul>	
Relevant government law and rule	➤ National Environmental Quality (Emission) Guidelines (2015)	
Time Frame	➤ Throughout the project life	
Management Plan	<ul style="list-style-type: none"> <li>➤ Building noise insulated generator room and ensure satisfactory maintenance of relevant equipment</li> <li>➤ Impose speed limit to track and vehicles at the transportation route.</li> <li>➤ Provide sufficient personal protective equipment (PPE) at the work place</li> <li>➤ All the related personnel will be provided proper training about the relevant issues and ensure PPE wear during working in noisy area.</li> </ul>	

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Monitoring & Reporting	Frequency	Biannually
	Monitoring Point	Two points in operation area
	Parameters	Sound Decibel
Estimated cost	500,000 Kyats per year	
Responsibility	HSE Manager or Environmental Management Team of Sunny Arts and Crafts Company Limited	

**6.3. SOLID WASTE MANAGEMENT PLAN**

Objectives:	<ul style="list-style-type: none"> <li>➤ To minimize waste generation by developing strategies for the management and disposal of all waste in a manner that is sustainable and sensitive to the environment</li> <li>➤ To comply government waste management policy</li> </ul>	
Relevant government law and rule	<ul style="list-style-type: none"> <li>➤ Yangon City Development Committee Law (2018), National Waste Management Strategy and Action Plan (Draft 2018)</li> </ul>	
Time Frame	<ul style="list-style-type: none"> <li>➤ Entire life spans of the factory operation</li> </ul>	
Management Plan	<ul style="list-style-type: none"> <li>➤ Must be provides separate garbage bins at each building.</li> <li>➤ All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area</li> <li>➤ Final wastes should be disposed by using YCDC's service.</li> </ul>	
Monitoring & Reporting	<ul style="list-style-type: none"> <li>➤ Daily wastes have to be collected and hand over to YCDC waste collector</li> <li>➤ The inventory record of waste disposal will be maintained as proof for proper management as designed</li> </ul>	
Estimated cost	50,000 Kyats per month	
Responsibility	Manager (HR) <ul style="list-style-type: none"> <li>➤ Responsible for overall site cleanliness and waste management</li> <li>➤ Regular waste collection to minimize excessive waste storage</li> </ul>	

**6.4. LIQUID WASTE MANAGEMENT PLAN (WASTEWATER)**

Objectives:	<ul style="list-style-type: none"> <li>➤ To implementation plan for the management of liquid waste from collection, through treatment and resource recovery, to residual disposal</li> </ul>	
Relevant government law and rule	<ul style="list-style-type: none"> <li>➤ Yangon City Development Committee Law (2018), National Environmental Quality (Emission) Guidelines (2015), Underground Water Act</li> </ul>	
Time Frame	<ul style="list-style-type: none"> <li>➤ Entire life spans of the factory operation</li> </ul>	
Management Plan	<ul style="list-style-type: none"> <li>➤ Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.</li> </ul>	
Monitoring & Reporting	Frequency	Biannually
	Parameters	pH, Turbidity, Conductivity, Iron, Sulphahte, TSS, TDS, Manganese, COD, BOD, Cyanide, Copper, Zinc, Carbonate
	Proper maintenance of drainage and sewerage system will be conducted periodically	
Estimated cost	500,000 Kyats per year	
Responsibility	Manager -To hire organization/independent third-party testing wastewater quality	

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	EHS officer-Monitor the condition of factory's drainage and sewerage system
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**6.5. FIRE MANAGEMENT PLAN**

Objectives:	➤ To ensure that fire control practices are implemented on site to minimise the risk of fire from site operations and bush fires
Relevant government law and rule	➤ Myanmar Fire Brigade Law 2015
Time Frame	➤ Entire life spans of proposed project operation
Management Plan	<ul style="list-style-type: none"> <li>➤ Must be provide fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases.</li> <li>➤ Must be indicated the emergency exit and assembly point in public area.</li> <li>➤ Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire fighting.</li> <li>➤ The emergency fire alarms are installed at the factory for alerting the workers in case of fire.</li> <li>➤ The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.</li> </ul>
Monitoring & Reporting	To check monthly Visual inspection, Firefighting equipment (fire extinguisher, firefighting hose, portable fire pumps, fire hose reels, fire monitor and firefighting nozzles)
Estimated cost	1,200,000 Kyats per year
Responsibility	HSE Manager, Operation Manager or Environmental Management Team of Sunny Arts and Crafts Company Limited

**6.6. OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT PLAN**

Objective	➤ To provide a broad framework for improving standards of workplace health and safety to reduce work-related injury and illness.
Relevant Government Law and Rule	➤ Public Health Law (1972), Prevention and Control of Communicable Diseases Law 1995 (Amendment 2011), Occupational Safety and Health Law (2019)
Time Frame	➤ Entire life spans of proposed project
Management Action	<ul style="list-style-type: none"> <li>➤ First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers.</li> <li>➤ According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers.</li> <li>➤ Personal Protective Equipment (PPE) like earmuffs, safety gloves, helmets and goggles are provided for each department.</li> <li>➤ To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.</li> <li>➤ Manage the drainage systems of the factory to prevent health risk of the workers.</li> <li>➤ The maximum allowable noise level for workers is 90dB(A) for 8hours exposure a day. Thus, adequate protective noise impact measures in the form of ear</li> </ul>



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	muffs/ear plugs to the workers working in high noise areas.
Monitoring and Reporting	<ul style="list-style-type: none"> <li>➤ Weekly check fire extinguishers and water hydrant in position</li> <li>➤ Daily inspect that all fire exist are open</li> <li>➤ Servicing fire extinguisher and records accidents</li> </ul>
Estimated Cost	1,000,000 Kyats per year
Responsible Person	HSE Manager, Operation Manager or Environmental Management Team of Sunny Arts and Crafts Company Limited

**6.7. HAZARDOUS WASTE MANAGEMENT PLAN**

Objective	<ul style="list-style-type: none"> <li>➤ To avoid environmental pollution and adverse health effects due to its improper handling &amp; disposal.</li> </ul>
Relevant Government Law and Rule	<ul style="list-style-type: none"> <li>➤ Yangon City Development Committee Law (2018), Explosive Ordnance Disposal Law (2018)</li> </ul>
Time Frame	<ul style="list-style-type: none"> <li>➤ Entire life spans of proposed project</li> </ul>
Management Action	<ul style="list-style-type: none"> <li>➤ Proper inspection and maintenance in storage of hazardous waste.</li> <li>➤ Dispose of hazardous chemicals and containers in accordance with occupational health, safety and environmental requirements.</li> <li>➤ The empty chemical containers will hand over to suppliers for recycle or appropriate disposal</li> <li>➤ The hazardous wastes are transported by specially licensed carriers and disposed in a licensed faculty (e.g. DOWA and YCDC)</li> </ul>
Monitoring and Reporting	Any hazardous materials purchased should include a Material Safety Data Sheet (MSDS), otherwise known as a Safety Data Sheet (SDS) or Product Safety Data Sheet (PSDS). By mandate of the World Health Organization's Inter-Organization Programme for the Sound Management of Chemicals (IOMC), all manufacturers of hazardous materials are required to provide a MSDS so that end users can treat the materials properly.
Estimated Cost	1,000,000 Kyats per year
Responsible Person	HSE Manager or Environmental Management Team of Sunny Arts and Crafts Company Limited

**6.8. ENERGY MANAGEMENT PLAN**

Objectives:	<ul style="list-style-type: none"> <li>➤ To improve energy efficiency, reduce cost, optimize capital investment, reduce environmental and greenhouse gas emissions, and conserve natural resources</li> </ul>
Relevant government law and rule	<ul style="list-style-type: none"> <li>➤ National Energy Management Committee (Myanmar Energy Master Plan 2015)</li> </ul>
Time Frame	Once in a year throughout the factory life
Management Plan	<ul style="list-style-type: none"> <li>➤ Installation of timers and thermostats to control heating and cooling</li> <li>➤ Energy saving light installed in different area of the factory for saving energy</li> <li>➤ Used of energy saving devices must be installed</li> </ul>

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	<ul style="list-style-type: none"> <li>➤ Ensure that good housekeeping measures such as turning off equipment and lights when not in use</li> </ul>
Monitoring & Reporting	Conduct annual energy efficiency of adult to find out the scope for energy saving
Estimated cost	Approximately 1,000,000 Kyats per year
Responsibility	Manager <ul style="list-style-type: none"> <li>➤ To arrange energy audit technical personnel</li> <li>➤ To monitor and record electricity consumption, other related energy issues and take necessary actions if any problem arises</li> </ul>

**6.9. EMERGENCY RESPONSE AND MANAGEMENT PLAN**

Objectives:	<ul style="list-style-type: none"> <li>➤ To reduce the harmful effects of all hazards, including disasters. The World Health Organization defines an emergency as the state in which normal procedures are interrupted, and immediate measures (management) need to be taken to prevent it from becoming a disaster, which is even harder to recover from.</li> </ul>
Relevant government law and rule	<ul style="list-style-type: none"> <li>➤ The Employment and Skill Development Law (August 2013), ILO guide to Myanmar Labour Law (2017)</li> </ul>
Time Frame	<ul style="list-style-type: none"> <li>➤ Entire life spans of the factory operation</li> </ul>
Management Plan	<ul style="list-style-type: none"> <li>➤ The factory management has taken proper measures to handle any emergency situation like fire, earthquake, flood and storm</li> <li>➤ Provision and inspection of firefighting equipment and fire hydrant system in all the sections</li> <li>➤ A detail evaluation plan (fire exist, emergency exit door, etc.) is established and communicated with workers</li> <li>➤ Periodic inspection of safety relief valve provided with pressure vessels and equipment, preventive maintenance; aware the workers about electric shock by necessary training.</li> <li>➤ Regular fire drill operation is conducted</li> <li>➤ Workers are informed about what to do in earthquake like stay in a safe place such as under table of desk, not to try move outside during earthquake, workers who will be outside during earthquake shall remain stay out of the building, trees, lump post, etc. Other relevant safety instruction of emergency situation it informed to workers by training</li> <li>➤ Workers are aware of dangers from physical hazards such as obstacles covered by floodwater (storm debris, drainage opening, ground erosion) and from displaced reptiles (Snake) or other animals.</li> <li>➤ A medical team has been prepared for primary treatment (First Aid)</li> <li>➤ Prepare an emergency contact directory consisting contact numbers of nearest fire service, local police station, hospitals, etc. and display it in a place that everybody can see it easy.</li> <li>➤ Build a safety committee which from firefighting team, rescue team. The committee arrange a meeting every month to discuss about safety management</li> <li>➤ Ensure proper training of the employees about the disaster management, fire safety as well as occupational health and safety</li> </ul>
Monitoring & Reporting	Weekly check fire extinguishers and water hydrant in position Daily inspect that all fire exist are open Servicing fire extinguisher and records accidents,
Estimated cost	Approximately 1,500,000 Kyats per year

## Environmental Management Plan

Responsibility	Manager and EHS officer <ul style="list-style-type: none"> <li>➤ Arrange firefighting training after every 3 months</li> <li>➤ Responsible for fire control and response</li> <li>➤ Monitoring daily danger warning and bans</li> </ul>
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**6.10. ENVIRONMENTAL MONITORING SCHEDULE AND REPORTING**

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

**Table 6-1 Environmental Monitoring Process**

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
<b>Operation Phase</b>					
Common	Monitoring of mitigation measures	Yearly (3 years after operation)	The project	2,500,000 Kyats	Environmental Management Team's Sunny Arts and Crafts Company Limited
Air quality	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , CO	Biannually monitoring and reporting to ECD (first 3 years after operation)	Outdoor and Indoor of proposed project	800,000 Kyats	Environmental Management Team's Sunny Arts and Crafts Company Limited
Waste Generation	Solid waste, Liquid waste and Hazardous waste	weekly	Recycle house and waste house and at the factory office	50,000 Kyats	Environmental Management Team's Sunny Arts and Crafts Company Limited
Fire Hazardous	Visual inspection, firefighting equipment	Monthly	At the factory	500,000 Kyats	Environmental Management Team's Sunny Arts and Crafts Company Limited
Light intensity	Illuminance	Monthly	At the production line	20,000 Kyats	Environmental Management Team's Sunny Arts and Crafts Company Limited
<b>Decommissioning Phase</b>					
Air quality	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , CO	One time during this	One point in the production area	1,000,000 Kyats	Land Owner

## Environmental Management Plan

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
		phase			
Noise	Noise level in decibel (dBA)	One time during this phase	One points in demolishing area	1,000,000 Kyats	Land Owner
Rehabilitation	Recovering and Revegetation		All decommissioning area		Land Owner

### 6.11. CAPACITY BUILDING AND TRAINING PLAN

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

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

#### 6.11.1. Assignment of Responsibilities

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

#### 6.11.2. Emergency Procedures

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




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

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

#### 6.11.3. Training for Emergencies




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

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

-  Hazard recognition and prevention (fire, explosion, etc.)
-  Proper use of fire extinguishers
-  Emergency reporting procedures

**Environmental Management Plan**

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-  Preventive maintenance
-  Hazardous materials spill response
-  First Aid

**6.11.4. Fire Prevention and Protection**

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

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

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

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

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

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

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

**6.11.5. Fire Protection Equipment**

1. **Explosion Suppression Systems:** Explosion suppression systems should be used in unusually hazardous areas such as elevator legs, boots and head, or in areas such as bins, distributors and tanks.
2. **Portable Fire Extinguishers:** All buildings within a facility must have fully charged and operable portable fire extinguishers. If employees are expected to use portable extinguishers or other firefighting equipment against incipient fires, they must be trained to use the equipment. Training must include the following:
  - Correct type of extinguisher to use on different classes of fire
  - Proper techniques for use of the equipment to extinguish a fire
3. **Standpipes and Hoses:** All areas within a facility that are above 75 feet from ground level and in which combustible materials other than grain are stored should have wet or dry standpipes and hoses installed.
4. **Automatic Sprinkler Systems:** Automatic sprinkler systems are recommended in areas containing combustible materials.
5. **Fire Hydrants:** All grain and feed mill facilities should have adequate public or private fire hydrants on site. Each fire hydrant should have an adequate water supply.



## Environmental Management Plan

## 6.11.6. Fire Safety and Evacuation Plan

Fire Evacuation plans should include the following information

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

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

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

**Table 6-2 American National Fire Fighting Association (NFFA) Standards**

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

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

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

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

**Environmental Management Plan**

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

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

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

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

**6.11.7. Site Fire Control**

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

**6.11.8. Employee Information and Training**

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

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

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

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

**Environmental Management Plan**

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

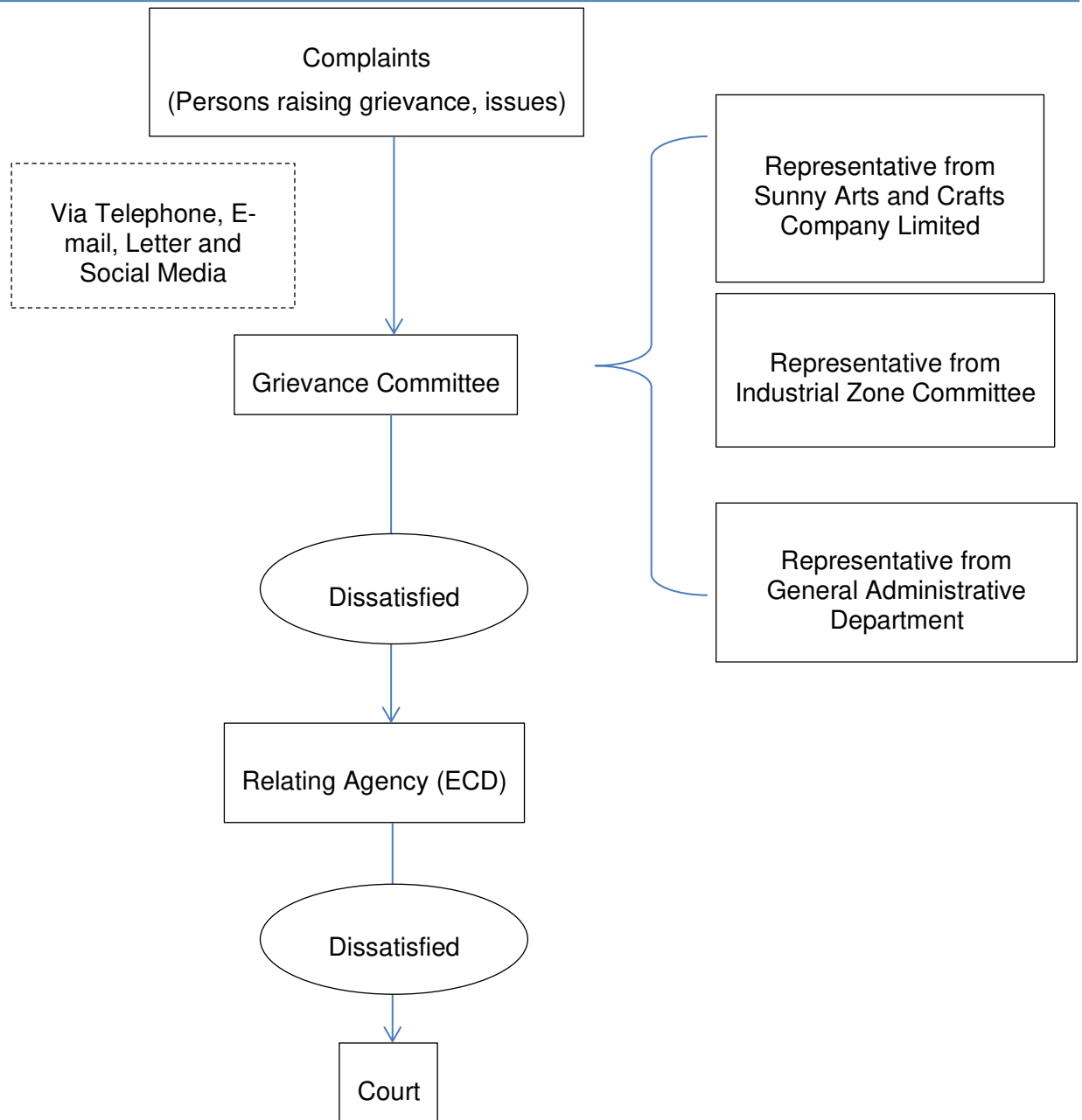
**Table 6-3 Training Plan Used in Sunny Arts and Crafts Company Limited**

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

**6.12. GRIEVANCE REDRESS MECHANISM (GRM)**

People who live near the project affected area or stakeholders can complain about the problems and impacts that they suffer; they can complain through Grievance Committee, which includes the responsible persons of Sunny Arts and Crafts Company Limited representative from Hlaing Thar Yar Industrial Zone and representative from General Administration Department (Hlaing Thar Yar Township). Small issues will be solved at the Grievance Committee stage and other unsolved problems will be submitted to higher responsible authorities and finally the responsible person decided by the court in legal terms. The following diagram show steps of Grievance Redress Mechanism of Proposed Factory Project.

## Environmental Management Plan

**Figure 6-1 Grievance Redress Mechanism Flow Diagram**

## Environmental Management Plan

**6.13. CORPORATE SOCIAL RESPONSIBILITY (CSR) PLAN**

The CSR activities have the objective to uplift quality of life and gain favorable relations from all communities in the operation area. The CSR program for Sunny Arts and Crafts Company Limited consists of three main sectors; Health, Education and Communities Development Sector. CSR activities are conducted in compliance with MIC's guideline for implementation of CSR program.

Sunny Arts and Crafts Company Limited has a plan to implement and donate 2 percent of the profit per year for Corporate Social Responsibility (CSR) and Employee Welfare Arrangement.

**Table 6-4 CSR Plan at Sunny Arts and Crafts Company Limited**

Area	Priority item	Contribution (%)	Estimated Cost (Kyats)	Detail targets
Health	Healthcare for employees and their family	0.5 %	7,500,000	One of our main concerns is the well-being of our employees. We will contribute 0.5 % of our net profit for the healthcare which includes medical checkup for the employees and providing health education to our workers.
Education	Raising awareness education level and human right	0.5 %	10,000,000	We will contribute 0.5 % of our net profit to the public school near the factory to be a part of creating the better community. We will also work together with the school to understand more about the needs and we will also ensure that our contributions will be used in the most effective and efficient way for the society.
Community Development	Donation to local community	1%	7,500,000	<ul style="list-style-type: none"> <li>• Donate to local charities with a worthy cause</li> <li>• Actively participate in community events</li> <li>• Encourage staff to participate, and to form a community engagement team to actively support community events</li> <li>• Embedding understanding and consciousness about human rights issues among the employees</li> <li>• Development of sexual harassment and power harassment (workplace bullying &amp; harassment) prevention efforts</li> </ul>



## 7. PUBLIC CONSULTATION

### 7.1. PUBLIC CONSULTATION PROCESS

This chapter presents results of public consultation and information disclosure conducted for the Sunny Arts and Crafts Company Limited. Public participation can be considered as the required element of the EMP process. In this study various stakeholder's participation were made.

Public consultation during preparation of EMP report was conducted on 17, July, 2020 following the EIA procedure.

The project's stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EMP process for environmental and social clearance and issuing operation permits for proposed development projects.

For this factory, relevant key offices at the national level are Environmental Conservation Department (ECD) and Industry Supervision and Inspection Department.

Relevant key office at the regional level is Yangon City Development Committee (YCDC), General Administrative Department, Fire Department, Factories and General Labor Law Inspection Department, Public Health Department, Industrial Supervision and Inspection Department.

Public consultation carried out after the presentation on the project, followed by questions, answers and discussion. Mr. Si Yan Hein presented EMP study and findings from Myanmar, after the presentation following question and answer section. Summary of public consultation meeting is presented. Summary of public consultation meeting is presented in Table 7-1. Figure 7-1 is shown the consultation meeting photo.

**Table 7-1 Summary of public consultation meeting**

Time and Date	Friday, 17 July 2020 10:30-12:30
Venue	SKY Hotel Meeting Room, Hlaing Thar Yar Township, Yangon.
Agenda	Presentation on the Background Information of Project, Project Description, Impact Assessment, Environmental Mitigation Environmental Management Plan and Monitoring Plan Site survey and performances of Sunny Arts and Crafts Company Limited Received and Answer from feedback of participants



**Figure 7-1 Public consultation meeting photo**

## **7.2. RECOMMENDATION, SUGGESTION AND COMMENT**

After the presentation, the floor opened for questions and answers. There is no question and comment for presentation and EMP draft report, because the project is sample manufacturing of various kinds of Christmas handicrafts, material plasticine modeling clay on CMP Basis.

Suggestion; U Htun Naing Win; Director (General Administration Office)

- To provide 2% of net profit for CSR program according to MIC's guideline for implementation of CSR program for education, health, society, and environment.

Suggestion; U Vial Ngaih Lian; Public Health Department

- Factory workers shall be aware for using the person protective equipment
- To provide long time care of medical checking for workers
- To provide the medicines for aliment and must be enough the medicines for injuries
- To provide the PPE to the employees who work in that factory and

**Environmental Management Plan**

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- To provide the nurse who is not only reality nurse but also got the experience in concerning filed.
- To provide healthy drinking water for employees

Suggestion; U Kyaw Kyaw; Assistant supervisor (Environmental Conservation and Cleaning Department-Industrial Section) YCDC

- To compliance with YCDC procedure for solid waste management and disposed process
- To implement the sufficient septic tank design for workers

## **8. CONCLUSION AND RECOMMENDATION**

### **8.1. CONCLUSION**

Environmental Management Plan (EMP) has been prepared for Sunny Arts and Crafts Company Limited which is located Land Plot No. 102, Myay Taing Block No. (Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon Region. The main objective of the study is focused specially on the required environmental management measures or creating environmentally friendly workplace. An EMP has been carried out for the factory according to the requirement of the proponent as it has been made for various kinds of Christmas handicrafts, material plasticine modeling clay product manufacturing factory.

Sunny Arts and Crafts Company Limited are using ground water for both industrial and household (drinking and sanitation) purpose, which is supplied by deep tube well. The factory also has generators for electricity generation. The fuel used in the industry is Diesel and Purchased electricity. The sanitary liquid waste of the factory is stored in septic tank.

Thus, the factory management can take proper mitigation steps against adverse environmental impacts by following this EMP. The necessary measure to mitigate impact regarding different environmental parameter such as air, water, waste, noise has been proposed in this EMP.

However, all necessary implementation measures to mitigate adverse environmental, health and safety impacts have already been taken to meet National Environmental Quality (Emission) Guideline (2015). On the other, the factory has positive impacts in terms of environmental in the operation phase. Further, this will indirectly help in boosting up the national economic condition through foreign investment. An outline of EMP has been given in the present report to mitigate/enhance the impacts, which occurs during operation phase of the factory.

The effective implementation of the mitigation measures proposed will ensure towards good environmental management within the proposed project area. Furthermore, the environmental monitoring plan prepared as part of the EMP will provide adequate opportunities to address any residual impacts during the operation phase.

In conclusion, it has been figured out that, the proposed various kinds of Christmas handicrafts, material plasticine modeling clay factory is going to generate local employment opportunities and enhance capabilities and working skills of employees. Consequently, their socio-economic standard is expected to be improved and undertaking corporate social responsibilities (CSR) as recommended. The study further concluded that positive impacts will be of immense benefit to the local community and national development as well.

### **8.2. RECOMMENDATION**

It is recommended that;

- All appropriate environmental management measures detailed in this report, together with any other environmental management commitments should be implemented throughout the entire life of the factory
- Solid wastes and liquid wastes need to be disposed according to Yangon City Development Committee (YCDC) rules and regulations

**Environmental Management Plan**

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- Workers should be provided proper training and it should be ensured that workers use PPE during factory operation area.
- Daily, monthly and annual action plans shall be formulated based on this EMP and practiced at operation level.
- Keep full records of environmental management activities
- Abide environmental policies, laws, rules and instructions of the Republic of the Union of Myanmar.

Finally, the proponent should follow the comments and suggestions made by ECD after reviewing this EMP report. Once concerned authorities approve EMP, effective implementation of EMP by the project proponent is essential. The Project Proponent shall submit monitoring report to the Ministry every six (6) months, as provided in a schedule in the EMP. The proponent should abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.



## 9. REFERENCE

- [1] General Administrative Department (Hlaing Thar Yar Township), Hlaing Thar Yar Township Data (2019).
- [2] Hla Hla Aung, Potential Seismicity of Yangon Region (Geological Approach), "Yangon Surface Displacement As Detected by Insar Time Series Analysis" July 2011.
- [3] Ministry of Natural Resources and Environmental Conversation (MONREC), "Environmental Impact Assessment Procedure" December 2015.
- [4] Ministry of Natural Resources and Environmental Conversation (MONREC), "National Environmental Quality (Emission) Guidelines" December 2015.
- [5] Specifications for accident prevention signs and tags, regulations (standards 29-CFR), Occupational Safety and Health Administration.
- [6] [https://weatherspark.com/y/112503/Average-Weather-in-Yangon-Myanmar-\(Burma\)-Year-Round](https://weatherspark.com/y/112503/Average-Weather-in-Yangon-Myanmar-(Burma)-Year-Round).

**APPENDIX A**  
**Sunny Arts and Crafts Company Limited**

Form (5-B)

# THE REPUBLIC OF THE UNION OF MYANMAR

Yangon Region Investment Committee

## ENDORSEMENT

Endorsement No. YGN 299/2019

Date 9 December 2019

This endorsement is issued by Yangon Region Investment Committee accordance with Section 25 (d) of the Myanmar Investment Law-

- (1) Investor Name MR. LU CHONGGAO
- (2) Citizenship CHINESE
- (3) Residence Address ROOM 1002, UNIT 4, BUILDING 2, NO.1, JIDA ROAD, ZHUHAI, GUANGDONG, THE PEOPLE'S REPUBLIC OF CHINA
- (4) Name and Address of Principal Organization SUNNY ARTS & CRAFTS COMPANY LIMITED, PLOT NO. 102, MYAY TAING BLOCK NO. PART 4, INDUSTRIAL ZONE, HLAING THAR YAR TOWNSHIP, YANGON
- (5) Place of Incorporation MYANMAR
- (6) Type of business MANUFACTURING OF VARIOUS KINDS OF DOLLS ON CMP BASIS
- (7) Place(s) of investment PROJECT PLOT NO. 102, MYAY TAING BLOCK NO. part 4, INDUSTRIAL ZONE, HLAING THAR YAR TOWNSHIP, YANGON REGION
- (8) Foreign Capital Amount US\$ 1.200 MILLION
- (9) Period for Foreign Capital to be brought in WITHIN 1 YEAR FROM THE DATE OF ISSUANCE OF ENDORSEMENT
- (10) Total Amount of Capital (Kyat) EQUIVALENT IN KYAT OF US\$ 1.200 MILLION
- (11) Construction/ Preparation Period 1 YEAR
- (12) Validity of Endorsement 15 YEARS
- (13) Form of Investment WHOLLY FOREIGN OWNED
- (14) Name of Company Incorporated in Myanmar SUNNY ARTS & CRAFTS COMPANY LIMITED

YRIC 299/2019

*CF*  
9/12/2019

(Phyo Min Thein)

Chairman



ပုံစံ (၅-ခ)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်  
ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ  
အတည်ပြုမိန့်

အတည်ပြုမိန့်အမှတ် ရကတ- ၂၉၉/၂၀၁၉ ၂၀၁၉ ခုနှစ် ဒီဇင်ဘာလ ၉ ရက်

ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှု ကော်မတီသည် မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု ဥပဒေ ပုဒ်မ-၂၅(ဃ) အရ ဤအတည်ပြုမိန့်ကိုထုတ်ပေးလိုက်သည် -

- (၁) ရင်းနှီးမြှုပ်နှံသူ/ကမကထပြုသူ အမည် MR. LU CHONGGAO
- (၂) နိုင်ငံသား CHINESE
- (၃) နေရပ်လိပ်စာ ROOM 1002, UNIT 4, BUILDING 2, NO.1, JIDA ROAD, ZHUHAI, GUANGDONG, THE PEOPLE'S REPUBLIC OF CHINA
- (၄) ပင်မအဖွဲ့အစည်းအမည်နှင့်လိပ်စာ SUNNY ARTS & CRAFTS COMPANY LIMITED, မြေကွက်အမှတ်- ၁၀၂ ၊ မြေတိုင်းရပ်ကွက် အမှတ်-အပိုင်းငှါ စက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်မြို့
- (၅) ဖွဲ့စည်းရာအရပ် မြန်မာ
- (၆) ရင်းနှီးမြှုပ်နှံသည့်လုပ်ငန်းအမျိုးအစား CMP စနစ်ဖြင့် အရုပ်အမျိုးမျိုး ထုတ်လုပ်ခြင်း လုပ်ငန်း
- (၇) ရင်းနှီးမြှုပ်နှံသည့်အရပ်ဒေသ(များ) မြေကွက်အမှတ်- ၁၀၂ ၊ မြေတိုင်းရပ်ကွက် အမှတ်-အပိုင်းငှါ စက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်တိုင်း ဒေသကြီး
- (၈) နိုင်ငံခြားမတည်ငွေရင်း ပမာဏ အမေရိကန်ဒေါ်လာ ၁.၂၀၀ သန်း
- (၉) နိုင်ငံခြားမတည်ငွေရင်းယူဆောင်လာရမည့်ကာလ အတည်ပြုမိန့် ရရှိသည့်နေ့မှ ၁ နှစ် အတွင်း
- (၁၀) စုစုပေါင်း မတည်ငွေရင်းပမာဏ(ကျပ်) အမေရိကန်ဒေါ်လာ ၁.၂၀၀သန်း နှင့် ညီမျှသော မြန်မာကျပ်ငွေ
- (၁၁) တည်ဆောက်မှုကာလ ၁ နှစ်
- (၁၂) ရင်းနှီးမြှုပ်နှံမှုခွင့်ပြုသည့် သက်တမ်း ၁၅ နှစ်
- (၁၃) ရင်းနှီးမြှုပ်နှံမှုပုံစံ ရာခိုင်နှုန်းပြည့် နိုင်ငံခြား ရင်းနှီးမြှုပ်နှံမှု
- (၁၄) မြန်မာနိုင်ငံတွင် ဖွဲ့စည်းမည့် ကုမ္ပဏီအမည် SUNNY ARTS & CRAFTS COMPANY LIMITED



(ဖြိုးမင်းသိန်း)  
ဥက္ကဋ္ဌ





Confidential

THE REPUBLIC OF THE UNION OF MYANMAR  
YANGON REGION INVESTMENT COMMITTEE

Plot No. 49, Seinlae May Street,  
Kabar Aye Pogada Road, Yankin Township, Yangon.

Tel: 01- 658263

Our ref :YRIC-1/E299/2019( 1403 )

Fax: 01- 658264

Date : 9 December 2019

Subject : Decision of the Yangon Region Investment Committee regarding on  
Endorsement for manufacturing of various kinds of bags on CMP  
basis under the name of Sunny Arts & Crafts Company Limited.

Reference: Sunny Arts & Crafts Company Limited's letter dated 2/12/2019.

1. The Yangon Region Investment Committee, at its (20/2019) meeting held on 3/12/2019, approved the Endorsement for investment for manufacturing of various kinds of bags on CMP basis under the name of Sunny Arts & Crafts Company Limited submitted by Mr. Lu Chonggao (100%) from the People's Republic Of China as a wholly foreign owned investment in accordance with the Myanmar Investment Law and Rules.
2. The terms and conditions of the Endorsement are as follows:
  - (a) The term of the Endorsed project shall be fifteen(15) years commencing from the date of the issuance of the Endorsement by the Yangon Region Investment Committee.
  - (b) The term of the Land and Building Lease Agreement shall be an initial five(5) years commencing from the date of the agreement between U San Ji Kumar (Lessor) and Sunny Arts & Crafts Company Limited (Lessee) and shall be extendable for a period of five (5) years, and a further consecutive period of five(5)years by mutual agreement between the Lessor and the Lessee subject to the approval of the Yangon Region Investment Committee.
  - (c) The annual rent for land and building shall be Kyat 30.00 million (Kyat thirty million only)for the total area of the land measuring 1.104 acres.

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- (d) Sunny Arts & Crafts Company Limited, may submit an application form for the right to use land under Chapter XII and exemptions and reliefs under Sections 75, 77 and 78 of Chapter XVIII of the Myanmar Investment Law.
- (e) Sunny Arts & Crafts Company Limited shall use its best efforts to achieve a timely realization of the work stated in the Endorsement application.
- (f) Sunny Arts & Crafts Company Limited shall obey and respect the responsibilities of investors under Section 65 of the Myanmar Investment Law and Chapter XX of the Myanmar Investment Rules.
- (g) Sunny Arts & Crafts Company Limited shall carry out of prevention, mitigation and monitoring of significant environmental impacts according to the type of investment activities in accordance with the relevant laws, rules, regulations and procedures.
- (h) Sunny Arts & Crafts Company Limited shall abide by the Fire Services Department's rules, regulations, directives and instructions. Moreover, Sunny Arts & Crafts Company Limited shall undertake fire prevention measures such as the appropriate placement of water storage tank, fire hooks, sand bags, and fire extinguishers, and training will be provided to all employees regarding the use of fire fighting equipment. Sunny Arts & Crafts Company Limited shall also appoint a specific individual who shall be called the Fire Safety Officer (FSO) who shall be designated responsible for on-site safety and coordination within the organization.
- (i) Sunny Arts & Crafts Company Limited shall submit to the Myanmar Investment Commission any sublease, mortgage, transfer of shares or transfer of the business to any person during the investment period in accordance with Section 72 of Myanmar Investment Law and Rule 191 of the Myanmar Investment Rules.
- (j) Sunny Arts & Crafts Company Limited shall submit an annual report in the prescribed form to the Myanmar Investment Commission

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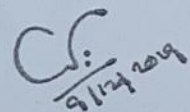
- 3 -

within three (3) months of the end of the financial year in accordance with Rule 196 of the Myanmar Investment Rules and shall disclose a summary of the report on its website or the Myanmar Investment Commission's website.

- (k) Sunny Arts & Crafts Company Limited must, during the operation period under the Endorsement of the Myanmar Investment Commission, submit its operating report quarterly in the prescribed form in accordance with Rule 197 of Myanmar Investment Rules.

3. Sunny Arts & Crafts Company Limited shall carry out in accordance with the laws, regulations and stipulations of relevant Union Ministries, governmental department and governmental organizations the obtaining of any license, permit or registration as per Section 65(d) of the Myanmar Investment Law.

4. Sunny Arts & Crafts Company Limited shall submit five (5) copies of all approvals, licences, permits and similar authorizations relevant to the initial implementation of the investment and Lease Agreement to the Yangon Region Investment Committee.

  
(Phyto Min Thein)  
Chairman

Sunny Arts & Crafts Company Limited

- cc: 1. The Office of the Union Government  
2. Ministry of Home Affairs  
3. Ministry of Office of the Union Government  
4. Ministry of Natural Resources and Environmental Conservation  
5. Ministry of Labour, Immigration and Population  
6. Ministry of Commerce  
7. Ministry of Planning, Finance and Industry  
8. Ministry of Investment and Foreign Economic Relations

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- 4 -

9. Central Bank of Myanmar
10. Office of the Myanmar Investment Commission
11. Chairman, CMP Enterprises Supervision Committee
12. Director General, Department of Environmental Conservation
13. Director General, Directorate of Labour
14. Director General, Department of Immigration
15. Director General, Directorate of Industrial Supervision and Inspection
16. Director General, Department of Trade
17. Director General, National Archives Department
18. Director General, Customs Department
19. Director General, Internal Revenue Department
20. Director General, Directorate of Investment and Company Administration
21. Monitoring and Supervision Division , Directorate of Investment and Company Administration

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## APPENDIX B

### Transitional Consultant Registration Certificate



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



CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION  
 (ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 10068 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<br>(အဖွဲ့အစည်းအမည်)   | Myanwei Consulting Co., Ltd.   |
| (b) Name of the representative in the organization<br>(အဖွဲ့အစည်းကိုယ်စားလှယ်၏အမည်)  | U Nyan Lynn Aung   |
| (c) Citizenship of the representative in the organization<br>(အဖွဲ့အစည်းကိုယ်စားလှယ်၏နိုင်ငံသား)   | Myanmar  |
| (d) Identity Card /Passport Number of the representative person in the organization<br>(အဖွဲ့အစည်းကိုယ်စားလှယ်၏ မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်) | 12/Sakhana(N)056196  |
| (e) Address of organization<br>(ဆက်သွယ်ရန်လိပ်စာ)  | No. 28, Myay nu street, Sanchaung Township,<br>Yangon, Myanmar.<br>Mobile phone: 09440251888<br>E mail: <a href="mailto:ceo@myanweiconsulting.com">ceo@myanweiconsulting.com</a> |
| (f) Type of Consultancy<br>(အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)   | Organization   |
| (g) Duration of validity<br>(သက်တမ်းကုန်ဆုံးရက်)   | 31 December 2019   |




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

Areas of Expertise Permitted  
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Facilitation of meeting,
2. Land use,
3. Legal analysis,
4. Geology and soil,
5. Occupational Safety and Health,
6. Public Health








**REPUBLIC OF THE UNION OF MYANMAR**

**Ministry of Natural Resources and Environmental Conservation**

**CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION**

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)




No. 10048

Date ၁၇ မတ် ၂၀၁၇

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 သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a) Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Lin Htet Sein
(b) Citizenship (နိုင်ငံသား)	Myanmar
(c) Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	7/ Tha Ka Na (N) 101377
(d) Address (ဆက်သွယ်ရန်လိပ်စာ)	No.54, Room No.704, Waizayantar Tower, Waizayantar Road, Thingangyun Township, Yangon. <a href="mailto:lin.tbs@gmail.com">lin.tbs@gmail.com</a> , 09 421137569
(e) Organization (အဖွဲ့အစည်း)	Total Business Solution Co., Ltd.
(f) Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g) Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

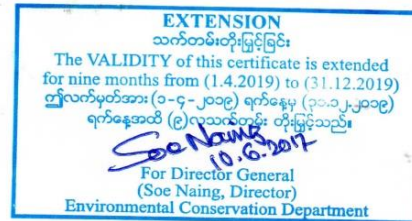


Director General  
Environmental Conservation Department  
Ministry of Natural Resources and Environmental Conservation



**Areas of Expertise Permitted**  
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Geology and Soil



## APPENDIX C

### Monitoring Result

#### Air Quality Result



Plot No. (36, 38), Room No. 9A, 9<sup>th</sup> floor, Grand Myay Nu Condominium, Myay Nu Street, Sanchaung Township, Yangon Region, The Republic of the Union of Myanmar.  
Office: (+95) 1 526574, Mobile: (+95) 9775405118, 9792528677, 9449251888; Website: www.myanmarconsulting.com

Project Name:	Sunny Arts and Crafts Company Limited
Project Location:	Land Plot No. 102, Myay Taing Block No.(Part-4), Industrial Zone, Hlaing Thar Yar Township, Yangon Region.
Sampling Date:	July 09, 2020
Sampling Time:	10:00 am to 5:00 pm
Sampling Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
OCEANUS-AQM-09	PM, O <sub>3</sub> , NO <sub>2</sub> , SO <sub>2</sub> , CO Detector	0-999.9 (µg/m <sup>3</sup> )	Operation Area

#### National Environmental Quality (Emission) Guideline

Parameter	Averaging period	Guideline value	Unit
PM 10 <sup>a</sup>	1-year	20	(µg/m <sup>3</sup> )
	24-hour	50	
PM 2.5 <sup>a</sup>	1-year	10	(µg/m <sup>3</sup> )
	24-hour	25	
O <sub>3</sub> <sup>a</sup>	8-hour	100	(µg/m <sup>3</sup> )
NO <sub>2</sub> <sup>a</sup>	1-year	40	(µg/m <sup>3</sup> )
	1-hour	200	
SO <sub>2</sub> <sup>a</sup>	24-hour	20	(µg/m <sup>3</sup> )
	10-min	500	

a. Values from air quality guidelines-global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide.

#### Monitoring Result

Parameters	Observed value	Guideline value	Unit	Organization	Period
PM <sub>10</sub>	15.99	50	µg/m <sup>3</sup>	NEQG	7 hours
PM <sub>2.5</sub>	10.95	25	µg/m <sup>3</sup>	NEQG	7 hours
SO <sub>2</sub>	19	20	µg/m <sup>3</sup>	NEQG	7 hours

Environmental Management Plan

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NO <sub>2</sub>	109	200	µg/m <sup>3</sup>	NEQG	7 hours
O <sub>3</sub>	68.9	100	µg/m <sup>3</sup>	NEQG	7 hours
CO	0.3	-	ppm	-	7 hours



**LIN HTET SEIN**  
**DIRECTOR**  
**MYANWEI ENVIRONMENTAL SOLUTIONS**  
**COMPANY LIMITED.**

## Noise Result



Plot No. (36, 38), Room No. 9A, 9<sup>th</sup> floor, Grand Myay Nu Condominium, Myay Nu Street, Sanchaung Township, Yangon Region, The Republic of the Union of Myanmar.  
Office: (+95) 1 526574, Mobile: (+95) 9775405118, 9792528677, 9449251888; Website: www.myanweiconsulting.com

Project Name:	Sunny Arts and Crafts Company Limited
Project	Land Plot No. 102, Myay Taing Block No.(Part-4), Industrial Zone,
Location:	Hlaing Thar Yar Township, Yangon Region.
Sampling	July 09, 2020
Date:	
Sampling	10:00 am To 5:00 pm
Time:	
Sampling	
Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Digital Sound Level Meter	GM 1356 USB	30 -130 dB	16°51'29.97"N and 96°3'27.57"E

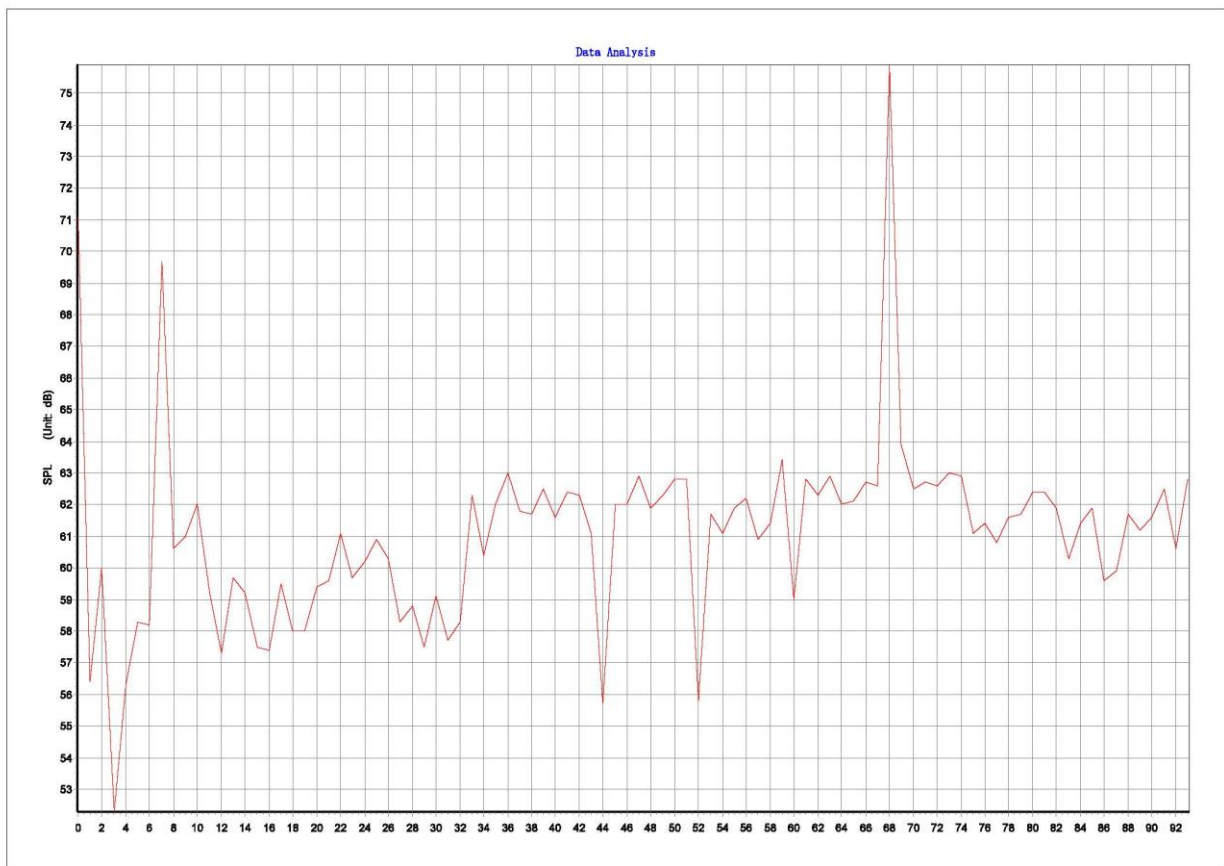
No	Place	Unit	Result	Standard	Remark
1	Operation Area	dBA	64.1	70 dBA	-

## National Environmental Quality (Emission) Guideline

Receptor	One Hour Laeq (dBA)	Guideline value
	Daytime	Nighttime
	7:00 – 22:00 (10:00 – 22:00 for Public holidays)	22:00 – 07:00 (22:00 – 10:00 for Public holidays)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

**LIN HTET SEIN**  
**DIRECTOR**  
**MYANWEI ENVIRONMENTAL SOLUTIONS**  
**COMPANY LIMITED.**

## Monitoring Graph





## SUNNY ARTS AND CRAFTS COMPANY LIMITED

### Environmental Management Plan

### Light Result



Plot No. (36, 38), Room No. 9A, 9<sup>th</sup> floor, Grand Myay Nu Condominium, Myay Nu Street, Sanchaung Township, Yangon Region, The Republic of the Union of Myanmar.  
Office: (+95) 1 526574, Mobile: (+95) 9775405118, 9792528677, 9449251888; Website: www.myanweiconsulting.com

Project Name:	Sunny Arts and Crafts Company Limited
Project	Land Plot No. 102, Myay Taing Block No.(Part-4), Industrial Zone,
Location:	Hlaing Thar Yar Township, Yangon Region.
Sampling	July 09, 2020
Date:	
Sampling	10:00 am to 5:00 pm
Time:	
Sampling	
Condition:	
Sampling By:	Environmental Team Represented By Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Uni-T (Luminometer)	UT380 Series	100 times/second	16°51'29.97"N 96° 3'27.57"E

No.	Measure area	Unit	Result	Standard	Remark
1	Warehouse Area	Lux	247.6	300	Normal
2	Mixing Area	Lux	591	500	Above
3	Attaching Area	Lux	1299	1000	Above
4	Drying Area	Lux	304	600	Normal
5	Quality Inspection Area	Lux	314	900	Normal
6	Packing Area	Lux	118.4	600	Normal

#### IEESNA Lighting Handbook

Department	Type of Light	Wattage of Light	Lux Level
Warehouse	Fluorescent tube light	40 W	300
Sewing floor	LED tube light	20 W (T8)	400
Cutting floor	LED tube light	22 W (T8)	1000
Finishing	LED tube light	28 W (T8)	600
Inspection points	LED tube light	28 W (T8)	900 (except 1500 at

**SUNNY ARTS AND CRAFTS COMPANY LIMITED**

**Environmental Management Plan**

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Inspection points	LED tube light	28 W (T8)	900 (except 1500 at audit tables)
Sampling	LED tube light	22 W (T8)	500
Office areas	Fluorescent tube light	36 W (T)	300



**LIN HTET SEIN**  
**DIRECTOR**  
**MYANWEI ENVIRONMENTAL SOLUTIONS**  
**COMPANY LIMITED.**