YACHENG FOOTWEAR COMPANY LIMITED

ENVIRONMENTAL MANAGEMENT PLAN

FOR

FOOTWEAR PRODUCTION FACTORY PROJECT, MINGALARDON TOWNSHIP, YANGON REGION

August 2020

National Engineering & Planning Services Co., Ltd, Myanmar

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ABBREVIATIONS AND ACRONYMS

Abbreviations	
BPC	Bio-Physical and Chemical
EERT	External Emergency Response Team
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMO	Environmental Management Officer
ERT	Emergency Response Team
ERTL	Emergency Response Team Leader
ESO	Environmental Site Officer
ESMU	Environmental and Social Management Unit
HSE	Health, Safety and Environment
IFC	International Finance Corporation
ESIA	Environmental and Social Impact Assessment
NEPS	National Engineering & Planning Services Co., Ltd.
MONREC	Ministry of Natural Resources and Environmental Conservation
MOEE	Ministry of Electricity and Energy
O_3	Ozone
OH & S Code	Occupational Health and Safety Code
PCM	Public Consultation Meeting
pH	Measurement of Acidity and Alkalinity
PM_{10}	Particulate Matter < 10 μ m
$PM_{2.5}$	Particulate Matter < 2.5 μ m
SAR	Sodium Adsorption Ratio
SO_2	Sulfur Dioxide
SEC	Socio-Economic and Cultural
SIA	Social Impact Assessment
SPM	Suspended Particulate Matter
TSPM	Total Suspended Particulate Matter
TSS	Total Suspended Solid
VOCs	Volatile Organic Compounds

APPENDICES

ENVIRONMENTAL MANAGEMENT PLAN (EMP) REPORT ON FOOTWEAR PRODUCTION FACTORY PROJECT, YANGON INDUSTRIAL ZONE, MINGALARDON TOWNSHIP, YANGON REGION

1. EXECUTIVE SUMMARY

1.1 Introduction

The Project Proponent "Yacheng Footwear Co., Ltd" has been leased by the relevant authority for the land and building premises at Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region to produce footwear, mostly ladies shoes by CMP (Cut-Manufacture-Pack) system with manufacturing by client-ordered design.

1.2 Project Detail

Project Site:	Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region.
Project Proponent:	Yacheng Footwear Co., Ltd.
Description of Project:	Footwear Production Factory Project
Project Site Area:	2.003 acres
Project Investment:	3.5 Million USD (100% Foreign Investment Company Yacheng Footwear Co., Ltd.)
Land Acquisition:	Government owned land leased for sixty years Land and Building Leased from Landlord, U Yang Chin Yu, for 10 full years from (7-6-2019) to (6-6-2029) ***Project Completion:*** Completion of Construction Phase is 100%
Project Water Supply:	Tube well water, treated by RO treatment Plant for domestic water consumption
Electrical Power Supply:	National Grid (Transformer) 315 KVA), 2 Gen-sets (400 KVA, 187.5 KVA
Solid Waste Disposal:	Solid Waste generated by production process is collected by Local Municipality twice a month and transported to landfill site.

1.3 Description of Project

Project Investment for Yacheng Footwear Production Factory Project is 3.5 Million USD (100% Foreign Investment Company by Yacheng Footwear Co., Ltd). Land and building are leased from U Yang Chin Yu for 2.003 acres (87264 ft^2) at 10 years; as of the rent USD 13676 per month, in total USD 164112 per year for the first 5 years; as of the rent USD 18045.86 per

month, in total USD 216550.43 per year for the remaining 5 years to be paid every 2 years.

For manufacturing of varieties of shoes to be exported on (CMP) System, the factory infrastructures have already been constructed and its completion of construction phase is 100% now. Infrastructures at project site include:

- **Factory Building-A** (24mx90m) $1^{1/2}$ storeyed Industrial type steel structure
- **Factory Building-B** (18mx90m) $1^{1/2}$ storeyed industrial type steel structure
- **Dormitory and Canteen Building** (38mx15m) 3 storeyed industrial type steel structure

The machinery, raw materials and other necessaries are intended to be imported from foreign country to produce the finished products from this factory. These raw materials are certified to ensure safe transportation to the project site as non-hazardous materials. The chemicals used are usually imported from Taiwan and China, and its wastes management follows YCDC guidelines. Moreover, total types of 40 machineries will be used for production of footwear.

At the project site, tube well water is treated by RO treatment plant for domestic water consumption. The required electrical supply is got from National Grid and two generators are also provided for emergency cases. The factory provides health clinic for workers. The waste is dumped properly by connecting with YCDC twice a month.

The project has completed the construction phase of all infrastructures including warehouse, dormitory, factory and offices, and staff /security offices. Now it is in its operational phase and the plant runs by about 550 employees. Emergency Preparedness Plan and Fire Protection Equipment are being supplied and carried out systematically.

1.4 Summary of Baseline Physical and Social Environment

(a) Meteorology: Climate of the project area is subtropical climate; hot and humid weather with maximum temperature of 39°C and minimum temperature of 15.5°C. Annual rainfall over the area averages 2653 mm (103 inches) during the past four year. Annual wind speed at Yangon generally ranges from maximum wind speed of 9.3 kmph and minimum wind speed of 2.5 kmph with mean annual relative humidity of 73%.

(b) Air Quality: Ambient Air pollution and Noise level tests at the selected monitoring point in the project area was conducted by the Haxagonal Angle Consulting Team on 6^{th}-7^{th} July of 2020, using OCEANUS^{TM} AQM-09. During the assessment, the average temperature was 23.93°C and relative humidity was 83.88%. The measured parameters are dust particles such as TSP, PM_{10}, $PM_{2.5}$, and the gaseous pollutants such as NO_2, SO_2, CO_2, CO and O_3. Measurements were recorded in the operation with duration of 24 hours between consecutive measurements and the results are compared with National Environmental Quality (Emission) Guideline and all parameters meet the permissible limits of Myanmar National Standard, 2015.

(c) Noise Quality: Baseline noise quality was measured in one location of the project site using

BENTECH GM 1356 (Digital Sound Level Meter). According to the analysis, noise level at the site and nearby areas during working hour is 73.1 dBA, which slightly exceeds the permissible limit of 70 dBA. However, the noise level for night time is 57.95 dBA which is found to be within the permissible limits o f 70 dBA as Myanmar National Standard (2015) for Industrial area.

(d) Water Quality: The water quality assessment for R.O physio-water at the project site is done at ISO Tech Laboratory in July 2019. All of the physio-chemical and microbiological analyses are in comply with the National and WHO drinking water quality guidelines. Therefore, the water quality assessment indicated that the water is suitable for drinking purposes or industrial uses.

(e) Soil Quality: The soil types and the soil characteristics of representative soils in the project area are available in details respectively. According to soil types and soil characteristics of Myanmar, Ministry of Agriculture and Irrigation, March 2004, the soils of the project area are Meadow and Meadow alluvial soils.

(f) Flora and Fauna: Since the project area is situated closed to urban and industrial zone, there is no significant flora and fauna existed around the vicinity area. The specific study area has already been urbanized with human activities and land uses over the past years. So that, the site within the industrial area has no significant vegetation or habitat for wildlife but its vegetation mainly comprises of the road side vegetation.

(g) Sensitive Ecosystem: As of sensitive ecosystem including wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, elephant reserve and wetlands, Hlawga National Park is a site about 7 km away located in northwest of the project site within 10 km range of the project site. Also, Yangon International Airport, City Golf Club and Golf Course are situated within 10 km range of the project site to its western part.

(h) Land use: Since the project site is located within the most developing township in Yangon City Region, all of five main types of land uses; namely residential, agricultural, recreational, transportation and commercial, were observed .Out of the total land use area of 26681.6 acres, almost 16 % of the total area of Mingalardon Township covers agriculture land, almost 27% of forest, 28% of urban and built-up areas, 0.2% of industrial area, 0.7% of uncultivated land and over 28 % of area by other uses.

(i) Socio-economic Data: The proposed site is located on the southern part of Mingalardon Township, Yangon Region, Myanmar and the site is bordered by four townships namely: Hlegu Township and North Okkalarpa Township in the east, Shwepyithar and Insein township in the west, Mayangone Township in the south and HmawbiTownship in the north. Since the project site is located in Yangon Industrial Zone, there are also industries and human settlement around the environment. Therefore, all socioeconomic data were obtained from industrial and residential ward areas where the project site is located.

(j) Socio-Economic Status: According to 2019 social study, the total population of the study area is 263798 with total household of 57380. Male female ratio of the study area is 1:1.2 as of

2019. The ethnicity of 94% is Burma and others make less than 6% including foreigners. Out of the total population, the number of people who can work is 129141 and the unemployment rate is 19.53%. Main livelihoods are government services, industrial worker, merchant, livestock breeding, agriculture, casual labor and others.

1.5 Summary of Direct Environmental Impacts resulting from the Project Operation, Mitigation and Management Plan

The impacts have been assessed according to four parameters: Extent, Duration, Magnitude and Probability. These four parameters of environmental significance are assigned a score from 1 to 3 based on a grading, which is illustrated in the table below; this then allows an assessment of overall significance to emerge.

SCORE	Extent	Duration	Magnitude	Probability
1	Direct impact zone: Within the works/site area or immediate surroundings	Short: The impact is short term (0- 12 months) or intermittent	Low: No or negligible alterations to No or minimal change to socio-economic condition	Low
2	Locally: Effects measurable/noticeable outside the works area and immediate surroundings	Medium: Medium term (1-2 years)	Medium: Natural ecosystems are modified Changes are experienced to socio-economic	Medium
3	Wide Area: The activity has impact on a larger scale	Long: the impact persists beyond the construction phase for years or the operational life of the project area may be continuous	High: Environmental functions altered Socio-economic conditions highly modified. Effects may be permanent or irreversible	High

Based on the scores related to extent, duration, magnitude and probability of a specific impact, the significance of the impact is expressed as an indicator given by:

Significance indicator = (Extent + Duration + Probability) x Magnitude

The Summary of the Impact Assessment for the Bio-Physical and Chemical, Socio-Economic and Cultural parameters are as follows:

Operational Phase		
Ref.	**Impact/Issue**	**Significance**
Bio-Physical & Chemical		
BPC/1	Changes in surface water quality	low
BPC/2	Changes in groundwater quality	low
BPC/3	Changes to drainage patterns	low

Operational Phase		
BPC/4	Risk of Soil erosion and siltation	low
BPC/5	Changes to air quality	medium
BPC/6	Changes to ambient noise levels	low
BPC/7	Changes to aquatic biota	low
BPC/8	Changes to terrestrial biota	low
BPC/9	Changes to disease vector populations	medium
BPC/10	Changes to land cover	low
BPC/11	Changes in natural heritage site	low
Socio-Economic & Cultural		
SEC/1	Changes involving loss of private assets	low
SEC/2	Changes involving loss of cultural heritage	low
SEC/3	Changes involving displacement of people	low
SEC/4	Changes to local traffic patterns	low
SEC/5	Changes in local wage labour incomes/livelihood opportunities	medium
SEC/6	Changes in local trade/commercial incomes/opportunities	medium
SEC/7	Changes in visual amenity	medium
SEC/8	Changes to public infrastructure/community resources	medium

Note: Impacts are negative unless indicated with shading in green color in the above impact matrix table.

The mitigation measures for the above identified impacts are based on the environmental practice for improving safety, health and working environment in the informal footwear sector[1].

Operational Phase Mitigation Measures:

- Periodically clear drainage at dumping / storage site;
- Practice good housekeeping: Keep workshop environmentally clean, prohibit dust;
- Implement Health and Safety Routines for the site:
- Protect workers' occupational health with good lighting, safe drinking water, clean air and sanitation facilities;
- Conduct public awareness raising on environment;
- Community safety monitoring to be carried out;

[1] *ILO, Improving Safety, Health and Working Environment in the Informal Footwear Sector*

- Periodically checking of storage site and related structure;
- Check no interference with private / public assets;
- Ensure emergency response plan;
- Prioritized loading and unloading during daylight hours;
- Ensure vehicle and engine exhausts fully operational;
- Consider integrated waste management for footwear industry: prevention, minimization/reduction, reuse, recycling, energy recovery, and disposal.

1.6 Summary of Stakeholder Engagement

- Yacheng Footwear Co., Ltd. adheres to the Rules and Regulations of the Myanmar Investment Corporation (MIC) and Union of Myanmar Government standing orders for CMP (Cut-Make-Pack) process for production of foot wear.
- Basically the factory produce foot wears for ladies (casual and sports). All the raw materials such as leather, glue, cloth, etc. are imported and their end-product footwear is being exported to affiliated company "Yatai" in China.
- There is a health clinic in our premises with one nurse to take care of the staff on duty. About 550 staffs and those who live outside the factory are being provided with transportation to and from project site. Foreign experts, managers and translators are accommodated in the factory premises.
- The production process is just cut, glue, stitch and produce the output product according to ordered footwear design. The waste produced is stored in a different store-house and the YCDC (municipality of Yangon) transports them to the land fill site.
- There is a tube well and the water is treated by Reverse Osmosis system and the treated and tested water for its physical and chemical parameters are being used for domestic and cleaning purposes on site.
- We have emergency plans for prevention of fire hazards and occupational accidents.
- There are seven departments in the factory:
  a) ***Glue Store***: The different kinds of glue to be used in the production of foot wear are stored in this store. The rules for safe-handling of glue is pasted outside the storeroom for workers to abide;
  b) ***Raw material warehouse***: The specific fabric, leather, clothes are stored with temperature controlled in this warehouse.
  c) ***Cutting Department***: different components of the footwear are cut according to design.
  d) ***Three-in-one Department***: The components of the footwear are (a) glued, (b) heated, and (c) pressed according to design of the footwear.

e) ***Component Department***: The department does the finishing touches of the end product and ensures that all specification of the footwear design and components are intact and put in footwear boxes according to foot-size and stamped.

f) ***Quality Control***: All departments have their own quality control in each step. However, there is one department to test all the end product before being sent for final packing.

g) ***Packaging Department***: The Packaging of the end product footwear boxes (different foot-size number) are packed together in specific boxes (2'x2'x2') ready for export, initially to China and then to other end-user countries in the west.

1.7 Summary of Environmental and Social Management Plan

The EMP organization or cell will be set up for the project proponent for the implementation of the EMP:

- ***Environmental Auditor*** to monitor the EMP Performance (can be internal or independent external);
- ***Environmental Management Officer (EMO)***, who will manage the performance of the EMP, hired by the proponent (internal);[2]
- ***Environmental Site Officer (ESO)***, who will assist EMO and carry out the environmental management on site;[3]

Environmental Management Plans for each identified impact[4]:

1. Water Quality Management, Ground Water Protection Plan and ensure safe drinking water;
2. Drainage Management Plan;
3. Air Quality Management Plan;
4. Waste Management Plan;
5. Traffic Management Plan;
6. Community Engagement and Development Plan;
7. Occupational Health and Safety Plan;
8. Emergency and Rescue Plan;
9. Corporate Social Responsibility (CSR) and Funding;
10. Restoration and Replantation Plan;
11. Environmental Monitoring Plan.

[2] *Chapter 7.5.1 of this report: "EMO Roles and Responsibilities"*
[3] *Chapter 7.5.2 of this report; "ESO Roles and Responsibilities*
[4] *Chapter 8 of this report: "Environmental Management, Monitoring and Budget Allocation*

The following contents of the above mentioned sub plans of the EMP are incorporated in Chapter 8 of this Report:

- Objective of each sub plan;
- Relevant Legal Requirements;
- Implementation Schedule of the sub plan;
- Management Action of the sub plan;
- Monitoring Plan of the sub plan;
- Indicator Parameters for each sub plan;
- Location of Sampling for testing work / analysis;
- Frequency of Monitoring work;
- Estimated Budget Allocation of each sub plan;
- Responsible Person / Organization for the sub plan Environmental Management.

Overall Annual Budget estimate for implementation of the EMP is ***22 Million Kyats***. However, if the project is beyond the current estimated cost, the necessary funds are deemed to be duly expanded by the project proponent. If some of the works have already been in place, the EMP Budget may be duly budgeted accordingly by the EMO.

အကျဉ်းချုပ်အစီရင်ခံစာ

၁.၁။ နိဒါန်း

အဆိုပြုစီမံကိန်းကိုဆောင်ရွက်နေသည့် ရန်ကုန်ယာစိန်ဖိနပ်လုပ်ငန်းကုမ္ပဏီလီမိတက်သည် ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ် ရန်ကုန်စက်မှုဇုန်ရှိ ကွင်းအမှတ်(၈၇) တွင် အဓိကအားဖြင့် အမျိုးသမီးစီးသော ဖိနပ်အမျိုးမျိုးကို ဝယ်ယူသူဖက်မှ အပ်နှံထားသောဒီဇိုင်းအတိုင်း ဖြတ်/ချုပ်/ထုတ်ပိုးသည့်စနစ် (***CMP system)*** ဖြင့် ချုပ်လုပ်သော ဖိနပ်ချုပ်စက်ရုံဖြစ်ပါသည်။

၁.၂။ လုပ်ငန်းဆိုင်ရာဖော်ပြချက်အကျဉ်းချုပ်

စီမံကိန်းတည်နေရာ-	အကွက်အမှတ် (၈၇)၊ ရန်ကုန်စက်မှုဇုန်၊ မဂလာဒုံမြို့နယ်၊ ရန်ကုန်မြို့
စီမံကိန်းပိုင်ရှင်-	Yacheng Footwear Co., Ltd.
စီမံကိန်းအမျိုးအစား-	Footwear Production Factory Project
စီမံကိန်းဧရိယာ-	၂.၀၀၃ ဧက
ရင်းနှီးမြှုပ်နှံမှု-	အမေရိကန်ဒေါ်လာ ၃.၅ သန်း (၁၀၀% နိုင်ငံခြားသားရင်းနှီးမြှုပ်နှံမှု***)***
မြေယာ/ အဆောက်အဦပိုင်ဆိုင်မှု	- အစိုးရပိုင်မြေအား နှစ်ခြောက်ဆယ် ငှားရမ်းခြင်း၊ မြေနှင့် အဆောက်အဦအား (၇-၆-၂၀၁၉) မှ (၆-၆-၂၀၂၉) ထိ (၁၀) နှစ်ပြည့် မြေပိုင်ရှင် ဦးယန်ချင်းယုထံမှ ငှားရမ်းခြင်း၊
စီမံကိန်းပြီးစီးခြင်း -	ဆောက်လုပ်ရေးအဆင့် (၁၀၀**%**) ပြီးစီးခြင်း
စီမံကိန်းရေပေးဝေရေး -	ရေသန့်စက်ဖြင့် စစ်ယူသည့် အဝီစိတွင်းရေ
လျှပ်စစ်မီးရယူခြင်း -	အမျိုးသားခါတ်အားလိုင်း (ထရန်စ်ဖော်မာ) ၃၁၅ ကေဗွီအေ၊ ၄၀၀ ကေဗွီအေနှင့် ၁၈၇.၅ ကေဗွီအေရှိ မီးစက်(၂)လုံး
အမှိုက်စွန့်ပစ်ခြင်း -	ထုတ်လုပ်မှု လုပ်ငန်းစဉ်မှ ထွက်ရှိသည့် အမှိုက်များကို ဒေသဆိုင်ရာ စည်ပင်သာယာရေးအဖွဲ့မှ တစ်လလျှင် နှစ်ကြိမ် ကောက်ယူပြီး အမှိုက်ပုံနေရာသို့ ပို့ဆောင်ပေးသည်။

၁.၃။ လုပ်ငန်းဆိုင်ရာဖော်ပြချက်

စီမံကိန်းအတွက် စုစုပေါင်းမတည်ငွေပမာဏမှာ အမေရိကန်ဒေါ်လာ ၃.၅ သန်း (ရာခိုင်နှုန်းပြည့် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု) ဖြစ်ပါသည်။ စီမံကိန်းမြေနေရာနှင့် အဆောက်အဦများကို ဦး ယန်ချင်ယူ ထံမှ ၂.၀၀၃ ဧက ရှိသောမြေနေရာအား ၁၀နှစ်စာနှစ်စဉ်မြေငှားရမ်းခကို ပထမ(၅)နှစ်အတွက် (၁)လလျှင် အမေရိကန်ဒေါ်လာ

(၁၃၆၇၆)နှုန်းဖြင့် တစ်နှစ်အတွက် စုစုပေါင်း အမေရိကန်ဒေါ်လာ (၁၆၄၁၁)ဖြင့် သော်လည်းကောင်း၊ (၆)နှစ်မှစ၍ (၁)လလျှင် အမေရိကန်ဒေါ်လာ(၁၈၀၄၅.၈၆)နှုန်း ဖြင့် တစ်နှစ်အတွက် စုစုပေါင်း အမေရိကန်ဒေါ်လာ(၂၁၆၅၅၀.၄၃)ဖြင့် ဌားရမ်းထားခြင်းဖြစ်ပါသည်။

CMP system ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ပြီး ပြည်ပသို့တင်ပို့ရန်အတွက် စက်ရုံများမှာ ဆောက်လုပ်ထားပြီး ဖြစ်ပြီး ယခုအချိန်တွင် အခြားအဆောက်အဦများနှင့် စက်ပစ္စည်းတပ်ဆင်ခြင်းလုပ်ငန်းများ ပြီးစီးမှုမှာ ၁၀၀% ရှိပါသည်။ စီမံကိန်းတည်နေရာရှိ အဆောက်အဦများမှာ အောက်ပါအတိုင်းဖြစ်ပါ သည်။

- *(*အလျား ၉၀ မီတာ × အနံ ၂၄ မီတာ) ရှိသော တစ်ထပ်ခွဲရှိသည့် ***steel structure*** အလုပ်ရုံ အဆောက်အအုံ - အေ
- *(*အလျား ၉၀ မီတာ × အနံ ၁၈ မီတာ) ရှိသော တစ်ထပ်ခွဲရှိသည့် ***steel structure*** အလုပ်ရုံ အဆောက် အအုံ - ဘီ
- အဆောင်နှင့် စားဖိုဆောင်အတွက် (အလျား ၃၈ မီတာ × အနံ ၁၅ မီတာ) ရှိသော သုံးထပ်ရှိသည့် ***steel structure*** အလုပ်ရုံ အဆောက်အအုံ

ဖိနပ်အမျိုးမျိုးထုတ်လုပ်ရန်အတွက် အသုံးပြုသောစက်ယန္တရားများ၊ကုန်ကြမ်းပစ္စည်းများနှင့် အခြားလိုအပ် သောပစ္စည်းများကို နိုင်ငံခြားမှတင်သွင်းမည်ဖြစ်ပါသည်။ တင်သွင်းလာသော ကုန်ကြမ်းပစ္စည်းများသည် သက်ဆိုင်ရာမှ အန္တရာယ်ကင်းရှင်းမှုရှိကုန်ပစ္စည်းများဖြစ်ကြောင်း ထောက်ခံချက် ရရှိထားပြီးဖြစ်ပါသည်။ ဖိနပ်ထုတ်လုပ်ရန်အတွက် အသုံးပြုသောကော်များကို ထိုင်ဝမ်နှင့် တရုတ်နိုင်ငံမှ တင်သွင်းပြီး စက်ရုံ စွန့်ထုတ်အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေး ကော်မတီ၏ စည်းကမ်းများအတိုင်း လိုက်နာမည် ဖြစ်ပါသည်။ ထို့ပြင်၊ စက်ရုံအတွင်းအသုံးပြုသော စက်စုစုပေါင်း (၄၀)မျိုးရှိပါသည်။

စက်ရုံ၏ရေယာအတွင်းရှိ အဝီစိတွင်းရေမှရရှိသောရေများကို ရေသန့်စက်(RO treatment plant) ဖြင့် သန့်စင်ပြီး အထွေထွေသုံးရေအဖြစ် အသုံးပြုပါသည်။ လိုအပ်သောလျှပ်စစ်မော်တော်အားကို လျှပ်စစ်နှင့်စွမ်းအင် ဝန်ကြီးဌာနမှသော်လည်းကောင်း၊ အရေးပေါ်ကိစ္စများအတွက် ထားရှိသော စက်ရုံပိုင်မီးစက်(၂)လုံးဖြင့်သော် လည်းကောင်း အသုံးပြုပါသည်။ ထို့နောက်၊ စက်ရုံရှိအလုပ်သမားများ၏ ကျန်းမာရေးအတွက် ဆေးပေးခန်း လည်း ထားရှိပေးပါသည်။ စက်ရုံစွန့်ထုတ်အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ နှင့်ချိတ်ဆက်၍ တစ်လနှစ်ကြိမ် စွန့်ပစ်ပါသည်။

ယခုအချိန်တွင် အဆောက်အအုံများ၊ သိုလှောင်ရုံ၊ ရုံးခန်း၊ အဆောင်၊ စက်တပ်ဆင်မှုများနှင့် လုံခြုံရေးဂိတ် များ ဆောက်လုပ်မှုပြီးစီးပြီဖြစ်၍ အလုပ်သမားအင်အား(၅၅၀)ခန့်ဖြင့် လုပ်ငန်းလည်ပတ်နေပြီဖြစ်ပါသည်။

မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် အရေးပေါ်ကိစ္စများအတွက် ကြိုတင်ပြင်ဆင်မှုများလည်း စနစ်တကျ ဆောင်ရွက်ပေးလျက်ရှိပါသည်။

၁.၄။ စီမံကိန်းအနီးပတ်ဝန်းကျင်နှင့် လူနေမှုအခြေအနေအကျဉ်းချုပ်

(က) စီမံကိန်းတည်နေရာသည် ပူအိုက်စိုစွတ်သောရာသီဥတုရှိပြီး အမြင့်ဆုံးအပူချိန်မှာ ၃၉ ဒီဂရီစင်တီဂရိတ် နှင့် အနိမ့်ဆုံးအပူချိန် ၁၅.၅ ဒီဂရီစင်တီဂရိတ်ရှိပါသည်။ လွန်ခဲ့သော ၄နှစ်အတွင်း နှစ်စဉ်ပျမ်းမျှမိုးရေချိန် ၂၆၅၃ မီလီမီတာ (၁၀၂ လက်မ)၊ နှစ်စဉ်လေတိုက်နှုန်းအမြင့်ဆုံးနှင့်အနိမ့်ဆုံးမှာ တစ်နာရီ ၉.၃ ကီလိုမီတာ နှင့် တစ်နာရီ ၂.၅ ကီလိုမီတာ အသီးသီးရှိပြီး နှစ်စဉ်ပျမ်းမျှစိုထိုင်းစ ၇၃ ရာခိုင်နှုန်းရှိပါ သည်။

(ခ) ၂၀၂၀ခုနှစ်၊ ဇူလိုင်လ ၆-၇ ရက်နေ့တွင် စီမံကိန်းပတ်ဝန်းကျင်အတွင်းရှိ လေထုအရည်အသွေးနှင့် ဆူညံမှု တိုင်းတာရန်အတွက် Haxagonal Angle Consulting Team မှ OCEANUSTM AQM-09 စက်ဖြင့် စက်ရုံ အတွင်းရှိရွေးချယ်ထားသောနေရာ (၁)နေရာတွင် တိုင်းတာမှုများ ပြုလုပ်ခဲ့ပါသည်။ လေထုအတွင်းရှိ အမှုန်များနှင့် အဆိပ်သင့်နိုင်သောအငွေ့များအား တိုင်းတာပြီး အဆိုပါတိုင်းတာမှုပြုလုပ်နေချိန်တွင် စက်ရုံ ပတ်ဝန်းကျင်အပူချိန်မှာ ၂၃.၉၃ ဒီဂရီစင်တီဂရိတ် နှင့် ပျမ်းမျှစိုထိုင်းစ ၈၃.၈၈ ရာခိုင်နှုန်း ရှိပါသည်။ ၂၄ နာရီ အတွင်း ရရှိသောတိုင်းတာမှုရလဒ်များသည် အမျိုးုသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး(ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များနှင့် ကိုက်ညီမှုရှိကြောင်း တွေ့ရှိရသည်။

(ဂ) BENTECH GM 1356 စက်၏ ဆူညံမှုတိုင်းတာရလဒ်အရ စက်ရုံအတွင်း နေ့အချိန်အသံဆူညံမှုနှုန်းမှာ ၇၃.၁ dBA ဖြစ်ပြီး သတ်မှတ်တန်ဖိုးဖြစ်သော ၇၀ dBA ထက် အနည်းငယ်ကျော်လွန်ကြောင်း တွေ့ရှိရသည်။ သို့သော်၊ ညအချိန်ဆူညံနှုန်းမှာ ၅၇.၉၅ dBAရှိပြီး အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်၏ သတ်မှတ်တန်ဖိုးဖြစ်သော ၇၀dBA အတွင်း အကျုံးဝင်ကြောင်း တွေ့ရှိရ သည်။

(ဃ) ၂၀၁၉ခုနှစ်၊ ဇူလိုင်လတွင် စက်ရုံအတွင်းရှိ တွင်းရေအရည်အသွေးစမ်းသပ်ချက် ISO Tech Laboratory တွင် ပြုလုပ်ခဲ့ပြီး တိုင်းတာမှုပြုလုပ်သောပါရာမီတာများသည် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်နှင့် ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့မှ ထုတ်ပြန်ထားသော သောက်သုံးရေစံနှုန်းများနှင့် ကိုက်ညီမှုရှိပါသည်။ ထို့ကြောင့် စက်ရုံပတ်ဝန်းကျင်မှရရှိသော တွင်းရေသည် သောက်သုံးရေအတွက်ပါ အသုံ့ုးပြုနိုင်ကြောင်းတွေ့ရှိရသည်။

(င) ၂၀၀၄ ခုနှစ်၊ မတ်လတွင် "လယ်ယာစိုက်ပျိုးရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာနမှထုတ်ပြန်ထားသော မြန်မာ နိုင်ငံတွင် တွေ့ရှိရသော မြေအမျိုးအစားများနှင့် မြေအမျိုးအစားများ၏လက္ခဏာများ" အရ စက်ရုံတည်ရှိသော မြေအမျိုးအစားမှာ လယ်မြေအမျိုးအစားဖြစ်ပါသည်။

(စ) အဆိုပြုစီမံကိန်းဖြစ်သည့် ရာစိန်ဖိနပ်စက်ရုံသည် မြို့ပြနှင့်စက်မှုဇုန်အနီးတစ်ဝိုက်တွင် တည်ဆောက်ထားသောကြောင့် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် သိသာထင်ရှားသောအပင်နှင့် သားရဲတိရစ္ဆာန်များ မရှိကြောင်း တွေ့ရှိရသည်။ လက်ရှိအချိန်တွင် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် မြို့ပြဖွံ့ဖြိုးတိုးတက်မှုကြောင့် လမ်းမတစ် လျှောက် စိုက်ပျိုးထားသောသစ်ပင်များနှင့် အခြားအပင်ငယ်များသာ ရှိပါသည်။

(ဆ) ထို့ပြင်၊အနီးပတ်ဝန်းကျင်၏ (၁၀)ကီလိုမီတာပတ်လည်တွင် စက်ရုံမှ(၇)မိုင်ခန့်အကွာတွင် လှော်ကားအမျိုးသားဥယျာဉ်နှင့် ရန်ကုန်အပြည်ပြည်ဆိုင်ရာလေဆိပ်၊ မြို့တော်ဂေါက်ကွင်းစသည်တို့ရှိပါသည်။ အခြား ထိခိုက်ပျက်စီးလွယ်သည့်ဂေဟစနစ်များ မရှိကြောင်းတွေ့ရှိရသည်။

(ဇ) စီမံကိန်းတည်ရှိသည့် မင်္ဂလာဒုံမြို့နယ်တွင် အဓိကအားဖြင့် လူနေအိမ်၊ စိုက်ပျိုးမြေနေရာ၊ အပန်းဖြေနေရာ၊ လမ်းပန်းဆက်သွယ်ရေးနှင့် စီးပွားရေးနယ်မြေဟူ၍ မြေအသုံးချသည့်အမျိုးအစား(၅)မျိုး ခွဲခြားထား ပါသည်။ မင်္ဂလာဒုံမြို့နယ်၏ စုစုပေါင်းမြေကေ (၂၆၆၁.၆) တွင် စိုက်ပျိုးမြေ ၁၆% ခန့်၊ သစ်တောဧရိယာ ၂၇% ခန့်၊ မြို့ပြ ၂၈%၊ စက်မှုဇုန် ၀.၂%၊ မြေလွတ်ဧရိယာ ၀.၇% နှင့် အခြားမြေအသုံးချမှုများအတွက် ၂၈% ကျော် ဖြစ်ပါသည်။

(ဈ) ဖိနပ်စက်ရုံသည် မင်္ဂလာဒုံတောင်ဘက်ပိုင်းတွင်ရှိပြီး အရှေ့ဘက်တွင် လှည်းကူးမြို့နယ်နှင့် မြောက်ဥက္ကလာပမြို့နယ်၊ အနောက်ဘက်တွင် အင်းစိန်မြို့နယ်နှင့် ရွှေပြည်သာမြို့နယ်၊ တောင်ဘက်တွင် မရမ်းကုန်း မြို့နယ်နှင့် မြောက်ဘက်တွင် မှော်ဘီမြို့နယ်တို့နှင့်ထိစပ်လျက်ရှိပါသည်။ အဆိုပြုစီမံကိန်းသည် ရန်ကုန် စက်မှုဇုန်နယ်မြေတွင် တည်ရှိသောကြောင့် အနီးပတ်ဝန်းကျင်သည် လူများအခြေချနေထိုင်ခြင်းနှင့် စက်မှု ကဏ္ဍဖွံ့ဖြိုးတိုးတက်သောနေရာဖြစ်ပါသည်။ သို့ဖြစ်၍၊ လူမှုစီးပွားရေးအခြေအနေသုံးသပ်ချက်များ သည် စက်မှုဇုန်နှင့် လူနေရပ်ကွက်များမှ ရရှိပါသည်။

(ည) ၂၀၁၉ ခုနှစ်၊ စက်တင်ဘာလ ဒေသဆိုင်ရာအချက်အလက်များအရ မြို့နယ်အတွင်းရှိ လူဦးရေမှာ ၂၆၃၇၉၈ ဦး နှင့် အိမ်ထောင်စုပေါင်း ၅၇၃၈၀ ရှိပါသည်။ မြို့နယ်အတွင်းရှိ ကျား/မ ဦးရေအချိုးမှာ ၁း၁.၂ ဖြစ်ပါသည်။ အများစုနေထိုင်သူမှာ ဗမာလူမျိုး(၉၄%) နှင့် နိုင်ငံခြားအပါအဝင် အခြားလူမျိုး (၆%)ခန့် နေထိုင်ကြပါသည်။ စုစုပေါင်းနေထိုင်သူများအနက် အလုပ်လုပ်နိုင်သောလူဦးရေ ၁၂၃၁၁ ဦးရှိပြီး အလုပ် လက်မဲ့ရာခိုင်နှုန်း ၁၉.၅၃ ရှိပါသည်။ ဒေသခံနေထိုင်သူများ၏ အဓိက အသက်မွေးဝမ်းကြောင်းလုပ်ငန်းများမှာ အစိုးရဝန်ထမ်း၊ စက်ရုံအလုပ်သမား၊ ကုန်သည်၊ မွေးမြူရေးလုပ်ငန်း၊ စိုက်ပျိုးရေး နှင့် ကျပန်းအလုပ်သမား စသည်တို့ဖြစ်ပါ သည်။

၁.၅။ လုပ်ငန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုများနှင့် ထိခိုက်မှုလျှော့ချရေးနည်းလမ်းများ

ထိခိုက်မှုနှုန်းများကို အမျိုးအစားလေးမျိုးခွဲ၍ အမှတ်ပေးစနစ်ဖြင့် ခွဲခြားသတ်မှတ်ပြီး အကဲဖြတ် တိုင်းတာရရှိပါသည်။ ပတ်ဝန်းကျင်အပေါ်ထိခိုက်သက်ရောက်မှုများအား အကဲဖြတ်ရရှိမှုများကို အောက်ပါဇယားတွင် ဖော်ပြထားပါသည်။

အမှတ်စဉ်	ထိခိုက်နိုင်သည့် အတိုင်းအတာ	အချိန်ကာလ	ပမာဏ	ဖြစ်နိုင်စွမ်း
၁	တိုက်ရိုက်ထိခိုက်မည့်ဇုံ (လုပ်ငန်းခွင်အတွင်း သို့မဟုတ် လုပ်ငန်းခွင်အနီး ပတ်ဝန်းကျင်)	ကာလတို - ထိခိုက်မည့်အချိန်ကာလ (၀- ၁၂ လ ကြား)	နိမ့် - လူမှုစီးပွားရေးအပေါ် ပြောင်းလဲမှုမရှိခြင်း (သို့မဟုတ်) မသိသာသော ပြောင်းလဲမှုဖြစ်ပေါ်ခြင်း	နိမ့်
၂	ထိခိုက်မည့်အနီးဆုံးနေရာ (လုပ်ငန်းအနီးတစ်ဝိုက် သိသာသောနေရာနှင့် လုပ်ငန်းခွင် အနီး ပတ်ဝန်းကျင်)	ထိခိုက်မည့်အချိန်ကာလ (၁ -၂ နှစ် ကြား)	အလယ်အလတ် - သဘာဝဂေဟစနစ်များ ပြောင်းလဲမှုဖြစ်ပြီး လူမှုစီးပွားရေးအပေါ် သက်ရောက်မှုရှိခြင်း	အလယ်အလတ်
၃	လုပ်ငန်းတည်နေရာမှစ၍ စကေးကျယ်ပြန့်စွာ ထိခိုက်မှုရှိခြင်း	ကာလရှည် - ထိခိုက်မှုသည် လုပ်ငန်းတည် ဆောက်ပြီးကာလ နောက် ပိုင်း (သို့မဟုတ်) လုပ်ငန်းလည် ပတ်ဆဲကာလ ပြီးနောက် နှစ်တော်တော် များများ ဆက်လက်ထိခိုက် နေခြင်း	မြင့် - သဘာဝပတ်ဝန်းကျင်ဆိုင် ရာ လုပ်ဆောင်ချက်ပြောင်း လဲမှုများကြောင့် လူမှုစီးပွား ရေး အခြေအနေ ပြင်းထန်စွာ ထိခိုက်ခြင်း၊ စဉ်ဆက်မပြတ် ထိခိုက်ခြင်း	မြင့်

အဓိကဖြစ်ပေါ်နိုင်သောထိခိုက်မှုများ၏ ရလဒ်ပေါ်မူတည်၍ အဆင့်သတ်မှတ်ချက်ကို အောက်ပါ အတိုင်း ဖော်ပြနိုင်ပါသည်။

အဆင့်သတ်မှတ်ချက် = (ထိခိုက်နိုင်သည့်အတိုင်းအတာ + အချိန်ကာလ + ဖြစ်နိုင်စွမ်း) x **ပမာဏ**

စီမံကိန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သောထိခိုက်မှုများကို လေ့လာဆန်းစစ်ရာတွင် ရုပ်ဇီဝနှင့်ဓာတုဗေဒဆိုင်ရာထိခိုက်ခြင်း၊ ဂေဟစနစ်နှင့် လူမှုစီးပွားရေး၊ ယဉ်ကျေးမှုနှင့်ဆိုင် သောအချက်များ စသည်တို့အပေါ်တွင် သိသာထင်ရှားသည့် သက်ရောက်မှုများအကဲဖြတ်ခြင်းကို အောက်ပါဇယားတွင် အကျဉ်းချုပ်ဖော်ပြထားပါသည်။

စီမံကိန်းလည်ပတ်သည့်ကာလ		
စဉ်	စိစစ်သည့် အဓိကအချက်များ	အဆင့်သတ်မှတ်ချက်
ရုပ်ဇီဝနှင့် ဓာတုဗေဒဆိုင်ရာ ထိခိုက်မှု		
၁	ရုပ်ဇီဝနှင့် ဓာတုဗေဒဆိုင်ရာ ထိခိုက်မှု	နိမ့်
၂	မြေအောက်ရေ အရည်အသွေး ပြောင်းလဲမှု	နိမ့်
၃	ဒေသအတွင်း ရေစီးရေလာ ပြောင်းလဲမှု	နိမ့်
၄	ရေတိုက်စားမှုနှင့် အနည်ကျမှု	နိမ့်
၅	လေအရည်အသွေး ပြောင်းလဲမှု	အလယ်အလတ်
၆	ပတ်ဝန်းကျင်အသံညစ်ညမ်းမှု	နိမ့်
၇	ရေနေသတ္တဝါ ပြောင်းလဲမှု	နိမ့်
၈	ကုန်းနေသတ္တဝါ ပြောင်းလဲမှု	နိမ့်
၉	ရောဂါကူးစက်နိုင်မှု အခြေအနေ	အလယ်အလတ်
၁၀	မြေမျက်နှာပြင် ပြောင်းလဲမှု	နိမ့်
၁၁	အမွေအနှစ်နေရာ ပြောင်းလဲမှု	နိမ့်
လူမှုစီးပွားရေးနှင့် လူမှုရေးဆိုင်ရာ ထိခိုက်မှုများ		
၁	ကိုယ်ပိုင်ပစ္စည်းများ ပျက်စီးဆုံးရှုံးခြင်းအရပြောင်းလဲမှု	နိမ့်
၂	ယဉ်ကျေးမှုအမွေအနှစ်များ ပြောင်းလဲမှု	နိမ့်
၃	လူအများ ပြောင်းရွှေ့နေထိုင်မှု	နိမ့်
၄	ယာဉ်သွားယာဉ်လာ/ ယာဉ်ကြော ပိတ်ဆို့မှု	နိမ့်
၅	ငါးလုပ်ငန်းများ ပြောင်းလဲခြင်း	နိမ့်
၆	ဒေသအတွင်း အသက်မွေးဝမ်း ကျောင်းအခွင့်အလမ်းများ၊ဝင်ငွေနှင့် လုပ်အားခများပြောင်းလဲခြင်း	အလယ်အလတ်
၇	ဒေသအတွင်း ကုန်သွယ်စီးပွား ဝင်ငွေ /အခွင့်အလမ်းများပြောင်းလဲခြင်း	အလယ်အလတ်

စီမံကိန်းလည်ပတ်သည့်ကာလ		
စဉ်	စိစစ်သည့် အဓိကအချက်များ	အဆင့်သတ်မှတ်ချက်
၈	မျက်စိပသာဒနရှိမှုများ ပြောင်းလဲခြင်း	အလယ်အလတ်
၉	လူနေအဆောက်အဦ/ ဆက်သွယ်ရေးအရင်းအမြစ်များ ပြောင်းလဲခြင်း	အလယ်အလတ်

မှတ်ချက် ။ ဇယားတွင်ဖော်ပြထားသောထိခိုက်မှုဇယားတွင် အစိမ်းရောင်အကွက်ခြယ်ထားသော သင့်လျော်ကောင်းမွန်သောသက်ရောက်ထိခိုက်မှုများမှအပ ကျန်ရှိသောထိခိုက်မှုများသည် စီမံကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သော အဓိကထိခိုက်မှုများဖြစ်ပါသည်။

အထက်တွင်ဖော်ပြထားသော ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများသည် ဖိနပ်ထုတ်လုပ်ခြင်းလုပ်ငန်းများအတွက် ကျန်းမာရေးနှင့်ညီညွတ်၍ လုံခြုံစိတ်ချရသော လုပ်ငန်းခွင်ဖြစ်စေရေးအတွက် ပတ်ဝန်းကျင်ဆိုင်ရာလုပ်ထုံးလုပ်နည်းများကို အခြေခံထားပါသည်။

စီမံကိန်းလည်ပတ်သည့်ကာလအတွင်း ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများမှာ -

- စွန့်ပစ်သည့်နေရာ/သိုလှောင်သည့်နေရာအနီးရှိရေနူတ်မြောင်းများကို ပုံမှန်ရှင်းလင်းပေးရန်။
- စက်ရုံအတွင်း/အပြင် သန့်ရှင်းသပ်ရပ်မှုရှိစေရန်နှင့် ဖုန်/အမှိုက်မရှိစေရန်။
- စက်ရုံအတွင်း ကျန်းမာရေးနှင့် လုံခြုံရေးအတွက်လုပ်ရိုးလုပ်စဉ်များထားရှိပေးရန်။
- အလုပ်သမားများ၏ ကျန်းမာရေးအတွက် လေကောင်းလေသန့်နှင့် အလင်းရောင်ရရှိမှု ကောင်းမွန်သောအလုပ်ခွင်နေရာ၊ သန့်ရှင်းသောသောက်သုံးရေ၊ သန့်ရှင်းသပ်ရပ်သော ကျန်းမာရေးနှင့် ပတ်သက်သည့် အခြားဝန်ဆောင်မှုများထောက်ပံ့ပေးရန်။
- ပတ်ဝန်းကျင်နှင့်ပတ်သက်၍ ပြည်သူများအားအသိပေးနှိုးဆော်ခြင်းများ တိုးမြှင့်လုပ်ဆောင်ပေးရန်။
- အများပြည်သူဘေးကင်းလုံခြုံရေးအတွက် စောင့်ကြပ်ကြည့်ရှုမှုများဆောင်ရွက်ရန်။
- သိုလှောင်ရုံများနှင့်သက်ဆိုင်သော အဆောက်အဦများကို ပုံမှန်စစ်ဆေးခြင်းများ ပြုလုပ်ပေးရန်။
- စီမံကိန်းနေရာသည် အများပြည်သူ/ပုဂ္ဂလိကပိုင်ဆိုင်မှုများနှင့် သက်ဆိုင်မှုမရှိစေရန် စစ်ဆေး ဆောင်ရွက်ရန်။
- အရေးပေါ်ကယ်ဆယ်ရေးအစီအစဉ်များ ထားရှိရန်။
- ကုန်တင်/ကုန်ချလုပ်ငန်းများကို နေ့အချိန်တွင် ဦးစားပေးဆောင်ရွက်ရန်။
- မော်တော်ယာဉ်/စက်များ ကောင်းမွန်စွာလည်ပတ်မှုရှိစေရန်။
- ဖိနပ်စက်ရုံမှထုတ်လာသော စွန့်ပစ်ပစ္စည်းများအတွက် ပိုမိုကောင်းမွန်သော စီမံခန့်ခွဲမှုထားရှိရန် - ကာကွယ်ခြင်း၊ လျော့နည်းစေခြင်း/လျော့ချခြင်း၊ ပြန်လည်အသုံးပြုခြင်း၊ စွမ်းအင်ခွေတာခြင်းနှင့် ကောင်းမွန်စွာစွန့်ပစ်ခြင်း။

၁.၆။ စီမံကိန်းနှင့်ပတ်သက်ဆက်နွယ်သည့် ပုဂ္ဂိုလ်များနှင့်တွေ့ဆုံဆွေးနွေးခြင်းအကျဉ်းချုပ်

- ရုန်ကုန်ယာစိန်ဖိနပ်လုပ်ငန်းကုမ္ပဏီလီမိတက်သည် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်၏ လုပ်ထုံးလုပ်နည်းများနှင့် စည်းမျဉ်းစည်းကမ်းများ နှင့် မြန်မာအစိုးရမှ ဖိနပ်ထုတ်လုပ်သည့် လုပ်ငန်းများအတွက် ထုတ်ပြန်ကြေညာထားသော အမိန့်များအတိုင်း လိုက်နာဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။
- အဓိကအားဖြင့် အမျိုးသမီးစီးဖိနပ်များ (ရိုးရိုး/ အားကစားဖိနပ်) ချုပ်လုပ်ပါသည်။
  ကုန်ကြမ်းပစ္စည်းများ ဖြစ်သော သားရေ၊ ကော်အမျိုးမျိုး၊ ပိတ်သား စသည်တို့ကို နိုင်ငံခြားမှ တင်သွင်းပြီး ချုပ်လုပ်ပြီးသောဖိနပ်များကို ဆက်စပ်လုပ်ကိုင်လျက်ရှိသော တရုတ်နိုင်ငံရှိ "ရာထိုင်" သို့ တင်ပို့ပါသည်။
- စက်ရုံဆေးပေးခန်းတွင် အလုပ်ချိန်တစ်လျှောက် ဝန်ထမ်းများနှင့်အလုပ်သမားများ၏ ကျန်းမာရေးစောင့် ရှောက်ရန် အချိန်ပြည့်သူနာပြုဆရာမတစ်ဦးထားရှိပါသည်။ ဖိနပ်စက်ရုံကို ဝန်ထမ်းနှင့် အလုပ်သမား စုစုပေါင်းဦးရေ (၅၅၀)ခန့်ဖြင့် လည်ပတ်လျက်ရှိပြီး အလုပ်သမားများသည် အနီးပတ်ဝန်းကျင်ရှိ မြို့နယ်များမှဖြစ်ပြီး သွားလာရေးအဆင်ပြေစေရန် စက်ရုံမှကား စီစဉ်ပေးပါသည်။ နိုင်ငံခြားကျွမ်းကျင်ပညာရှင် များ၊ မန်နေဂျာ နှင့် ဘာသာပြန်များသာ စက်ရုံအတွင်းရှိအဆောင် တွင် နေထိုင်ခွင့်ပေးပါသည်။
- လက်ရှိစက်ရုံသည် အော်ဒါမှာသောဒီဇိုင်းအတိုင်း ပုံစံဖြတ်ခြင်း၊ ကော်ကပ်ခြင်း၊ စက်ချုပ်ခြင်း ဖြစ်ပါသည်။ စက်ရုံမှထွက်သောစွန့်ပစ်ပစ္စည်းများကို သီးခြားသိုလှောင်ပြီး ရန်ကုန်မြို့တော် စည်ပင်သာယာရေး ကော်မတီမှ လာရောက်သိမ်းဆည်းလေ့ရှိပါသည်။
- တူးဖော်ရရှိသောတွင်းရေကို (Reverse Osmosis System) ရေသန့်စက်ဖြင့် သန့်စင်စေပြီးမှ လိုအပ်သလို အသုံးပြုပါသည်။
- မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် စက်ရုံအတွင်း မတော်တဆထိခိုက်မှုဖြစ်စဉ်များအတွက် အရေးပေါ် ကြိုတင်ကာကွယ်မှုများ ထားရှိပါသည်။
- ဖိနပ်စက်ရုံသည် ဌာနစိတ်(၇)ခွဲ၍ လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။
  - (က) ကော်အမျိုးမျိုးသိုလှောင်ခန်း။ ဖိနပ်ချုပ်လုပ်ရန်အတွက် အသုံးပြုသော ကော်အမျိုးမျိုးကို သီးသန့် သိုလှောင်သည့်အခန်းဖြစ်ပါသည်။ ကော်များကိုင်တွယ်မည့် အလုပ်သမားများအတွက် လိုက်နာရမည့် သတိပေးစည်းမျဉ်းစည်းကမ်းများလည်း အခန်းနံရံများတွင် ကပ်ထားပါသည်။
  - (ခ) ကုန်ကြမ်းပစ္စည်းသိုလှောင်ခန်း။ ပိတ်စ၊သားရေ စသည်တို့ကို သတ်မှတ်ထားသော အပူချိန်ထိန်းညှိ ပေးခြင်းဖြင့် စနစ်တကျသိုလှောင်သည့် နေရာဖြစ်ပါသည်။
  - (ဂ) အဆင့်သုံးမျိုးလုပ်သည့်ဌာန။ ဖိနပ်ချုပ်လုပ်ခြင်း၏အစိတ်အပိုင်းဖြစ်သော ကော်ကပ်ခြင်း၊ အပူပေး ခြင်းနှင့် ဖိစက်ဖြင့်ပုံသွင်းခြင်းစသည်တို့ ပြုလုပ်ရသည့်နေရာဖြစ်ပါသည်။

(ဃ) အချောသတ်ချုပ်လုပ်သည့်ဌာန။ ဤဌာနတွင် ချုပ်လုပ်ပြီးသောဖိနပ်များကို လိုချင်သော ဒီဇိုင်း အတိုင်းဖြစ်အောင် ဖိနပ်၏အပိုင်းအစများကို အချောသတ် ချုပ်လုပ်ခြင်း၊ တံဆိပ်နှိပ်ခြင်းနှင့် ထုတ်ပိုးခြင်း များပြုလုပ်သောဌာနဖြစ်သည်။

(င) အရည်အသွေးစစ်ဌာန။ ဌာနစိတ်အသီးသီး၏ ထုတ်လုပ်မှုအဆင့်တိုင်းတွင် အရည်အသွေး စစ်ဆေး သည့်အဖွဲ့ရှိပါသည်။ ဤဌာနတွင်မူ၊ ထုတ်ကုန်များ၏ အရည်အသွေးကို နောက်ဆုံးအဆင့် ထုတ်ပိုးခြင်း မပြုမီ စစ်ဆေးရသောနေရာဖြစ်သည်။

(စ) ထုတ်ပိုးသည့်ဌာန။ ထုတ်ပိုးပြီးထားသောထုတ်ကုန်များကို တရုတ်ပြည်မှတစ်ဆင့် အော်ဒါမှာသော နိုင်ငံများသို့ ပြန်လည်တင်ပို့ရန်အတွက် (၂မီတာ×၂မီတာ×၂မီတာ) ထုရှိသော ကတ္တူပုံးများထဲ၌ စနစ်တကျထပ်မံထုတ်ပိုးသည့်နေရာဖြစ်သည်။

၁.၇။ သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်

သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ် ပြီးမြောက်စေရန်အတွက် အဆိုပြုစီမံကိန်းတင် သွင်းသူနှင့် ဆောက်လုပ်ရေးပိုင်းဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မည့်သူများမှ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှု အစီအစဉ်ဖြစ်မြောက်ရေးအဖွဲ့အား ဖွဲ့စည်းရမည် ဖြစ်ပါသည်။

- သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်လုပ်ဆောင်ချက်များကို သဘာဝပတ်ဝန်းကျင် ဆိုင်ရာ အကဲဖြတ်သူမှ စောင့်ကြပ်ကြည့်ရှုရန်ဖြစ်ပါသည်။
- သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်ဆောင်ရွက်မှုများကို သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲသည့်အရာရှိ (EMO) ထားရှိ၍ ၎င်းမှ စီမံခန့်ခွဲပေးရန်ဖြစ်ပါသည်။
- သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာလုပ်ငန်းခွင်အရာရှိ (ESO) ထားရှိ၍ ၎င်းမှ သဘာဝပတ်ဝန်းကျင် ဆိုင်ရာစီမံခန့်ခွဲသည့်အရာရှိ (EMO) အား ကူညီဆောင်ရွက်ပေးမည် ဖြစ်ပါသည်။

လေ့လာတွေ့ရှိရသော ပတ်ဝန်းကျင်ထိခိုက်မှုများအတွက် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ် များမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

၁။ ရေအရည်အသွေးစီမံခန့်ခွဲမှု၊ မြေအောက်ရေထိန်းသိမ်းမှုနှင့် သန့်ရှင်းသောသောက်သုံးရေ ရရှိရေး အစီအစဉ်

၂။ ရေနူတ်မြောင်းပုံစံ စီမံခန့်ခွဲမှုအစီအစဉ်

၃။ လေထုအရည်အသွေး စီမံခန့်ခွဲမှုအစီအစဉ်

၄။ စွန့်ပစ်အညစ်အကြေးများ စီမံခန့်ခွဲမှုအစီအစဉ်

၅။ ယာဉ်လမ်းကြော စီမံခန့်ခွဲမှုအစီအစဉ်

၆။ အများပြည်သူများနှင့်တွေ့ဆုံမှု နှင့် ဖွံ့ဖြိုးတိုးတက်စေရေးအစီအစဉ်

၇။ လုပ်ငန်းခွင် လုံခြုံရေးနှင့် ကျန်းမာရေးအစီအစဉ်

၈။ အရေးပေါ်ကယ်ဆယ်ရေးအစီအစဉ်

၉။ အသင်းအဖွဲ့၏လူမှုရေး တာဝန်ခံမှု

၁၀။ပြန်လည်ပြုပြင်မွမ်းမံခြင်း အစီအစဉ်

၁၁။ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုခြင်း အစီအစဉ်

အထက်တွင်ဖော်ပြထားသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်ခွဲများကို အောက်တွင်ဖော်ပြထားသည့်ကဏ္ဍအလိုက် ဤအစီရင်ခံစာ၏ အခန်း (၈) တွင် ထည့်သွင်းဖော်ပြထား ပါသည်။

- EMP အစီအစဉ်ခွဲအသီးသီးတို့၏ ရည်ရွယ်ချက်
- သက်ဆိုင်ရာဥပဒေနှင့်ညီညွတ်သော လိုအပ်ချက်များ
- EMP အစီအစဉ်ခွဲများပြီးမြောက်ရေး လုပ်ငန်းစဉ်
- EMP အစီအစဉ်ခွဲများ စီမံခန့်ခွဲသည့် လုပ်ဆောင်ချက်
- EMP အစီအစဉ်ခွဲများအား စောင့်ကြပ်ကြည့်ရှုသည့် အစီအစဉ်
- EMP အစီအစဉ်ခွဲများအား ရည်ညွှန်းဖော်ပြသည့်အချက်များ
- EMP စမ်းသပ်မှုပြုလုပ်သည့်နေရာများ
- စောင့်ကြပ်ကြည့်ရှုမှုပြုလုပ်သည့် အကြိမ်အရေအတွက်
- EMP အစီအစဉ်ခွဲများအတွက် ခွဲဝေချမှတ်ပေးသည့် ခန့်မှန်းကုန်ကျငွေ
- သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်ခွဲများအတွက် တာဝန်ရှိသည့်ပုဂ္ဂိုလ်များ အဖွဲ့များ

စီမံကိန်း၏ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်ပြီးမြောက်နိုင်ရေးအတွက် နှစ်စဉ်ခန့်မှန်းကုန်ကျစရိတ်မှာ မြန်မာငွေကျပ် (၂၂) သန်းဖြစ်ပါသည်။ သို့သော်၊ စီမံကိန်းကုန်ကျစရိတ်သည် လက်ရှိခန့်မှန်းပမာဏထက်ကျော်လွန်ခဲ့ပါက အဆိုပြုတင်သွင်းသူဖက်မှ လိုအပ်သလို ကုန်ကျခံ မည်ဖြစ်ပါသည်။ အကယ်၍ တစ်ချို့ဆောင်ရွက်ရမည့် လျော့ချရေးနည်းလမ်းများသည် လုပ်ငန်းခွင်တွင် ရှိထားခဲ့ပြီးဖြစ်လျှင် ခန့်မှန်းကုန်ကျစရိတ်အား သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲသည့်အရာရှိ (EMO) မှ သင့်လျော်သလို လျှော့ချရမည်ဖြစ်ပါသည်။

2. INTRODUCTION

This document is the Environmental Management Plan (EMP) for the proposed ladies shoes by CMP (Cut-Manufacture-Pack) system (the "Project") implemented by Yacheng Footwear Co., Ltd. The Project site is located in at Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region.

2.1 Objective of EMP

The principal objective of this EMP is to satisfy local regulatory requirements, in particular, the requirements related to exiting projects in the Environmental Impact Assessment Procedure, issued by Ministry of Natural Resources and Environmental Conservation on December of 2015. However, this EMP is not only to align with national permitting requirements to obtain the Environmental Compliance Certificate (ECC), but also to ensure that the any potential environmental and social impacts are mitigated and will not lead to significant adverse effects on the environment or people during the Project.

The overarching purpose of this EMP is to:

- Integrate management and mitigation measures into the exploration activities in order to reduce or mitigate any potential environmental and social impacts on natural and socio-economic environments;
- Consider and address the concerns and interests of stakeholders who will potentially be engaged or impacted during execution of the exploration activities;
- Establish systems and processes for delivery and implementation of environmental and social requirements in order to meet statutory and compliance standards.

2.2 Project Proponent

Contact details for the proposed Project is provided below and all registration documents of Yacheng Footwear Co.,Ltd is described in Appendix A.

Managing Director of Yacheng Footwear Co.,Ltd	: Mr. Jinxin Huang
General Manager of Yacheng Footwear Co.,Ltd	: Mr. Li Daibin
Administration Manager	: Daw Khin Swe Lin
Address	: Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region
Mobile	: +95 9 252530703
Email	: yangonyacheng@gmail.com

2.3 Environmental and Social Consultant Study Team

National Engineering and Planning Services Co., Ltd. (NEPS) of Myanmar has been selected by Yacheng Footwear Co., Ltd.to conduct the EMP.

NEPS is a company incorporated in Myanmar in 1998 specializing in Planning, Design, Construction and Engineering Consultancy Services related to civil engineering works. It has the resources and experience essential for the successful completion of the tasks.

NEPS has more than 40 engineers and specialists of various disciplines including geology, geo-technology, agronomy, hydraulics, hydrology, geometrics engineering, social economics and remote sensing subjects. Among the above specialists, 15 key personnel of NEPS have work-experience of more than 30 years and had proven expertise having post graduate trainings in overseas institutes.

For flora, terrestrial fauna and aquatic fauna study, some specialists (Retired Professors and Lecturers from the Universities) are affiliated with NEPS to cope with the diversified nature of EIA works. Among other works, NEPS had involved in the following Environmental and Social Impact Assessment (ESIA), Initial Environmental Examination (IEE) and Environmental Management Plans (EMP) related works.

The MONREC Consultant Registration Certificate of National Engineering and Planning Services Co., Ltd is 0000035[5].

The information of the contact Person of NEPS is as follow.

Name: Daw Hay Mar Hnin
Position: Environmental Engineer
Phone No.: +95(0)9250619018
Email: haymarhnin1500@gmail.com

Table 1: EMP Report Preparers

Members of EMP preparation				
Team Leader of the team				
Name (Sur name, Given name)	Registration / License No. by ECD	Organization	Contact Detail	Area of expertise
U Aye Myint	0035	NEPS	01 8562407	Senior Water Resource Engineer, General Supervision of EIA Works, Consultant for Policy and Legal issues
Member of the team (except the team leader)				

[5] *MONREC Consultant Registration Certificate of National Engineering and Planning Services Co., presented in Appendix A3.*

Members of EMP preparation				
Name (Sur name, Given name)	Registration / License No. by ECD (if registered)	Organization	Contact Detail	Area of expertise
U Aye Ko	0035	NEPS	01 8562407	Senior Geologist, Engineering Geology, Geomorphology, Geological formation analysis
Daw Khin Khin Cho	0035	NEPS	01 8562407	Senior Engineer Hydrologist, Water Resources Engineer, Climate Change Analysis
Daw Phyu Phyu Aye	0035	NEPS	01 8562407	Senior Engineer Environmentalist, Risk Assessment and Hazard Management, Waste Management
U Nyo	0035	NEPS	01 8562407	Soil and water quality survey, Noise and air pollution analysis, socio economic analysis. Livestock husbandry
Daw Haymar Hnin	0035	NEPS	01 8562407	Engineer Environmentalist, Socio Economic Surveyor, Discussion and explanation of public consultation meeting
Daw Aye Thet Wai	0035	NEPS	01 8562407	GIS Specialist, Maps, Photographs, Satellite Images, Aerial Photographs, Topography condition
Dr. Win Myint	0035	NEPS	01 8562407	Ecology and Biosecurity, Waste Management, Risk Analysis along supply chains, livestock husbandry
U Kyaw Zin Tun	0035	NEPS	01 8562407	Analysis of Socio Economic Investigation
Daw Esther Ro Hniang	0035	NEPS	01 8562407	Water Resources Engineer, Environmentalist, Ecology and Biosecurity, Risk Assessment and Hazard Management

3. PROJECT DESCRIPTION

3.1 Project Detail[6]

Project Location:	Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region.
Project Proponent:	Yacheng Footwear Co., Ltd.
Description of Project:	Footwear Production Factory Project
Project Site Area:	2.003 acres
Project Investment:	3.5 million USD (100% Foreign Investment Company Yacheng Footwear Co., Ltd.)
Land Acquisition*[7]*:	Government owned land leased for sixty years Land and Building Leased from Landlord, U Yang Chin Yu, for 10 full years from (7-6-2019) to (6-6-2029)

[6] *Project Proponent's Document*

[7] *Land Acquisition of the project proponent: Appendix A-2 of this Report*

Figure 1: Satellite Image of Project Site Location

Figure 2: Satellite Image of Project Area

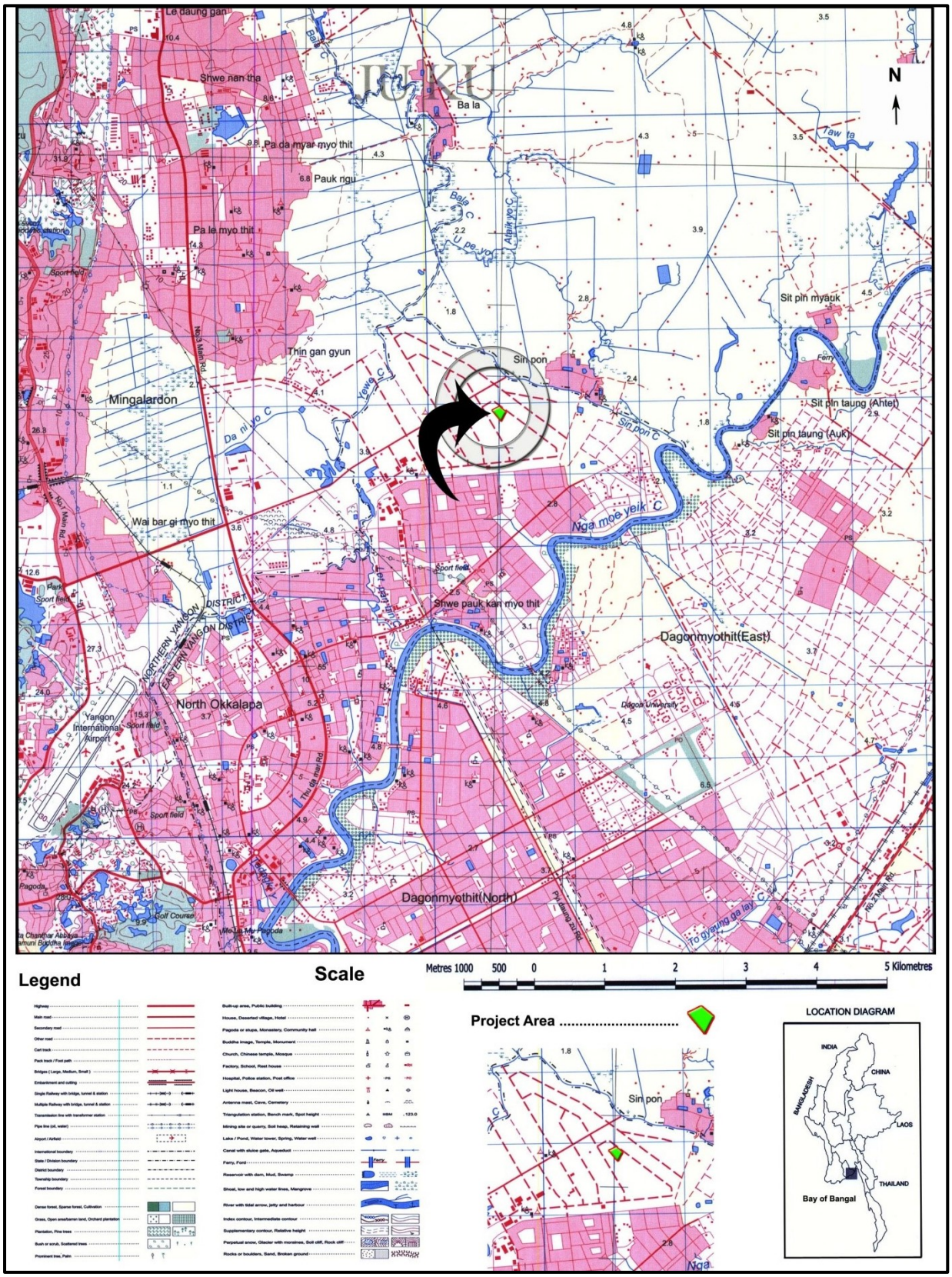


Figure 3: Site Location Map

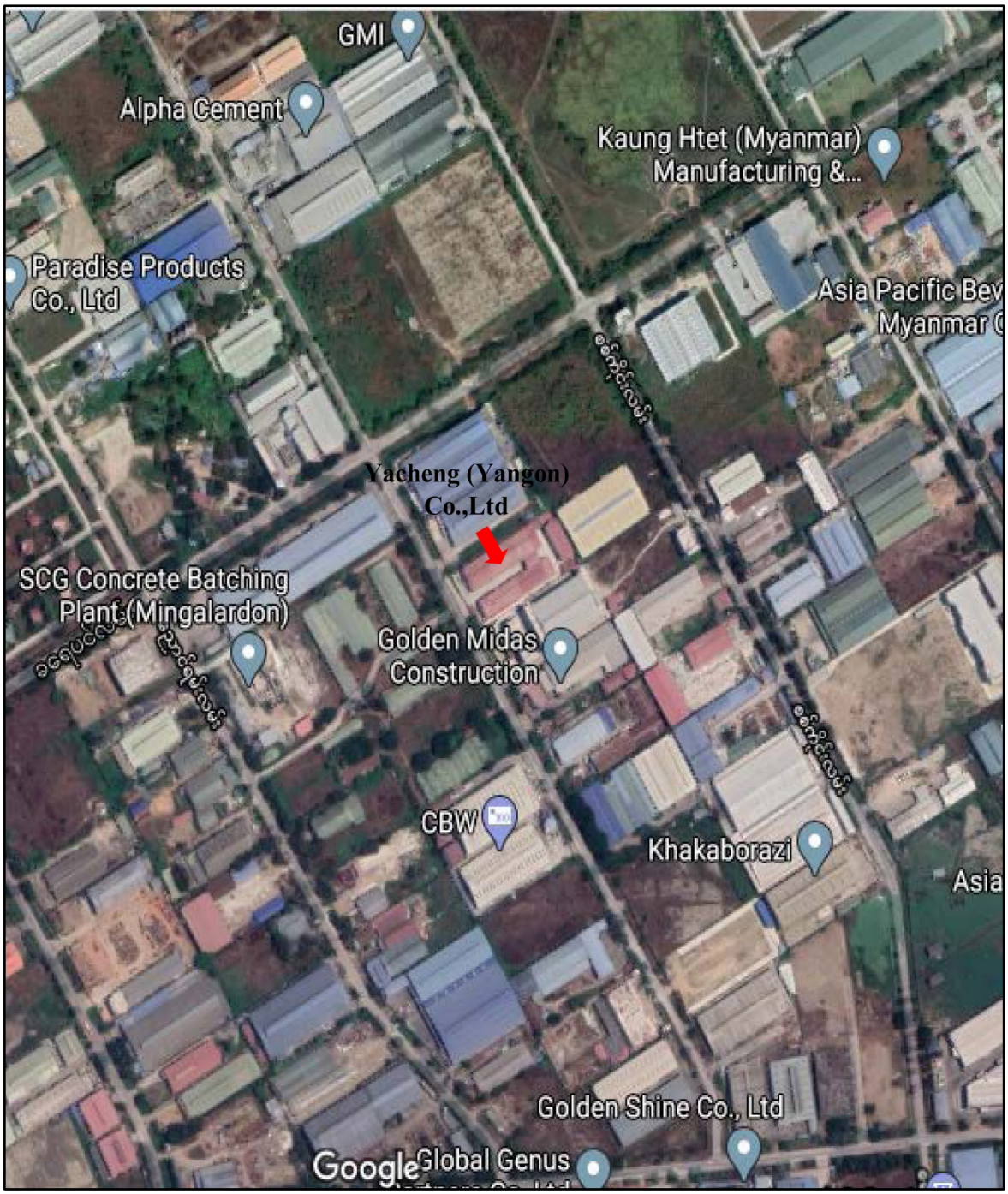


Figure 4: Satellite Image of Project Site and its surroundings

3.2 Project Implementation Program

The project has completed the construction phase of all infrastructures including warehouse, dormitory, factory and offices, and staff /security offices. Now it is in its operational phase and the plant runs about 550 employees. Emergency Preparedness Plan and Fire Protection Equipments are being supplied and carried out systematically.

3.3 Installations, Technology, Infrastructure

Since the two factory buildings had existed before, the installation of factory machineries, the construction of dormitory and canteen are accomplished by the proponent with local labors.

3.4 Land Release

The project proponent "Yacheng (Yangon) Co., Ltd." has signed Land Lease Agreement with U Yang Chin Yu for 2.003 acres (87264 ft^2) at 10 years; as of the rent USD 13676 per month, in total USD 164112 per year for the first 5 years; as of the rent USD 18045.86 per month, in total USD 216550.43 per year for the remaining 5 years to be paid every 2 years.

3.5 Investment Plan

The project investment is 3.5 million US Dollars (100% foreign investment).

3.6 Project Overview

The Project Proponent “Yacheng Footwear Co., Ltd.” has leased the land and building premises at Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region to produce footwear, mostly ladies shoes by CMP (Cut-Manufacture-Pack) system with manufacturing by client-ordered design.[8]

Infrastructures at project site are (100% completed):

- **Factory Building-A** (24mx90m) $1^{1/2}$ storeyed Industrial type steel structure with reinforced concrete filled concrete block short columns and a trough profile long runoff roof;
- **Factory Building-B** (18mx90m) $1^{1/2}$ storeyed industrial type steel structure with reinforced concrete filled concrete block short columns and a trough profile long runoff roof;
- **Dormitory and Canteen Building** (38mx15m) 3 storeyed industrial type steel structure with reinforced concrete short columns and a trough profile long runoff rood.

The Project has built the factory infrastructure for manufacturing of varieties of shoes to be exported on (CMP) System. The area of the project area is 2.003 acres (87264 sq. feet).

[8] *Appendix A: Land Acquisition by Proponent from Government, Ministry of Construction for industrial work at 60 years lease contract for Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region, 6 Aug 2015.*

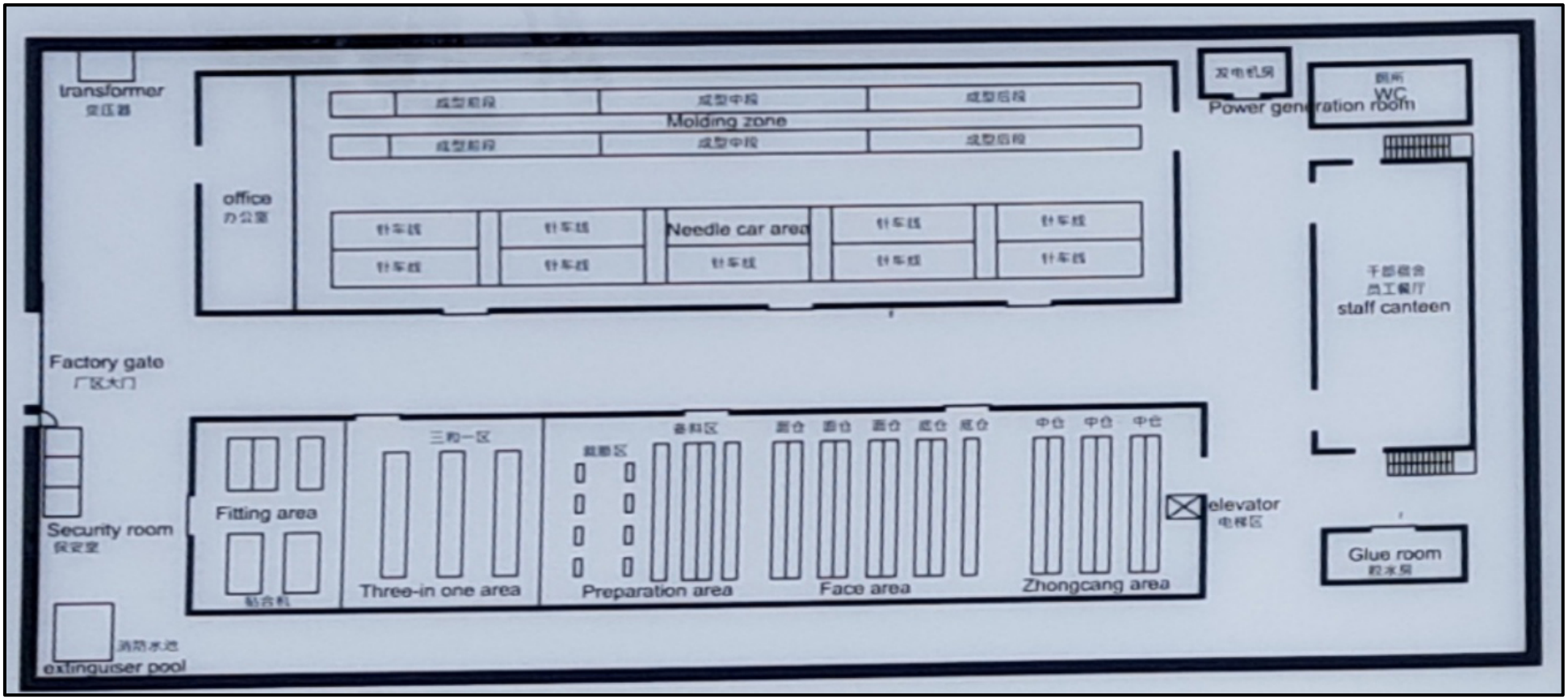


Figure 5: Floor Plan of Factory

3.6.1 Schedule of Project

Land and Buildings are hired from landlord on (7-6-2019). 100% of renovation/ construction was done and factory has been run on 22-7-2019. The operation time schedule for regular time during COVID-19 is presented in following tables. The operation day per year is about 313 days.

Table 2 Operational Working Schedule

Activities	Period
Regular	
Working Time	7:30 to 16:30
Lunch Time	11:30 to 12:00
Over Time	17:00 to 19:00
Working Days	Monday to Friday (7:30 to 16:30) Saturday (7:30 to 11:30)
During COVID-19	
Working Time	7:30 to 16:30
Lunch Time (15 mins rest in the dining room & the rest of the time is allowed to rest at their place of work)	- 11:00 to 12:00 - 11:15 to 12:15 - 11:30 to 12:30
Over Time	17:00 to 19:00
Working Days	Monday to Friday (7:30 to 16:30) Saturday (7:30 to 11:30)

3.6.3 Materials use

The following are the raw Materials that would be used to produce the finished products from this factory[9]:

Sr. No.	Particulars	Unit
Tools and accessories	Printing screen, cutter die, knife, bottom pressing die, PVC Cutting board, shoe mold / mould, iron core, nylon ties, heel top lift, hanger, insole board, back counter sheet, number clop, footwear	kg

[9] ***Appendix D-1: List of Raw Materials and Machinery***

Sr. No.	Particulars	Unit
	accessories (scissors, hammer, brush, sand paper), plastic board sheet, marker pen, white paper board, plastic pin, roughing wheel, iron tube for footwear, white PP board, upper flower, heel counter (plastic film) platforms, cutting board, wood wheel, screw, snap fastener, mould, webbing, and foot-bed.	
Shoe fabric	Shoe lace, PU artificial leather, canvas, fiber cloth, multi-spandex, non-woven fabrics, polyester yarn fabric, Lycra fabric, stripe cloth, outsole, Eva insole, knit fabric, micro fiber, buckle/eyelet, elastic band, elastic cord, latex sponge, foam, Eva rolls, linen cloth, heel, topping cloth, backing fabric, latex gasket, insole sheet/ water proof platform, PU, 100% polyester fabric shell, 100% polyamide fabric-lining, interlining, rib, zipper, boud edage belt, sewing thread, pad, fabric, flex sole, shoe strip, Eva sponge, foam, leather (cow, pig, goat), velvet, Eva sheet, cotton cloth, nails for shoe and oil for shoe.	kg
Adhesive and Packing component	Hot-melt adhesive counter, edge binding tape, Shoe box, inner box, wrapping paper, adhesive, reinforced tape, PE Cord, micro-pack/desiccant (silica gel), sticker, Label, , PE bag/air bag/poly bag, cardboard, paper board, shoe chopsticks, midsole paper, paper insole, paper product, woven tape, cord, eyelet/buckle, tag pin, label, button, plastic bag, dop, tape, loop, paper, primer, glue, hardener, plastic seed, poly bag, tape (clear, paper, re-forcing, double, magic), PE bag, plastic bag, bag, PE plastic sheet, plastic material, shoe box, , back counter box, rope, hang tag, cork, and hot melt adhesive sheet.	kg

3.6.4 Machinery use

The following Machinery will be used for production of footwear in this factory:

Sr. No.	Particulars	Quantity	HP per unit	Made in
1.	White Plastic machine	2	0.1 KW	China
2.	White Plastic Laminating machine	1	1.8 KW	China
3.	Straight knife slitting machine	1	1.0 KW	China
4.	Gluing machine	1	0.1 KW	China
5.	Cutting machine	8	2.0 KW	China
6.	Single needle zigzag sewing machine	12	0.75 KW	China
7.	Heal seaming and modular machine	12	1.2 KW	China

Sr. No.	Particulars	Quantity	HP per unit	Made in
8.	Trimming machine	12	0.18 KW	China
9.	Thread burner machine	12	0.4 KW	China
10.	Single needle fully automatic sewing machine / complete	108	0.65 KW	China
11.	Double needle fully automatic sewing	12	0.65 KW	China
12.	Folding edge machine	2	0.65 KW	China
13.	Shoe setting machine	4	0.5 KW	China
14.	Ironing machine	2	4.0 KW	China
15.	Zipper cementing machine	1	0.75 KW	China
16.	Skiving machine	10	0.4 KW	China
17.	Stamping machine	2	0.25 KW	China
18.	Eagerly machine	2	0.35 KW	China
19.	Putting stud machine	2	0.1 KW	China
20.	Large skiving machine	2	2.2 KW	China
21.	Thermoplastic toe puff applying machine	2	0.45 KW	China
22.	Seated type single-side machine	2	2.8 KW	China
23.	Rear sleeve shaping machine	2	1.8 KW	China
24.	Ago to help machine	4	2.8 KW	China
25.	After helping machine	2	1.7 KW	China
26.	Mo coarse machine	2	2.0 KW	China
27.	Universal hydraulic sole-attaching machine	2	1.25 KW	China
28.	Generally hydraulic sole-attaching machine	2	1.25 KW	China
29.	Nailing machine	2	0.41 KW	China
30.	Overhead frozen	2	3.5 KW	China
31.	The oven (3Nos)	6	5.0,5.0,5.0 KW	China
32.	Spray painting machine	2	0.65 KW	China
33.	Except knit machine	2	0.75 KW	China
34.	Polishing machine	4	2.5 KW	China
35.	Double cold double heat setting machine	1	1.0 KW	China
36.	Tensile testing machine	1	0.55 KW	China
37.	Air compressor	1	18.0 KW	China
38.	Forepart Lasting Machine	4	1.2 KW	China
39.	Steamed burn making machine	2	1.5 KW	China
40.	High Pressure Heated Stamp Machine	1	5.0 KW	China

The machinery, spare parts, raw materials and others necessary are imported from foreign country. These raw materials are certified to ensure safe transportation to the project site as non-hazardous materials.

	
Folding edge machine	High Pressure Heated Stamp Machine
	
Heal seaming and modular machine	Thread burner machine

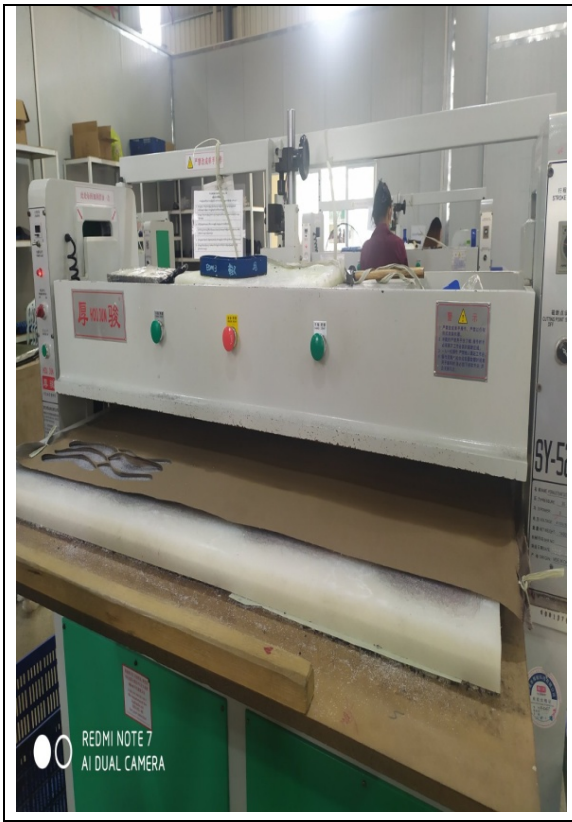
	
Cutting machine	The oven
	
Shoe setting machine	Large skiving machine

Figure 6 Some Machines using for Footwear Production

3.6.5 Project Water Supply

Domestic Water is supplied by a Tube well and treated by RO treatment Plant for water consumption. The treated water is stored in ground storage tank with (12) x (8) x (4) feet with the gallon of (2800) and daily water consumption is (240) cubic meter.

Figure 7 Yacheng RO Water Treatment Plant on site

3.6.6 Electrical Power Supply

The electricity is supplied by National Grid through 315 KVA Transformer and 2 Diesel Generator sets (400 KVA, 187.5 KVA)[10]. The monthly electricity consumption is 29000 unit per month. The average monthly fuel consumption of Diesel is 1000 gallon in dry season and 1500 gallon in wet season. Diesel is bought by retail, and it is not stored in bulk.

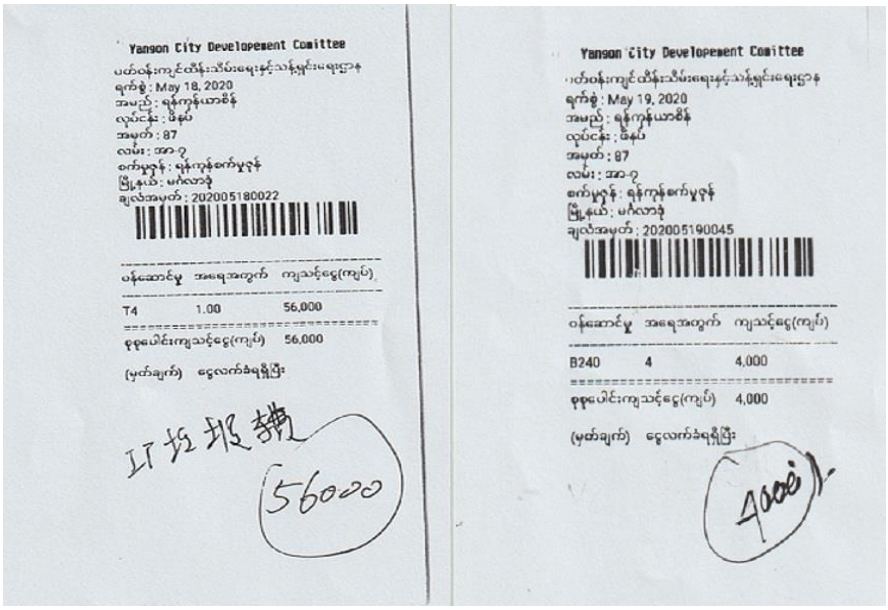
[10] *Permit Order and Certificate for Electricity Usage from EPC in Appendix A of this Report*

Figure 8 Transformar and Diesel Generator

3.6.7 Waste Disposal

Solid Waste:

Solid Waste generated by production process is collected by YCDC daily and transported to landfill site and paid twice a month. Footwear Factory is producing the most significant quantity of leather wastes such as leather trimmings, shavings and leather dust which are is temporarily collected as reuse, reduce and recycle behind of the canteen. The Temporary Waste Storage Area is described in Figure 9.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အမှတ် : 87
လမ်း : အာ-၃
စက်မှုဇုန် : ရန်ကုန်စက်မှုဇုန်
မြို့နယ် : မင်္ဂလာဒုံ
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Figure 9 YCDC's receipt for collection of waste

Figure 10 Map of Temporary Waste Storage Area

Wastewater:

Domastic wastewater is discharge into the drain directly without treatment. Drainage is checked daily and drain and down pipe's condition is well managed.

Figure 11 Drain and downpipe condition at Factory

3.6.8 Products of Factory

The ladies shoes shown in following figure is being produced by CMP (Cut-Manufacture-Pack) system as preorder.

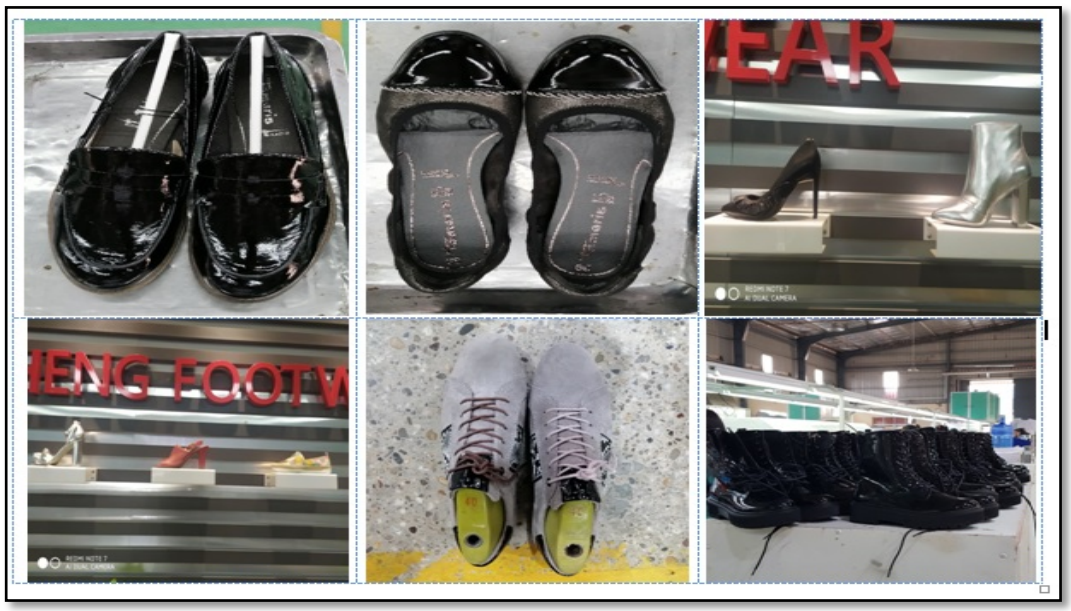

Figure 12: Finished Product General

3.6.9 Activities at Project Decommissioning Phase

The decommissioning period will be conducted to manage the waste handling and storage including off-site waste processing, disposal of container, and transportation to repository and landfill.

The process of factory decomissioning includes refurbishment, installation of treated systems, and treatment stations, dismantling, categorization, and decontamination activities, as well as, evacuation and disposal of resulting materials. The decommissioning plan should include risk assessments, method statements, along with a paradigm of the environmental management plan and waste management plan with manage the waste handling and storage including off-site waste processing, disposal of container, and transportation to repository and landfill needs to be compiled before the commencement of work.

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4. LEGAL AND INSTITUTIONAL ARRANGEMENTS

4.1 Environmental, health and Social Policy of Project Proponent

The environment and social status shall not be endangered due to implementation of the project.

To fulfill the environmental objectives of the project, the proponent aims:

- To reduce carbon emission and hazardous materials through an initiative role of coping with climate change;
- To protect the occupational health of the project staff;
- To develop a green business for securing new growth engines;
- To reinforce an eco-friendly supply chain management (SCM) and green partnership;
- To manage social responsibility and reinforce the stakeholders' network by opening job opportunities to local youths;
- To complement the Nation's economy in the Energy sector by implementation of Project;
- Providing services while modernizing POL Distribution in Myanmar.

The following mentioned are declaration of project proponent in regard with ensuring of mitigating environmental and social adverse impacts and enhancing beneficial impacts:

A. Protection of Environment

We, Denko Petrochemical Management Co., Ltd shall be responsible for the protection as well as preservation of environment in and around the area of the project site. We shall be able to protect pollution of air, water and land and not to cause environmental degradation. Our company takes necessary measures in order to fulfill environment protection to keep the project site environmentally friendly. The project ground as well as the approach roads will have suitable shady side walks, flowering plants and trees and ever green arbors.

B. Fire Hazard Prevention

With regard to the matter – Our Denko Petrochemical Management Co., Ltd have established a universal stand company in project operations according to the Foreign Investment Law 2016. Our company will be undertaking the project works under the normal basic and for the purpose we have applied for approval of Myanmar Investment Commission in accordance with the Foreign Investment Law (2016).

Regarding Fire Hazard Prevention, Denko Petrochemical Management follows the National Fire Protection Agency (NFPA 58) standard and we have fire-fighting

equipment and prevention initiatives in place at project site[11].

c. **CSR Fund**

We, the Denko Petrochemical Management Co., Ltd shall use 2% of annual net profit be appointed as CSR fund from the commencing year of our business. It should be funded at around 10 lakh kyats annually. The amount should be contributed in factors tentatively as an example like; 350,000kyats per year in education. 300,000 kyats per year in health care and 350,000 kyats per year in protection of environment. Currently, Denko Trading has been donating fuel to monk cars (regularly at around 5 million kyats monthly) [12]on a daily basis.

The project is being implemented with authorization from the following Government Departments[13]:

4.2 National Laws and Regulations

The Project is being conducted in line with HSE Management Policy, the requirements of the Myanmar regulatory requirements, and international conventions, standards, and guidelines. EIA Procedure (2015), National Environmental Quality Emissions Guidelines (2015) are the main governing body. EIA Guidelines for the Mining Sector (Draft final, 2018 May) is also the technical reference for the all phases of the project activities. IFC EHS Guidelines for mining (2007) and Myanmar National Drinking Water Quality Standard (2014, Ministry of Health) will take as guidelines in which the reference guidelines could not meet. The Laws, regulations relevance to the Project are summarized in below; detailed has been explored in later sections:

1. The Environmental Conservation Law, 2012
2. The Environmental Conservation Rules, 2014
3. EIA Procedure (2015)
4. National Environmental Quality (Emissions) Guidelines (2015)
5. Myanmar Investment Law, 2016
6. Myanmar Investment Rules, 2017
7. The Import and Export Law, 2012
8. The Forest Law (2018)
9. Conservation of Water Resources and Rivers Law (2006)
10. Industrial Use Explosive Substance Law (2018)
11. Explosive Substances Act (1908)
12. The Protection of Biodiversity and Conservation Areas Law (2018)
13. Law on Protecting New Species of Plants (2016)

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[11] *Appendix B: Photos of project and fire-fighting drills and trainings on site*

[12] *Denko website*

[13] *Appendix A, A1*

14. The Protection and Preservation of Antique Objects Law (2015)
15. The Protection and Preservation of Ancient Monument Law (2015)
16. Myanmar Fire Force Law, 2015
17. Prevention from Danger of Hazardous Chemical and Associated Material Law (2013)
18. Myanmar Insurance Law (1993)
19. Underground water act (1930)
20. The Law on Standardization (2014)
21. Myanmar Port Authority Law (2015)
22. Motor Vehicle Law (2015)
23. The Land Acquisition Act (1894)
24. The Land Acquisition, resettlement and restoration (2019)
25. The Farmland Act (2012)
26. Vacant, Fallow and Virgin Land Management Act (2012)
27. Freshwater Fisheries Law (1991)
28. The Law Relation to Aquaculture (1989)
29. Public Health Law (1972)
30. The Protection and Prevention of Communicable Disease Law, 1995
31. The Control of Smoking and Consumption of Tobacco Product Law, 2006
32. Employment and skill development law (2013)
33. The Settlement of Labour Dispute Law (2012)
34. The Workmen Compensation Act, 1923 (amend 2005)
35. Labour Organization Law (2011)
36. Minimum Wages Law (2013)
37. Payment of Wages Law (2016)
38. Social Security Law (2012)
39. Law Protecting Ethnic Right (2015)
40. Monogamy Law (2015)
41. Buddhist Women special Marriage Law (2015)
42. Religious Conservation Law (2015)
43. Population Control Healthcare Law (2015)
44. Leaves and Holiday Act (1951)

4.3 International Guidelines and International Agreements

It is also customary to adhere to International Guidelines from IFC (International Finance Corporation) such as the Environmental, Health and Safety Guidelines for Crude Oil and Petroleum Products Terminals, or other similar organizations. The World Bank Governing policy is OP 4.01. At present this project is categorized as "B". This means all components of the Project with the exception of capacity building is subjected to environmental assessment (EA).

4.3.1 International Agreements and Treaty:

Relevant international conventions to which Myanmar is a signatory include those related to waste management, biodiversity conservation and labor conventions. The key international conventions of relevance to the Project and commitment to adhere with Project Compliance are described below:

Table 3: International Convention of Relevance to the Project

Legislation	Relevance	Ratification Status (in Myanmar)	Project Compliance
Environmental			
Vienna Convention for the Protection of the Ozone Layer 1988 and Montreal Protocol on Substances that Deplete the Ozone Layer 1989	Not relevant to the Project as the Project will not use any ozone depleting substances.	Accession 16th Sep 1998 (Vienna) & Accession 24th Nov 1993 (Montreal)	The Project commits not to utilize ozone depleting substances.
Convention on Biological Diversity 1992	The Project will be undertaken in habitats for biodiversity.	Ratified 25th Nov 1994	The Project commits to comply as per Myanmar's
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal	The Project may generate hazardous wastes.	Entered into force 6th April 2015	The Project commits to comply as per Myanmar's
United Nations Framework Convention on Climate Change 1992 (UNFCCC) and Kyoto Protocol 1997	The Project will form part of Myanmar's total emissions output.	Entered in force 23rd Feb 1995 (UNFCCC) and 16th Feb 2005 (Kyoto Protocol)	The Project commits to comply as per Myanmar's
Asia Least Cost Greenhouse Gas (GHG) Abatement Strategy (ALGAS) 1998	The Project will produce air emissions from the vessels.	1998	The Project commits to comply as per Myanmar's

5. DESCRIPTION OF THE ENVIRONMENT

5.1 Climate and Hydrology

The project area is located at No (87), Zakabar (7) Street, Mingalardon Garden City, Mingalardon Township of Yangon Region which is lying at Longitudes 96°9' 28" E and Latitides 16° 56' 9" N; having subtropical climate; hot and humid weather with recorded maximum temperature of 39°C and recorded minimum temperature of 15.5°C.

Mingalardon Climate and hydrological data were collected from Department of Hydrology and Meteorology for the environmental impact assessment of Footwear Factory Project. The data was analyzed based on the available rainfall, temperature, relative humidity, and wind speed in the study area.

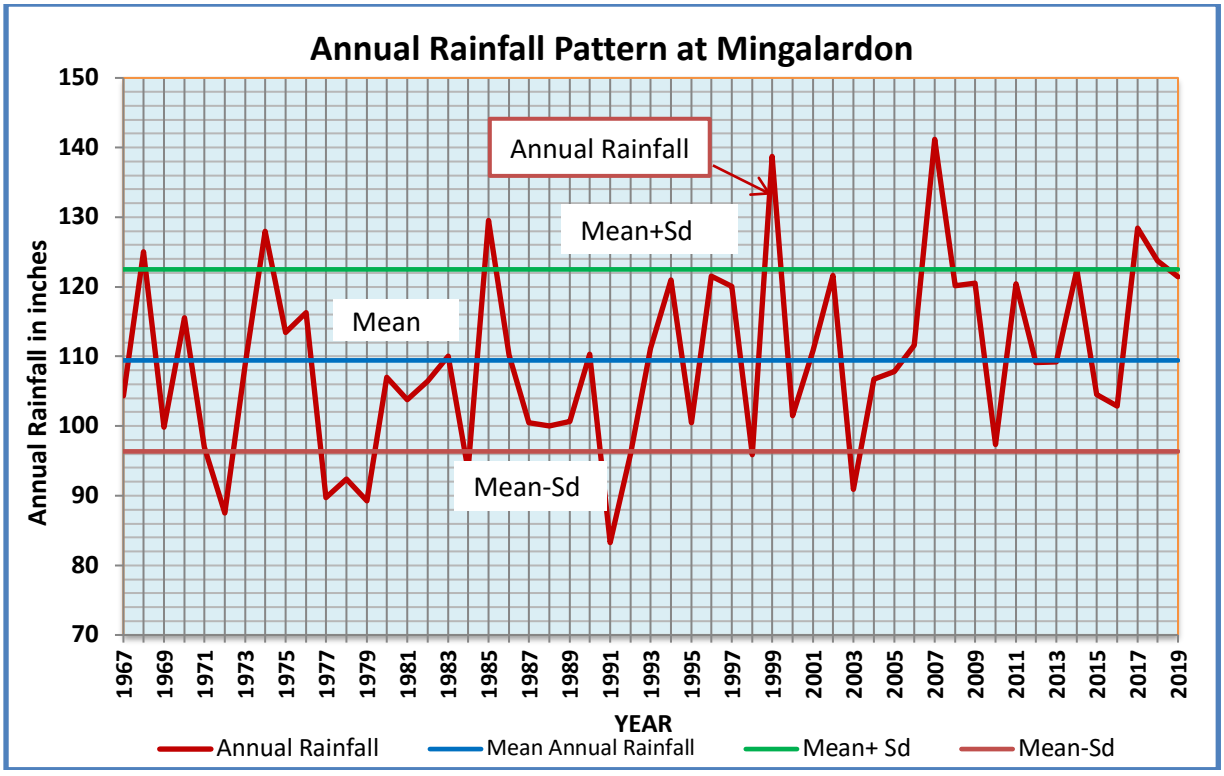
5.1.1 Rainfall and Temperature

Table 4: Annual Rainfall in mm at Mingalardon (2016-2019)

Sr.No	Year	Rainy Days	Total Rainfall (inches)
1	2016	126	104.00
2	2017	117	101.93
3	2018	81	79.07
4	2019	135	132.85

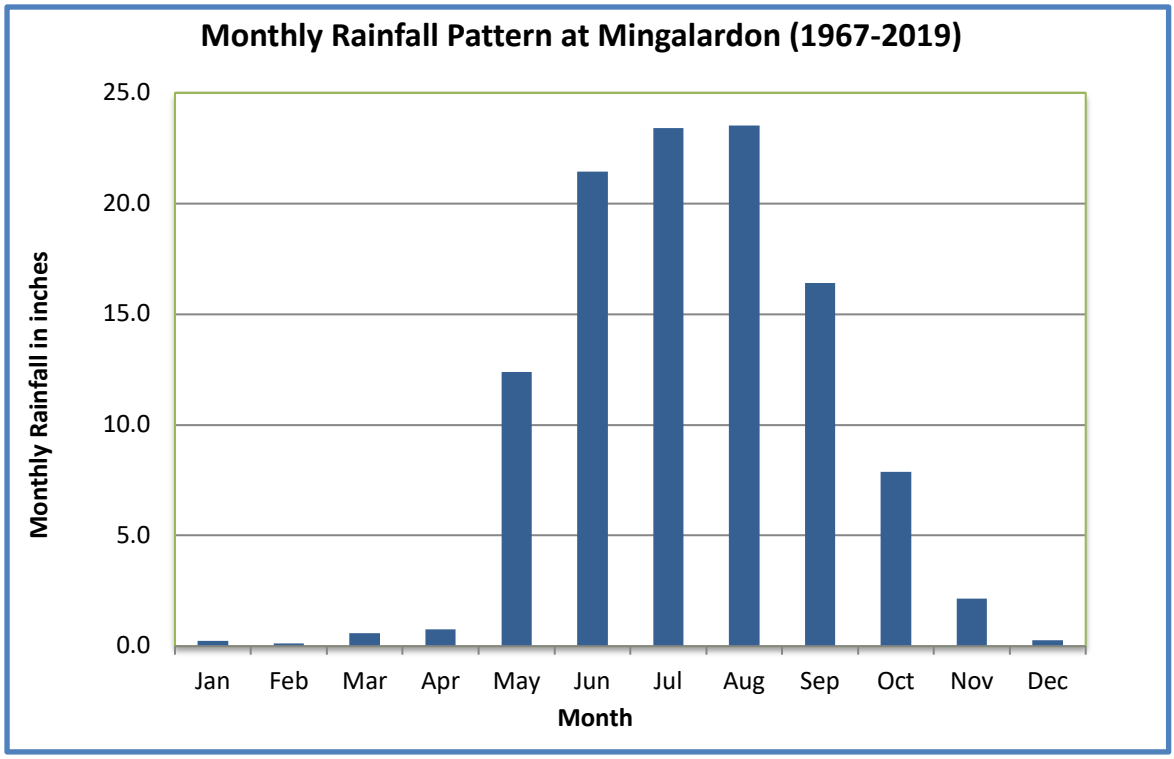
Table 5: Mean Monthly Rainfall in millimeter at Mingalardon (Mean Year, Wet Year, Dry Year)

Year	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Mean Year	*0.25*	*0.13*	*0.59*	*0.75*	*12.38*	*21.45*	*23.40*	*23.53*	*16.40*	*7.88*	*2.15*	*0.27*	*109.20*
Wet Year	*0.01*	*0.00*	*0.42*	*2.78*	*16.14*	*25.01*	*28.01*	*22.66*	*18.05*	*11.14*	*5.12*	*0.31*	*129.64*
Dry Year	*0.14*	*0.11*	*0.00*	*0.96*	*10.65*	*19.18*	*19.90*	*22.72*	*10.19*	*5.50*	*0.76*	*0.23*	*90.33*



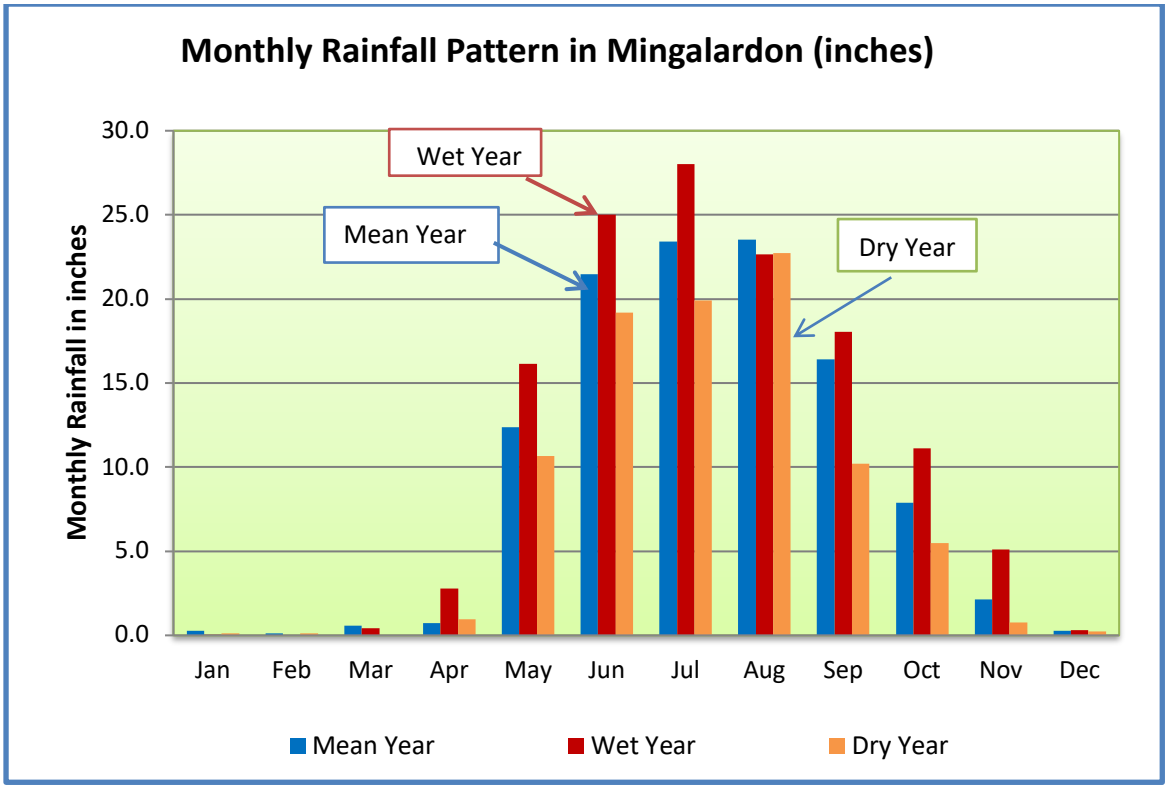
Source: Meteorological and Hydrological Department

Figure 13: Annual Rainfall Pattern at Mingalardon (1967-2019)



Source: Meteorological and Hydrological Department

Figure 14: Mean Monthly Rainfall Pattern at Mingalardon (1967-2018)

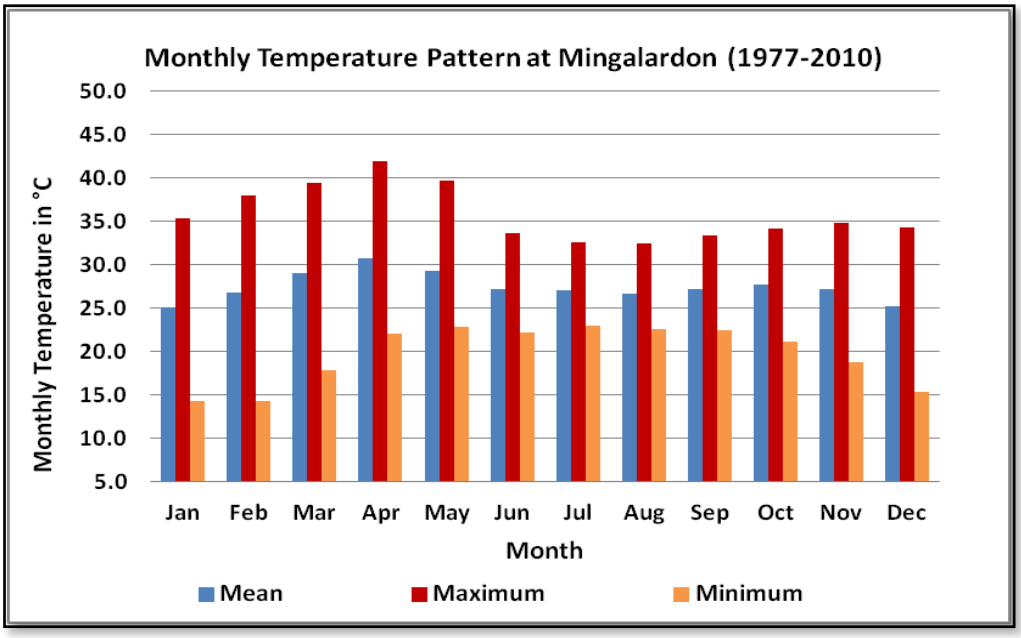


Source: Meteorological and Hydrological Department

Figure 15: Monthly Rainfall Pattern at Mingalardon (Mean, Wet and Dry Year)

Table 6: Monthly Mean, Maximum and Minimum Temperature at Mingalardon in °C

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	25.1	26.7	29	30.7	29.3	27.2	27	26.7	27.2	27.7	27.2	25.2	27.4
Maximum	35.3	38	39.4	41.9	39.7	33.6	32.5	32.4	33.3	34.2	34.8	34.3	35.8
Minimum	14.2	14.2	17.9	22.1	22.9	22.1	23	22.6	22.4	21.1	18.8	15.4	19.4

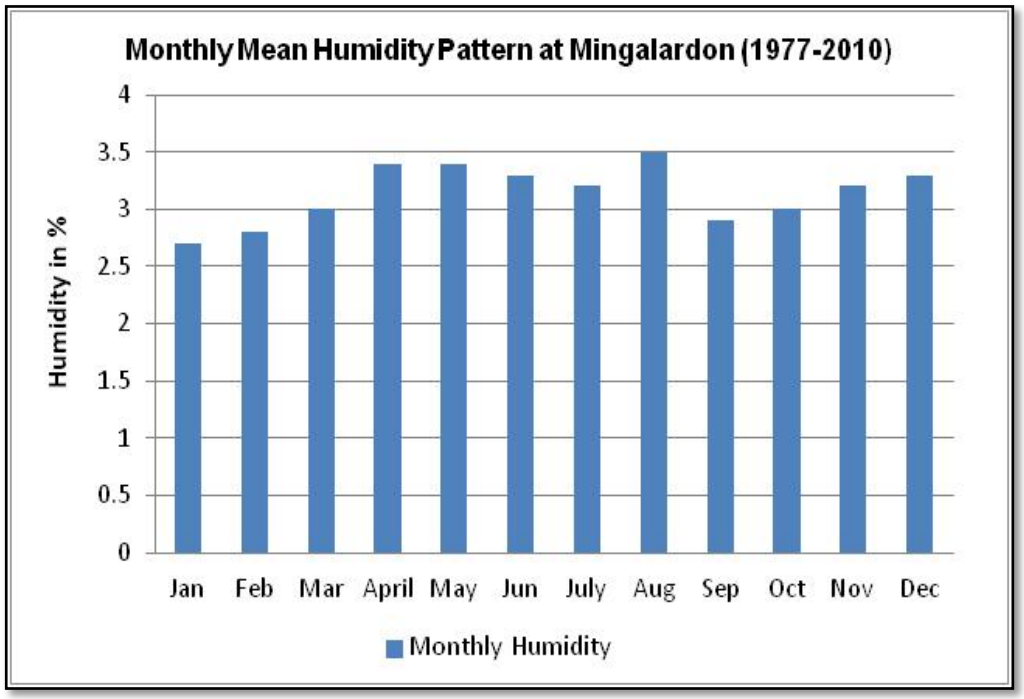


Source: Meteorological and Hydrological Department

Figure 16: Monthly Mean, Maximum and Minimum Temperature Pattern at Mingalardon

Table 7: Monthly Mean Relative Humidity at Mingalardon in % (9:30 hrs) (2006-2016)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	60	57	61	62	74	88	89	89	85	80	72	65	73

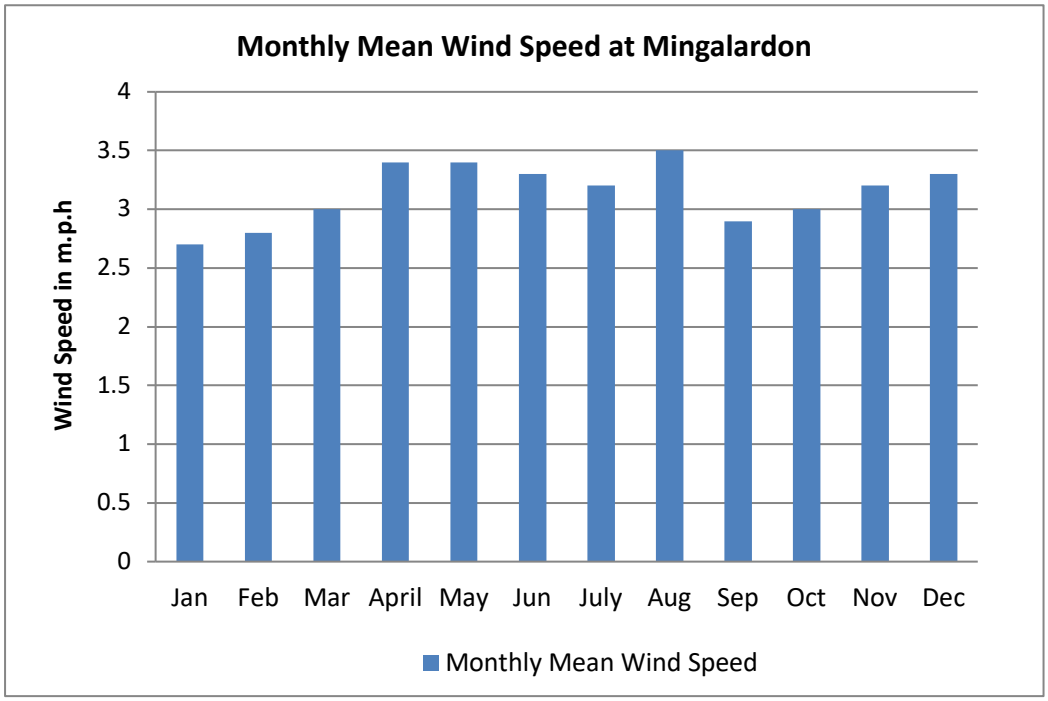


Source: Meteorological and Hydrological Department

Figure 17: Monthly Humidity Pattern at Mingalardon (1977-2010)

Table 8: Monthly Mean Wind Speed (m.p.h) and Direction at Mingalardon (2006-2018)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	2.7	2.8	3.0	3.4	3.4	3.3	3.2	3.5	2.9	3.0	3.2	3.3



Source: Meteorological and Hydrological Department

Figure 18: Monthly Mean Wind Speed at Mingalardon (1977-2010)

6. BASELINE DATA: PHYSICAL, ECOLOGICAL AND SOCIAL STATUS OF THE ENVIRONMENT

6.1 Baseline Data: Physical, Ecological and Social Status of the Environment

The baseline environmental data generation has been done during June 2020. The study area within a 10 km radius around the proposed terminal site has been considered as general impact zone and 2 Km radius as specific impact zone for the impact study. Primary and secondary data has been collected for both the zone. However, focus of primary data generation has been more for 2 Km radius.

The Salient Environmental Features of Footwear Factory Project within 500 m, 2 Km and 10 Km radius is summarized at Table 8 below.

Table 9: Salient Environmental Features of Footwear Factory Project Site

Sr. No.	Environmental Features	Within 500 m area around Proposed project site	Within 2 km area around Proposed project site	Within 10 km area around Proposed project site
1	Ecological Environment			
A	Presence of Wildlife Sanctuary / National Park / Biosphere Reserves	None	Royal Mingalardon Golf & Country Club	Yangon International Airport, Hlawga National Park City Golf Club & Golf Course
B	Reserved /Protected Forests	Reserved /Protected Forests	None	None
C	Wetland of state and national interest	Wetland of state and national interest	None	None
D	Migratory route for wild animals	Migratory route for wild animals	None	None
E	Migratory routes for birds	Migratory routes for birds	None	None
F	Presence of Terrestrial Fauna	Presence of Terrestrial Fauna	None	None
G	Presence of Aquatic Fauna	Presence of Aquatic Fauna	None	None
H	Tree cover	Tree cover	Yes: General road side plantation	Yes: General road side plantation
2.	**Physical Environment**			
I	Road connectivity	The site is well connected by roads.	No.3 Main Road is connected from north to south.	Lower Mingalar road and Yangon-Pyay road are connected from north to south.
J	Rail connectivity	None	None	None

Sr. No.	Environmental Features	Within 500 m area around Proposed project site	Within 2 km area around Proposed project site	Within 10 km area around Proposed project site
K	Defense Installation	None	None	Defense Services Medical Academy
L	Densely Populated Area/ Industrial Area	Yangon Industrial Zone, Aungmingalar Bus Terminal	Mingalardon Industrial Park Phase (1), North Okkalarpa Township.	Hlegu Township, Insein Township, Shwepyithar Township,
M	Topography	Mainly flat with ground elevation ranging around 100 feet above mean sea level	Mainly flat with ground elevation ranging around 100 feet above mean sea level	Mainly flat with ground elevation ranging around 100 feet above mean sea level
N	Seismicity	Low magnitude	Low magnitude	Low magnitude
P	Surface Water Resources (Rivers)	None	Pazundaung Creek is running through east to south direction of the project site.	About 9 km southwest of the project site, Hlaing River is flowing from north to south direction.
Q	Groundwater	The groundwater resources found at about 200 feet below the natural ground surface. According to key format interview, the groundwater is used for domestic purpose by applying R.O Water Treatment.		
R	Soil and Land Used [14]	Meadow Soil Land use in 500 m of site is under road, industrial use and settlements.	Meadow Soil Land use in 2 km area of site is under road, industrial use, and settlements.	Meadow & Meadow alluvial soil Land use in 10 km of site is under agriculture, settlement, water bodies and rest of the land is under other uses.
3.	**Social Environment**			
S	Physical Setting	Industrial /Urban	Industrial / Urban	Urban / Rural / Industrial Settings
T	Physical Sensitive Receptors	None	Yes (Temples, Schools, College, Hospital)	Yes (Temples, Schools, College, Hospital)
U	Archaeological Monuments	None	None	About 5 km southwest of the project site, Yangon International Airport is situated.

[14] *Soil Types and Soil Characteristics of Myanmar, Ministry of Agriculture and Irrigation, March 2004*

Air Quality[15]**:** Ambient Air pollution and Noise level tests at the selected one monitoring point in the project area was conducted by the Haxagonal Angle Consulting Team on 7th July of 2020, using OCEANUS™ AQM-09. During the assessment, the average temperature was 23.93°C and relative humidity was 83.88%. The measured parameters are dust particles such as TSP, PM_{10}, $PM_{2.5}$, and the gaseous pollutants such as NO_2, SO_2, CO_2, CO and O_3. Measurements were recorded in the operation with duration of 24 hours between consecutive measurements and the results are compared with National Environmental Quality (Emission) Guideline and all parameters meet the permissible limits of Myanmar National Standard, 2015.

Figure 19 Location of Air Quality and Noise Level Sampling Point

[15] *Air Quality Analysis at the project site, Appendix E of this Report*

The result of Air Quality is presented as follow.

Table 10 Air Quality Result

No. (စဉ်)	Parameter (အရည်အသွေး)	Result (ရလဒ်)	Unit (ယူနစ်)	Average Period (ပျမ်းမျှကာလ)		*Guideline Value (ထုတ်လွှတ်မှုစံနှုန်း)
1	Particulate Matter PM_{10}	34.26	$\mu g/m^3$ $\mu g/m^3$	1 24	Year Hour	*20 $\mu g/m^3$ *50 $\mu g/m^3$
2	Particulate Matter $PM_{2.5}$	22.75	$\mu g/m^3$ $\mu g/m^3$	1 24	Year Hour	*10 $\mu g/m^3$ *25 $\mu g/m^3$
3	Total Suspended Particulate (TSP)	46.1471	$\mu g/m^3$	24 Hours		NG
4	Sulphur Dioxide (SO_2) ဆာလဖာဒိုင်အောက်ဆိုဒ်	17.3	$\mu g/m^3$ $\mu g/m^3$	10 24	Mins Hours	* 500 $\mu g/m^3$ * 20 $\mu g/m^3$
5	Nitrogen Dioxide (NO_2) နိုက်ထရိုဂျင်ဒိုင်အောက်ဆိုဒ်	94.08	$\mu g/m^3$ $\mu g/m^3$	1 1	Year Hour	*40 $\mu g/m^3$ *200 $\mu g/m^3$
6	Carbon Monoxide (CO) ကာဗွန်မိုနောက်ဆိုဒ်	0.7057	ppm	24 Hours		NG
7	Carbon Dioxide (CO_2) ကာဗွန်ဒိုင်အောက်ဆိုဒ်	306.424	ppm	24 Hours		NG
8	Ozone (O_3)	43.03	$\mu g/m^3$	8 Hours		100
9	Relative Humidity စိုထိုင်းစ	83.88%		24 Hours		NG
10	Temperature အပူချိန်	23.93°C		24 Hours		NG

*National Environmental Quality (Emission) Guideline 2015 NG=No Guideline

Noise Quality[16]**:** Baseline noise quality was measured in 1 place of the project site using BENTECH GM 1356 (Digital Sound Level Meter). At present sound level results of all points were observed 73.1 to 57.95 dBA during nighttime and day time. For industrial and commercial area, the maximum permissible sound level hourly by day and night is 70 dBA. According to the analysis, noise levels at the site and in nearby areas during working hour excesses the permissible limit, and for night time, it is found to be within the permissible limits as Myanmar National Standard (2015) for Industrial area.

Table 11 Result of Noise Level

Duration	Results	NEQG Guideline (For Industrial and Commercial Area)
Day Time	73.1 dBA	70 dBA
Night Time	57.95 dBA	70 dBA

[16] *Noise Level Analysis at the project site, Appendix E-1 of this Report*

Water Quality[17]**:** The water quality assessment for **R.O water** at the project site is done at ISO Tech Laboratory in July 2019. Generally, the pH value of the R.O water is 6.5 which is within the limit range of the WHO Drinking Water Guidelines. All the selected chemical and physical parameters of water quality test result are within the limit ranges of WHO Standards. Among the parameters test, the turbidity, Electric Conductivity (EC), alkalinity, carbonate and methyl orange acidity ranges indicated nil. Therefore, the water quality assessment indicated that the water is suitable for drinking purposes or industrial uses.

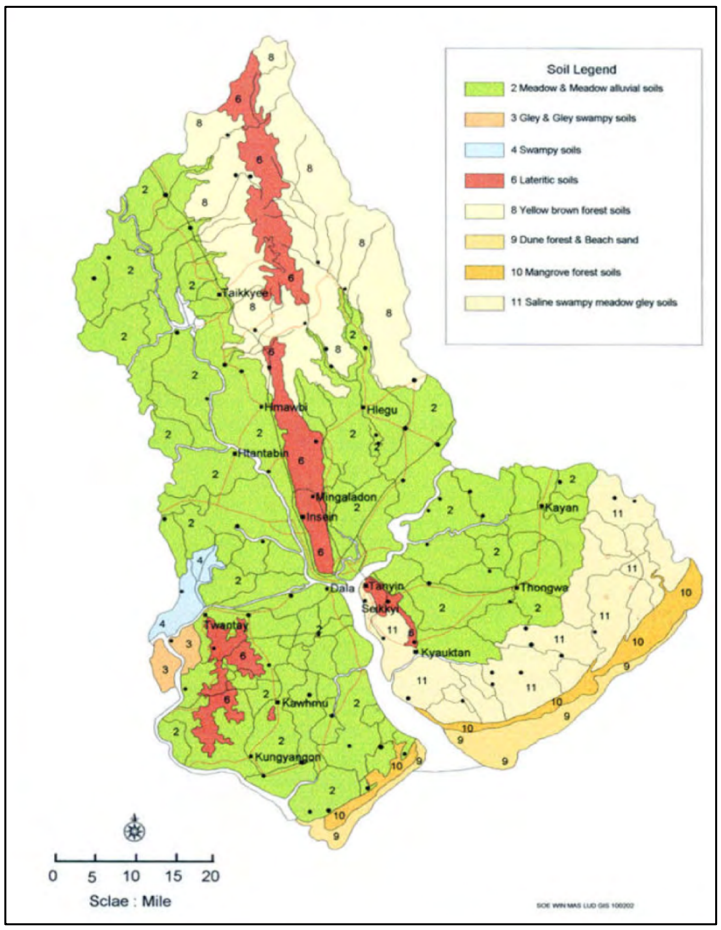
Table 12 Result of Water Quality

Sr. No.	Characteristics	Unit	World Health Organization (WHO)		Yachung Footwear Factory
			Highest Desirable	Maximum Permissible	
1	pH		7-8.5	6.5-9.2	6.5
2	Colour	TUC		15	Nil
3	Turbidity (J.T.U)	NTU	5	25.0	Nil
4	Conductivity	micro S/cm			16
5	Total hardness	mg/l as $CaCO_3$	100	500	2
6	Calcium hardness	mg/l as $CaCO_3$			1
7	Magnesium hardness	mg/l as $CaCO_3$			1
8	Total Alkalinity	mg/l as $CaCO_3$			4
9	Phenolphthalein Alkalinity	mg/l as $CaCO_3$			Nil
10	Carbonate	mg/l as $CaCO_3$			Nil
11	Bicarbonate	mg/l as $CaCO_3$			4
12	Iron	mg/l		0.3	0.05
13	Chlorides	mg/l		250	2
14	Sodium Chloride (as NaCL)	mg/l			3
15	Sulphates (as SO4)	mg/l	200	400	0.48
16	Total Solids	mg/l	500	1500	8
17	Total Suspended Solids	mg/l			Nil
18	Total Dissolved Solid	mg/l		1000	8
19	Manganese(as Mn)	mg/l	0.05	0.5	Nil
20	Phosphate	mg/l			Nil
21	Phenolphthalein Acidity	mg/l			3
22	Methyl Orange Acidity	mg/l			Nil
23	Salinity	ppt			0.1

Soil Quality: The soil types and the soil characteristics of representative soils in the project

[17] *Water Quality Test Report at the project site, Appendix E-2 of this Report*

area are available in details respectively. According to soil types and soil characteristics of Myanmar, Ministry of Agriculture and Irrigation, March 2004, the soils of the project area are Meadow and Meadow alluvial soils which are prominent. Meadow soil which occurs near the river plains with occasional tidal flood are non-carbonate. Meadow soils of the lower Myanmar contain more plant nutrient than that of upper Myanmar. Regardless of the more content of iron, these soils can be utilized for rice and vegetables.



Source: Land Use Division

Figure 20 Soil Type of Yangon

Light Level at Factory:

Light level (i.e., illumination) measurements are critical to comparing the capabilities of different lighting technologies. Light levels are assumed to be appropriate for the task in the interior and exterior condition of factory. If baseline lighting levels are too low for the task, the lighting should be repaired, refreshed, or modified as needed for an appropriate comparison.

In this study, the methodology of light level assessment is focus by-

(1) Critical comparing of the vision at overall lighting of the space at buildings of factory,

(2) replacement of failure or group lamp replacement of lighting system cleaning policy of the project proponent, and

(3) interview with workers to identify the lighting satisfaction at working time.

By the inspection of the light level by comparison of representative light as following figures, the level of the light of warehouse is lower than other area of workplaces. Due to the randomized interview with staffs and workers, most of them said that the illumination is enough for working at their place at daytime and nighttime. Manager makes daily inspection and replace the failure of lamp immediately and measure of horizontal light levels (illuminance) at a minimum and, where practical, energy consumption. Then the contract arrangements reviewed to determine appropriate contractual responsibilities for lighting management.

	
Warehouse	Cutting Area
	
3 in 1 Area	Stitching Line Area

Component Area

Cheng Xing Area

QC Area

Packaging Area

Figure 21 Inspection of Light Level between different working spaces

Flora and Fauna: Since the project area is situated closed to urban and industrial zone, there is no significant flora and fauna around the vicinity area. The native plants of Mingalardon Township are teak, da-nih, pyin-ka-do, timber, mangrove forest and other green trees especially around Hlawga National Park. However, the specific study area has already been urbanized with human activities and land used over the past years. Nowadays, the site within the industrial area has no significant vegetation or habitat for wildlife and its vegetation mainly comprises of the road side vegetation.

Sensitive Ecosystem: Hlawga National Park is a site about 7 km away located in the northwest of the project site within 10 km range of the project site. The area is an open zoo in Myanmar's Yangon Region, covering 6.23 km^2 (2.41 sq mi) that was established in 1982. It was created to protect evergreen, mixed deciduous and swamp forest and for environmental education.[18] And also, Yangon International Airport, City Golf Club and Golf Course are situated at 10 km range of the project site to its western part.

Land use[19]: Land use involves the management and modification of the natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures and managed woods. Since the project site is located within the most

[18] *World Database on Protected Areas (2019). Myanmar Protected Areas: Context, Status and Current Challenges. "Hlawga Park".*

[19] *www.yangon.gov.mm, "Mingalardon Township Data".*

developing township in Yangon Region, all of five main types of land uses; namely residential, agricultural, recreational, transportation and commercial, can be observed .Out of the total land use area of 26681.6 acres, almost 16 % of the total area of Mingalardon Township covers agriculture land, almost 27% of forest, 28% of urban and built-up, 0.2% of industrial area, 0.7% of uncultivated land and over 28 % of others.

Socio-economic Data: The proposed site is located on the southern part of Mingalardon Township, Yangon Region, Myanmar and the site is bordered by four townships namely: Hlegu Township and North Okkalarpa Township to its east, Shwepyithar and Insein township to its west, Mayangone Township to its south and HmawbiTownship to its north. Since the project site is located in Yangon Industrial Zone, there are also industries and human settlement around the environment. Therefore, all socioeconomic data were obtained from industrial and residential ward areas where the project site is located.

Socio-Economic Status: According to 2019 social study, the total population of the study area is 263798 with total household of 57380. Male female ratio of the study area is 1:1.2 as of 2019. The ethnicity of 94% is Burma and others make less than 6% including foreign. Out of the total population, the number of people who can work is 129141 and the unemployment rate is 19.53%. Main livelihoods are government services, industrial worker, merchant, livestock breeding, agriculture, casual labor and others.

This township is a developing township in economic status. The important sectors for the economic development of the vicinity area are agriculture, livestock and others. Most of water supply for the project site is mainly from private water purifier and distributed to the entire plant. The project area has good transportation. There are 5 hospitals and 5 rural healthcare centers, and 3 INGO and 5 NGO in this township. Kyaik Ka Lei and Kyaik Kalo are well-known pagodas in this township. Main historical and archeological structures within 10km range of the project site are Yangon International Airport, Defence Services General Hospital No.1, Defence Services Orthopaedic Hospital and Aungsan Thuriya Hla Thaung School to its western part.

7. SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

7.1 Summary of Potential Impacts

7.1.1 Impact Identification[20]

The impacts have been assessed according to four parameters. The four parameters are assigned a score from 1 to 3 based on a grading, which is illustrated in the table below; this then allows an assessment of overall significance to emerge.

Table 13: Impact Assessment Key Table

SCORE	*Extent*	*Duration*	*Magnitude*	*Probability*
1	Direct impact zone: Within the works/site area or immediate surroundings	Short: The impact is short term (0- 12 months) or intermittent	Low: No or negligible alterations to No or minimal change to socio-economic condition	Low
2	Locally: Effects measurable/noticeable outside the works area and immediate surroundings	Medium: Medium term (1-2 years)	Medium: Natural ecosystems are modified Changes are experienced to socio-economic	Medium
3	Wide Area: The activity has impact on a larger scale	Long: the impact persists beyond the construction phase for years or the operational life of the project area may be continuous	High: Environmental functions altered Socio-economic conditions highly modified. Effects may be permanent or irreversible	High

Based on the scores related to extent, duration, magnitude and probability of a specific impact, the significance of the impact is expressed as an indicator given by:

Significance indicator = (Extent + Duration + Probability) x Magnitude

Impacts are negative unless indicated with shading in the impact matrix.

Table 14: Summary of Impact Assessment Matrix

Operational Phase		
Ref.	**Impact/Issue**	**Significance**
Bio-Physical & Chemical		
BPC/1	Changes in surface water quality	low
BPC/2	Changes in groundwater quality	low
BPC/3	Changes to drainage patterns	low
BPC/4	Risk of Soil erosion and siltation	low
BPC/5	Changes to air quality	medium
BPC/6	Changes to ambient noise levels	low

[20] *Adapted from RIAM (Rapid Impact Assessment Matrix) developed by DHI in Denmark*

BPC/7	Changes to aquatic biota	low
BPC/8	Changes to terrestrial biota	low
BPC/9	Changes to disease vector populations	medium
BPC/10	Changes to land cover	low
BPC/11	Changes in natural heritage site	low
Socio-Economic & Cultural		
SEC/1	Changes involving loss of private assets	low
SEC/2	Changes involving loss of cultural heritage	low
SEC/3	Changes involving displacement of people	low
SEC/4	Changes to local traffic patterns	low
SEC/5	Changes in local wage labour incomes/livelihood opportunities	medium
SEC/6	Changes in local trade/commercial incomes/opportunities	medium
SEC/7	Changes in visual amenity	medium
SEC/8	Changes to public infrastructure/community resources	medium
BPC/1	Changes in surface water quality	medium

Table 15: Operational Phase Impact Assessment of Proposed Project

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Yacheng Footwear Production Project, Mingalardon Industrial Zone, Mingalardon Township

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**
Bio-Physical & Chemical							
BPC/1	Changes in surface water quality	Risk of changes in water quality to nearby water body	1	3	1	2	low
BPC/2	Changes in groundwater quality	No significant potential polllution to ground water sources	1	3	1	2	low
BPC/3	Changes to drainage patterns	Changes to drainage pattern due to operation of factory	1	3	1	2	low
BPC/4	Changes in rates of erosion and siltation	Risk of soil erosion and siltation	0	0	0	0	low
BPC/5	Changes to air quality	Potential gas emission from CMP process for footwear production	2	3	2	2	medium
BPC/6	Changes to ambient noise levels	Significant changes in noise level due to operation of machines and equipment	2	3	1	2	low
BPC/7	Changes to aquatic biota	Soil erossion, sedimentation and siltation to nearby Creek	0	0	0	0	low
BPC/8	Changes to terrestrial biota	No significant changes in terrestrial biota	0	0	0	0	low
BPC/9	Changes to disease vector populations	Significant occupational health risk to factory staff (noise/ air)	1	3	2	2	medium
BPC/10	Changes to land cover	No further land cover change during operational phase of manufacturing of electrical equipment	0	0	0	0	low
BPC/11	Changes to areas of natural habitat	No further significant impacts on natural habitat in project area	0	0	0	0	low
Socio-Economic & Cultural							
SEC/1	Changes involving loss of private assets	No potential impact	0	0	0	0	low
SEC/2	Changes involving loss of cultural heritage	No impact in operational phase.	0	0	0	0	low
SEC/3	Changes involving displacement of people	No potential social impact	0	0	0	0	low
SEC/4	Changes to local traffic patterns	Potential changes in traffic patterns due to transport vehicles	2	3	1	2	low
SEC/5	Changes in local wage labour incomes/livelihood opportunities	Possibility of Increased income and livelihood opportunities due to the project.	2	3	2	2	medium
SEC/6	Changes in local trade/commercial incomes/opportunities	Possibility of Increased income and livelihood opportunities due to the project.	2	3	2	2	medium
SEC/7	Changes in visual amenity	Enhanced infrastructure appears with natural landscape.	2	3	2	2	medium
SEC/8	Changes to public infrastructure/community resources	Expected infrastructure development	2	3	2	2	medium

7.2 Operational Phase Impacts

Bio-Physical Impacts

BPC/1 Changes in surface water quality

Risk of changes in water quality to nearby water body

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/1	1	3	1	2	Low

BPC/2 Changes in groundwater quality

Significant potential pollution to ground water sources

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/2	1	3	1	2	low

BPC/3 Changes to drainage patterns

Significant changes in drainage pattern during operation period.

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/3	1	3	1	2	low

BPC/4 Changes in rate of erosion and siltation

Risk of soil erosion and siltation

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/4	0	0	0	0	Low

BPC/5 Changes to air quality

Potential gas emission from CMP process for footwear production

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/5	2	3	2	2	medium

BPC/6 Changes to ambient noise levels

Noise level due to operation of machines and equipment

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/6	2	3	1	2	low

BPC/7 Changes to aquatic biota

Soil erosion, sedimentation and siltation to nearby Creek

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/7	0	0	0	0	low

BPC/8 Changes to terrestrial biota

Effect on terrestrial biota

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/8	0	0	0	0	low

BPC/9 Changes to disease vector populations

Occupational health risk to workers

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/9	1	3	2	2	medium

BPC/10 Changes to land cover

No further land cover change during operational phase

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/10	0	0	0	0	low

BPC/11 Changes to areas of natural habitat

No other significant impact in proposed project area

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
BPC/11	0	0	0	0	low

Socio-Economic Impacts

SEC/1 Changes involving loss of private assets

No potential impact

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/1	0	0	0	0	Low

SEC/2 Changes involving loss of cultural heritage

No impact in operational phase.

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/2	0	0	0	0	Low

SEC/3 Changes involving displacement of people

No potential social impact

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/3	0	0	0	0	Low

SEC/4 Changes to local traffic patterns

Potential change in traffic patterns

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/4	2	3	1	2	Low

SEC/5 Changes in local wage labor incomes/livelihood opportunities

Possibility of Increased income and livelihood opportunities due to the project

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/6	2	3	2	2	Medium

SEC/6 Changes in local trade/commercial incomes/opportunities

Possibility of Increased income and livelihood opportunities due to the project

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/7	2	3	2	2	Medium

SEC/7 Changes in visual amenity

Amenity changes to vision operation period.

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/8	2	3	2	2	Medium

SEC/8 Changes to public infrastructure/community resources

Expected infrastructure development

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/9	2	3	2	2	Medium

The EMP sets out what should be done (and what should not be done) and how those actions should be performed to avert environmental harm or to keep it to an acceptable minimum.
The main responsibility for producing the EMP falls on the project proponents. This responsibility is fulfilled:

- By ensuring that social and environmental aspects are integrated with project planning and design
- By observing approved measures throughout the operational period.

The EMP enables environmental mitigation measures to be effectively integrated into project implementation. As compliance with provisions of the EMP is ultimately the responsibility of the proponent of the project must extend this to bind contractors and sub-contractors.

8. COMPONENTS OF ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

8.1 Health, Safety and Environment

8.1.1 Awareness

Environmental and Social awareness play an important role in achieving compliance for environmental management. In this regard the following steps shall be taken to ensure all contractor and sub-contractor staff are informed and trained appropriately:

- Environmental and Social Awareness Orientation shall be given to all employees, sub-contractors and consultants as part of their general orientation. The proponent has to verify the HSE procedure for Training and Induction of the contractor.
- Basic environmental and social auditing and compliance training should be provided to the Safety Officers on site and persons responsible for the day to day monitoring of the environmental and social performance.
- The Environmental manager should have the necessary training to conduct compliance audits throughout the duration of the project.
- The Environmental manager will promote onsite environmental and social awareness through talks / meetings and promotions throughout the extent of the project.
- All environmental and social incidents that occur on site, or adjacent areas, will be reported and addressed through the HSE reporting procedure of the contractor
- A register will be maintained that will log all environmental and social complaints raised by stakeholders or the general public in connection with project activities. This register will be available to project proponent for periodic review.
- The register shall be regularly updated and shall maintain records including the name of the complainant, his or her domicile and contact details, the nature of the complaint and any action that was taken to rectify the problem.
- The Environment manager in conjunction with the HSE manager will be responsible for drafting the environmental and social complaints report, handling complaints and maintaining the register.

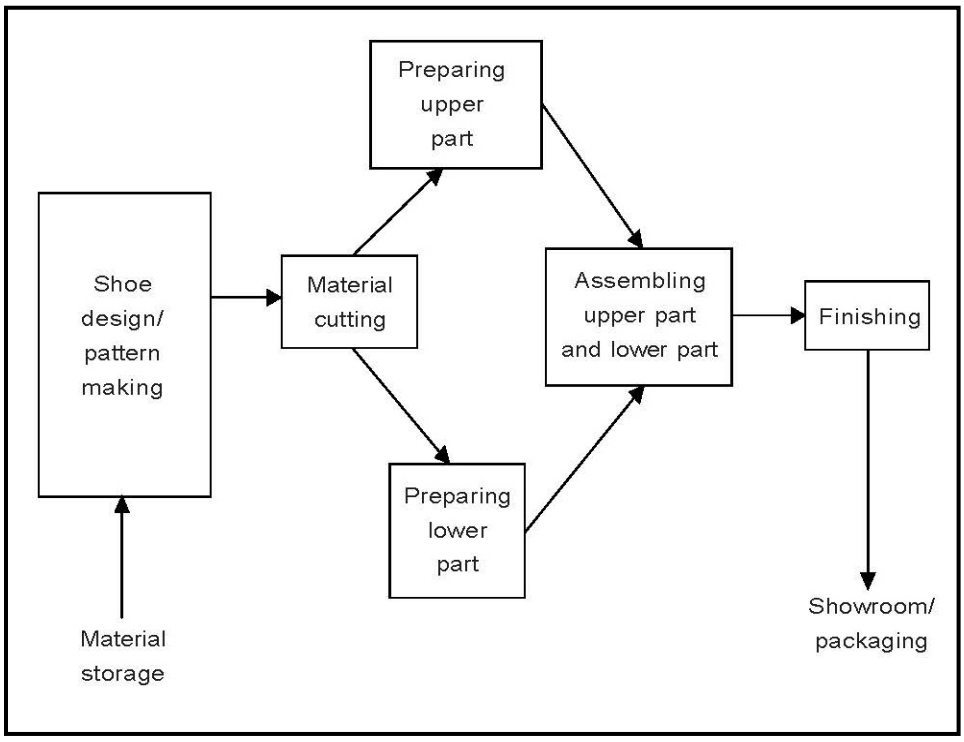
8.1.2 Health and Safety of Local Populations

Lack of care or lack of information can cause accidents (e.g. traffic incidences, electrocution where they may suffer injury, and risk of fire hazard). Thus, people or workers under direct influence of project should be informed by project proponent or their appointed representative regarding appropriate security precautions for example: Using appropriate PPE (Personal Protective Equipment) during operation; Participation of training programs regarding adhering to emergency response procedures and activities; Abiding to good and standard practice and procedures for relevant machineries and equipment; and Monitoring of alarm system for emergency conditions.

8.2 Occupational Health and Safety for footwear sector and mitigation measures

Footwear Production[21]

Generally, footwear is designed according to the needs of customers. An informal sector footwear manufacturer may have various models designed to market the products and finding potential new customers. Shoemaking can comprise numerous process steps. A simplified production flowchart is illustrated in the below Figure.



A pattern determines the shape and size of the footwear upper-part; this can be produced by the shoemaker or ordered outside. The upper-part style is drawn on the material (e.g. leather, polyurethane, PVC, etc.) according to the pattern, which is then cut with scissors.

After cutting, the outer area of the material is often thinned with a skiving machine. The uppers and linings are sewn together; eye-letting, button-holing, and decorating may be carried out. The uppers and lowers are assembled together primarily by gluing, but also by stitching, nailing, or screwing. Before assembling, the sole parts may be smoothened with a grinder. Those soles that are not ground are often treated with primer: a glue-bonding. Once glue has been spread on the sole part, it is heat-treated in an oven to further increase the bond strength. Then, glue-assembled footwear is often compressed tightly with a pressing machine. Finishing may include such tasks as cleaning, polishing, waxing, coloring, and paint spraying. Finally, the footwear is packed into boxes or plastic bags and transported to the customer.

[21] *ILO, "Improving Safety, Health and Working Environment in the informal footwear Sector"*

A. Physical Environment

***Dust*:** Footwear grinding machines produce a lot of leather, rubber, and textile dust. Other dust generating tasks include skiving and cutting operations. Any dust exposure is hazardous as dust can irritate or damage worker's lungs and upper airways (e.g. leather dust exposure has been associated with nasal cancer). Dust negatively affects machinery functions, thus, requiring more maintenance. It may also negatively affect the quality of raw materials and finished products.

Mitigation measure: remove dust, clean properly (don't spread dust):

- Introduce / improve local exhaust ventilation at the dust-generating work station, in particular the footwear grinding work;
- Enclose or isolate footwear grinding or any other dust generating tasks;
- Consider utilizing a grinder equipped with dust bag, guard to protect eyes, and seat with appropriate positioning for maximum protection, comfort and workability;
- Clean regularly and implement rigorous daily housekeeping practice. Use water when cleaning. Do not spread dust;
- If the local exhaust ventilation is not possible, make use of wind direction and blowers to reduce exposure to find dust.

Chemicals: In shoemaking, the serious chemical hazard exposure is mostly caused by organic solvents used in glues, primers, degreasers, cleaners, and paints. Vapors spread throughout the workshop – the solvent exposure is not only to gluing, cleaning, and polishing work. Footwear chemicals have serious long-term health effects that may manifest years afterwards: damages in the nervous system (e.g. intellectual capacity, memory problems, weakening of senses, etc.), skin, liver, kidneys, lungs, immune system, etc.

Incorrect disposal of chemicals harms the environment outside the workplace. Footwear chemicals are also flammable and represent a serious fire hazard. Keep them away from any ignition sources: burning cigarettes, open flames, sparks, etc.

All chemical containers should be adequately labelled indication clearly ingredients used, manufacturer information, as well as safety and health precautions.

Mitigation measure: Protect workers from chemical hazards:

- Check that all chemical containers are properly labelled and material safety data sheets are provided for all chemical products. If not, inform the inspectorate and manufacturer about this;
- Seek possibilities to use safer, water-based chemicals instead of solvent-based ones. Introduce and improve local exhaust ventilation. Keep containers covered;
- Change the work method in order to reduce direct handling of hazardous materials. Rotate work tasks;

- Provide workers with and use suitable protective clothing and gloves to avoid direct contact with hazardous materials;
- If local exhaust ventilation is not possible, use fans and wind direction to reduce exposure.

Noise: The high noise levels created by machines can damage the hearing. It can also affect the health of workers in other ways, for example creating high blood-pressure, headaches, nervousness, and stress. Noise can interfere with warning shouts, signals, and communication. This can cause accidents and affect production quality. If workers standing at arm's length from each other cannot talk in a normal voice tone, the noise level is too high. In the footwear workshops, some sole pressing machines, hammering, and grinding can create high noise levels. In larger footwear factories, noise level is usually high due to the use of various machines.

Mitigation measure: Ensure that noise does not harm workers:

- Reduce noise at the source by using properly designed, maintained, and adjusted tools or machines;
- Screen or isolate the noise source as much as possible;
- Reduce noise reflection by raising the ceiling or using sound-absorbing materials;
- As a last resort, use ear muffs or ear plugs when necessary.

Heat: Heat influences working capacity and decreases productivity. It increases fatigue, this, human errors and accidents. Heat-related health hazards include dehydration, heat exhaustion, cramps, and rash. Especially in a tropical climate, it is important to provide available means of protection against excessive exposure to heat. In the shoe workshops, try by all means possible to keep indoor temperature lower than 30°C, which is already a very uncomfortable working environment.

Mitigation measure: Protect the workers from excessive heat:

- Increase natural ventilation by having more openings, windows, or open doorways;
- Insulate or screen heat-producing objects, machinery or equipment;
- Use ventilators or fans to have good air flow;
- Remember that trees, bushes, and flowers can help in reducing that harmful sun radiation, hot winds, and create a more pleasant environment at the same time.

Lighting: Sufficient lighting improves workers' comfort and performance, making the workplace a pleasant place to work. It also reduces work errors, thus, improves quality. Additionally, poorly lit or dark places cause accidents, especially when materials are being moved.

Mitigation measure: Increase lighting to improve quality and prevent accidents.

- Maximize the use of daylight with: (i) properly located machines and work stations, (ii) higher roof and bigger windows, and (iii) installation of skylights (e.g. with translucent plastic sheets);
- Clean regularly windows and maintain lamps and other light sources regularly;
- Eliminate glare or reflections which strain the workers' eyes;
- Improve general artificial lighting or provide spot lighting.

Housekeeping: When a workplace is free from clutter, work proceeds safely and comfortably. Valuable space will be free of obstacles and workers can easily find the right tool for the job. When the workplace is in good order there is less fire and accident hazards. An orderly workplace leaves a good impression on your clients.

Mitigation measure: Remove all unnecessary items and provide a proper place for everything.

- Remove all unnecessary items from your workplace;
- Assign daily or more frequent responsibility for clean-up to specific workers for specific areas;
- Provide convenient places and storage racks for tools, raw materials, parts and products;
- Keep paths and aisles clear and wide enough to allow proper transport.

Waste Disposal: Waste, scrap, and liquid spills on the floor not only represent a material loss and work obstacle, but are also a significant accident cause. Conveniently placed, easy-to-empty waste containers help in housekeeping and create free space.

Mitigation measure: Establish a good waste disposal system:

- Provide enough waste containers of adequate size;
- Establish regular system for removing waste out from the workplace;
- Specify clear responsibilities for waste disposal.
- Avoid waste-mountain outside of a shoe-workshop. Proper waste management practices enhance community well-being as well.

B. Premises: Roof: For workers health, well-being, the correct temperature and humidity inside the work premises is important. A proper roof can protect from direct and indirect heat-up effect of sunlight. When it rains and if the roof is not in the good condition, there is a risk of damage materials and products.

Mitigation measure: Protect your workers and products from outside heat and rain:

- Improve roof to give protection from the sunlight and rain;
- Heat and cold penetration can be considerably reduced by insulating walls and roof panels and providing air gaps between wall and backing. This is a better alternative;

- Construction of a ceiling is another effective way of reducing heat and cold penetration from above;
- Raise the roof to increase natural indirect lighting and ventilation in work premises.

Premises: Floor and Drainage: Inappropriate floor surfaces or poorly maintained floors can be a major source of accidents, work interruptions, and product damage.

Mitigation measure: Improve your workshop floor for productive and safe work:

- Improve your floor for better strength and resistance to wear and abrasion;
- Keep floors clear from obstacles;
- Keep floors in good condition to avoid accidents and damages for works, materials, and products.

Drainage: A good drainage system is important to keep work premises dry, achieve good hygiene, reduce the incidence of infectious diseases, and avoid accidents.

Mitigation measure: Improve drainage system to keep your workplace dry and clean:

- Provide for proper waste water drainage outside work premises and remember that it should only be used as a passage for water disposal;
- Provide a rain water drainage system;
- Keep the drainage clean and clear on a regular basis.

Premises: Fire Prevention: Fire prevention is the best insurance against fire accidents. When fire occurs, it often causes deaths, significant material damage, thus, major financial loss.

Mitigation measure: Protect your business from fire accidents:

- Keep premises in good order by housekeeping;
- Acquire basic fire-fighting equipment, for example fire extinguisher, water bucket, and blankets or install a systematic fire-fighting system;
- Train workers in fire prevention and fighting;
- Check that all electrical appliances are properly insulated;
- Provide proper storage for flammable chemicals and other materials; such as: all solvent-based footwear chemicals, fuels, and gases. Keep them away from ignition sources;
- Avoid use of extension cords over-loaded with various electrical appliances as these can be sources of sparks and cause fire;
- Avoid serious fire hazards from rampant cigarette smoking in the workshop / factory.

C. ***Ergonomics: Lifting, Carrying and Moving***: Heavy lifting and wrong lifting methods cause fatigue and back injuries. This can cost you a great deal, as you may lose working ability for a long period.

Mitigation measure: Prevent workers from breaking their backs:

- Train workers to use their legs rather than their backs when lifting;
- Raise and lower materials slowly in front of the body without twisting or deep bending;
- Instead of lifting or carrying heavy weight, divide them into smaller packages, containers, or baskets which allow a use of power grip, instead of pinch grip when handled manually;
- Use carts, hand trucks and other wheeled devices or rollers when moving heavy materials;
- Combine lifting with physically lighter tasks to avoid injury, fatigue, and to increase efficiency. Rotate work tasks.
- Right lifting method[22]: i) Keep feet far enough apart to give a balanced distribution of weight; ii) The knees and hips should be bent, the back kept as straight as possible; iii) The arms should be held as near to the body as possible. This helps sustain the load by allowing friction between the load and clothing; iv) Lift should be made smoothly, no jerks or snatches should occur.

Ergonomic – Hazardous Postures and Seats: When work is done in a natural posture, with weight on both feet and without bending or twisting, this produces less fatigue and higher productivity. Arrange for good hand positions to allow a natural posture.

Mitigation measure: Avoid bad postures as this decrease efficiency and comfort:

- Avoid strenuous work or prolonged unnatural working postures;
- Avoid work requiring high hand positions for standing workers by providing foot stands or platforms;
- Put materials within easy reach of workers, using racks if necessary;
- Assign work tasks to create opportunities to alternate between standing and sitting postures.

Seats: Seated work seems comfortable compared with other forms of work. However, sitting for long hours is also tiring. Good seats with a proper and sturdy backrest reduce fatigue and increase job satisfaction.

Mitigation measure: Provide good seats for everybody:

- Provide chairs or benches of the correct height or make seats height individually adjustable;

[22] *ILO-WISE Manual*

- Choose the seat surface and / or provide a cushion for comfort and support;
- Provide chairs with backrest of proper size which provides low back support.

Ergonomic – Working Surface: Work consists of a variety of tasks. A stable work surface that allows the work to be carried out on an elbow height is needed. Too narrow or unsteady surface results in time loss and more effort, thus reducing work productivity and increasing fatigue.

Mitigation measure: Provide a stable work surface at each workstation:

- At each workstation, provide a stable work surface of an appropriate size;
- Avoid a narrow or unsteady surface;
- Avoid bending postures for standing workers by raising the height of equipment, controls, or work surfaces;
- Provide work tables of suitable height for seated workers so that too high or low hand positions and bending postures are avoided.

Work Tools: Tools adapted to the particular operation and well-maintained are safe to use. When cutting tools are kept sharp, less force is required to use them. Children should not be working with sharp tools. Large and softer handles in footwear tools such as knives, scissors, and tongs are more comfortable to work with. An uncomfortable tool with small and hard handles (e.g. wooden or metal) is un-ergonomic and less productive. Vices and clamps reduce accidents, as they prevent slippage of material, reduce the need for maintaining a bad posture and provide better control over the work item and tools.

Mitigation measure: Utilize safe and ergonomic tool for maximum production:

- Use safe power tools and make sure that safety guards are used (e.g. Skiving machine (for material thinning): the moving parts, like the belt in this skiver, should be properly guarded or enclosed);
- Choose tools of appropriate size and shape for easy and safe use;
- Improve tools or use locking devices to reduce gripping or handling force;
- Provide a “home” for each tool;
- Make sure that tools are maintained and repaired and that no worn-out tools are used.

D. Welfare Facilities – Toilets: Well- maintained toilets meet some of workers’ most essential needs. Conveniently located toilet facilities also save working time. Sufficient, clean and well-maintained toilet is a must in all decent workplaces.

Mitigation measure: Ensure toilet facilities serve their purpose:

- Provide sufficient toilet facilities close to the working area;
- Provide sufficient separate hand washing facilities with soap or hand cleaners;

- Ensure that toilet and hand washing facilities are regularly cleaned and in good sanitary conditions;
- Provide separate toilet for men and women. Ensure privacy when using the toilet.

Welfare Facilities – Washing: Washing facilities that are conveniently located and regularly used help to prevent chemicals from being absorbed through the skin or being ingested during snacks and meals. Well-maintained washing facilities have also positive effects for work satisfaction.

Mitigation measure: Ensure washing facilities are functional for essential hygiene and health:

- Check that sufficient, clean, and well-maintained washing facilities are near the worksite;
- When you rearrange or build again your workshop, provide good washing facilities to ensure hygiene and tidiness;
- Maintain and clean up washing facilities or showers properly.

Welfare Facilities – Drinking Water: Good drinking facilities can do much to prevent fatigue and maintain workers' health. Especially in a hot environment, work results in considerable loss of water. This can affect both the workers' health and productivity if clean drinking water is not available.

Mitigation measure: Ensure potable drinking water for workers:

- Provide proper facilities for drinking water near the work area;
- Ensure that there is always safe drinking water available and that the water cannot be contaminated by dust, chemicals, or dirt or example spread by insects.

Welfare Facilities – Food Hygiene: Shoe manufacturers spend a substantial part of their everyday life at the workplace. They need to drink, eat, and take a rest. Clean and hygienic cooking facilities and eating areas are essential. Eating, drinking, and smoking in the work process is dangerous and can result in ingestion of hazardous chemicals and dust.

Mitigation measure: Ensure food hygiene at workplace as good hygiene is important for work and health:

- Ensure that the food is always prepared in a clean and hygienic place;
- Provide a separate area for meals near the work area, but away from the workstations;
- Keep washing facilities clean to ensure food hygiene.

E. Personal Protective Equipment (PPE): For hazards which cannot be eliminated or reduced by engineering controls or by administrative controls, appropriate PPE must be selected and used. Each type of PPE is designed to protect certain parts of the body (e.g. hands, feet, eyes) and only against certain hazards.

Mitigation measure: Provide PPE that gives adequate protection:

- Provide adequate number and appropriate types of protective goggles, face shields, masks, earplugs, finger cups (when using a needle), safe footwear, and gloves;
- Ensure regular use of PPE through adequate instruction and training;
- Ensure that all PPE is easily available, well-maintained, and its use is regularly monitored;
- Clearly mark areas requiring the use of PPE;
- Remember that PPE is always a last resort control measure. Replace PPE with local exhaust ventilation, built-in guards, isolating hazards, or other engineering hazard control measures whenever possible.

F. Work Organization – Work / Rest Cycles: Prolonged work leads to fatigue and raises the accident risks. Short rest pauses can improve concentration and increase work quality and productivity. Taking short breaks at relatively short intervals (say five minutes in every hour) is better than taking a long break after the worker reaches a stage of excessive fatigue.

Mitigation measure: Have the workers take frequent short pauses to avoid fatigue and to work with renewed energy:

- Avoid daily or weekly working hours which are too long (about eight hours in a day is recommended);
- Consider taking short breaks in addition to a long break for meals;
- Take short, spontaneous pauses during the working period.

Work Organization – Skills Development and Training: By training workers in new skills, it is easier to organize new work systems, which are productive and safer. By acquiring new skills, worker can do multiple jobs. In this way, job rotation can be more easily organized and absent workers more easily replaced, without looking for additional workers. Task enlargement and job enrichment lead to a greater worker motivation and well-being.

Mitigation measure: Provide opportunities for workers to learn new skills and work tasks:

- Improve job content by training workers to do maintenance, adjustment, and task planning in addition to their routine manual work;
- Train workers to do multiple job tasks;
- Ensure that workers are trained about safety and health hazards as well as protective measures.

Work Organization: Interaction and Communication: Well-planned work provides opportunities for workers to communicate with other workers without leaving their work station.

This stimulates the workers without interrupting work. Interaction in work has positive effects on job satisfaction and problem solving.

Mitigation measure: Ensure good communication at workplace as it has many positive effects:

- Provide opportunities for workers to talk with each other while they are working;
- Avoid layouts or job assignments which require work in isolation;
- Provide workers with frequent feedback on the quality and quantity of their work.

G. Health Promotion – Safety and Health Committee: An Occupational safety and health (OSH) committee can be an effective medium in exchanging ideas on how to make the working environment safer and healthier. The committee can be established both at the workplace and the community level.

Mitigation measure: Consider forming an occupational safety and health (OSH) Committee[23]:

- Members of an OSH committee are nominated by the workers or community members;
- An OSH committee member should represent different parts of the workplace. A community-based committee should represent members from different villages;
- A committee should meet regularly (for example twice a month and be responsible for organizing safety and health activities;
- A committee is an important contact point for the Government officers who are responsible for safety, health, and environmental issues.

Health Promotion – First Aid: Even if safety and health measures are well organized in a workplace, there is still always a possibility for an accident. If an accident happens, loss can be minimized by quick corrective action. First-aid is the first skilled assistance given to an injured or sick person before taking the victim to the hospital for medical treatment.

Mitigation measure: Provide first aid as essential provision at workplace / shoe workshop:

- Ensure that there is at least one trained first aider in every workplace;
- Provide an adequately furnished first-aid box;
- Ensure that workers have an easy access to medical care, if necessary.

Health Promotion – Health Service: Protecting the workers against any health hazards which may arise in or out of the workplace can be done only by professional occupational health personnel.

Mitigation measure: Provide well-organized health services / clinic as it is important for workers' well-being:

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[23] An OSH Committee can be a medium to improve the work environment and advocate safety and health measures.

- Establish a regulate system for identifying and controlling work hazards and to protect workers' health;
- Establish a record keeping of accidents and diseases in the workplace or in the community for example, through the OSH Committee;
- The OSH Committee should seek professional advice from health services on occupational health issues. Cooperation between the OSH Committee and health professionals is essential.

8.3 Environmental Mitigation Plan

Table 16: Mitigation Measures for Impacts during Operational Phase

Mitigation Measures		Physical Environment			Socio-Economic Environment			
		Air Quality		Water Quality				
		Noise and vibration generation	Dust, odor and exhaust emissions	Impacts on water quality	Temporary Flooding	Impacts on factory performance	Impact on utilities	Public and Worker Health and Safety
1	Periodically clear drainage at dumping / storage site			▲	▲			
2	Conduct public awareness raising on environment							▲
3	Ensure nearby water body protection			▲				
4	Community safety monitoring						▲	▲
5	Periodical checking of storage site and related structure	▲					▲	▲
6	Check no interference with private / public assets							▲
7	Ensure emergency response plan							▲
8	Prioritize working hour during daylight	▲	▲				▲	▲
9	Ensure vehicle and engine exhausts fully operational	▲	▲					▲
10	Implements Health & Safety routines for the site						▲	▲
11	Landfill or dispose of solid waste as appropriate			▲				▲
12	Collect and treat any contaminated liquid run-off			▲				▲

Mitigation Measures		Physical Environment			Socio-Economic Environment			
		Air Quality		Water Quality				
		Noise and vibration generation	Dust, odor and exhaust emissions	Impacts on water quality	Temporary Flooding	Impacts on factory performance	Impact on utilities	Public and Worker Health and Safety
13	Provide favorable working place and amenities for profitable and safe work							▲
14	Supply sanitary and hygienic services			▲				▲
15	Provide well planned schedule and skills development training					▲		

8.4 EMP Organization

This section defines the organization set up by the EMP if necessary and as required, for the proponent and the Construction Contractors for the implementation of the EMP and the roles and responsibilities devoted to each position involved in the process.
Three levels of organization, fully complementary, are set-up by the EMP.

- The Environmental Auditor (may be internal or independent external)
- The Environmental Management Officer (EMO),
- The Environmental Site Officer (ESO)

General organization is presented in the following figure:

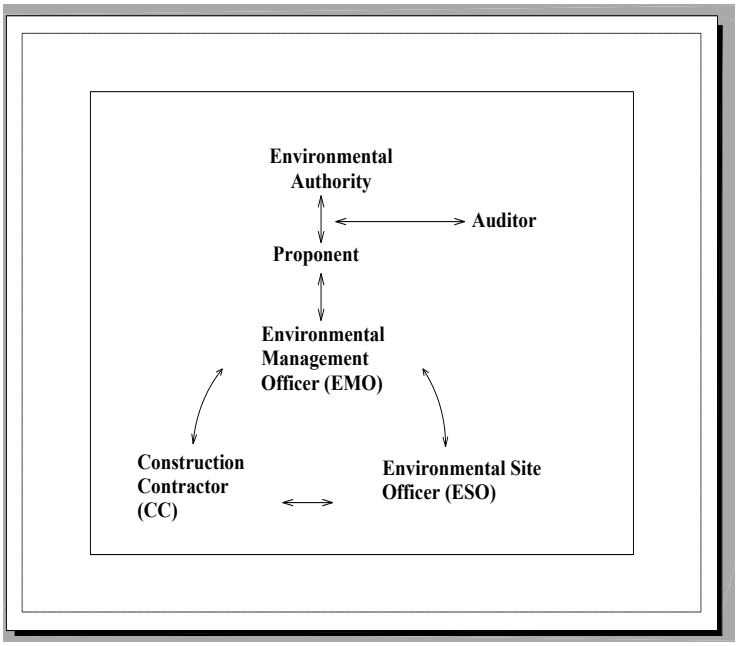

Figure 22: EMP Organization

The Environmental Management organization described above includes an Environmental Management Officer (EMO) and an Environmental Site Officer (ESO). The EMO function is for the duration of the construction period plus post-construction audit and operational period. The EMO role is executed by:

- An environmental management officer attached to the Project who may be an external specialist or a suitably qualified or oriented staff member from the Proponents organization;
- Support from the site construction supervision staff.

The EMO coordinates (directly or through the site construction supervision staff) with the various CCs and with the ESO(S) appointed by the Construction Contractors. The overall role of the EMO is to oversee and monitor adherence to, and implementation of, the EMP by the CCs (which includes compliance with the relevant obligations contained in the EMP).
The EMO is assisted by the site supervision staff and the ESO on the CC's side, responsible for monitoring construction-related activities and implementing environmental measures on site as part of the EMP conditions.

The ESO is the CC's focal point for all environmental matters, and coordinates directly with the EMO and CE. The ESO is routinely on-site for the duration of the construction works.
ESOs are appropriated technical officers (often the CC site engineer), who has the knowledge of environment issues on the project site. The ESO carries out regular inspections of the CC activities in relation to environmental issues, and provides day-to-day advice to Contractor personnel about environmental issues. Verification is provided by the EMO.

8.4.1 EMO Roles & Responsibilities

The EMO should be responsible for monitoring, reviewing and verifying compliance with the EMP by the Construction Contractor. The ESO should also ensure compliance (as per the construction contractor). The EMO's duties in this regard, and working with the CE, who will have day-to-day interaction through supervisory staff, should include the following:

- Ordering the removal of person(s) and / or equipment not complying with the specifications;
- Verifying Environmental Compliance
- The issuing of penalties for contraventions of the EMP;
- Taking decisions in case of severe non-compliances to the EMP are detected;
- Providing input for on-going internal review of the EMP
- Stopping works in case of emergency or if significant environment impacts are apparent or imminent.

The EMO ensures the CC has all plans, procedures, approvals, and documentation in place to ensure EMP compliance prior to commencement of any work. The EMO's duties here include the following:

- Supervising updating and maintenance of the EMP;
- Monitoring and verifying that the EMP is adhered to at all times and taking action if the specifications are not followed;
- Monitoring and verifying that environmental impacts are kept to a minimum
- Sampling sites and surrounding areas regularly with regard to compliance with the EMP;
- Recommending to stop work in emergencies or if significant environmental impacts are apparent or imminent;
- Preparing the background information for the Reports
- Participating, upon request in meetings with the environmental authorities as requested.

8.4.2 ESO Roles & Responsibilities

The ESO(s) has the principal responsibility for observing construction activities and ensuring that those activities are in compliance with the EMP requirements. To accomplish this, each ESO should be familiar with the EMP and contract specifications.

The specific responsibilities of the ESO are to:

1. Monitor implementation of environmental measures by CC construction staff against contractual obligations by:
2. Performing regular monitoring activities;
3. Detecting non-conformance and approving corrective action (with advice from EMO if necessary)
4. Evaluating CC environmental efforts and effectiveness; and
5. Identifying circumstance requiring management decisions to evaluate variance or compliance issues.
6. Compile documentation of monitoring observations by:

Collecting any specific date that the ESO is assigned to monitor;

- Interface with EO to assist in field interpretation of environmental requirements, provide advice regarding corrective actions and resolving non-compliance situations, and issue specific formal instructions to the CC workforce;
- Interface with CC manager to help communicate requirements, obtain a hands-on view of special problems so that implementation difficulties can be communicated to the EMO to aid in problem resolution especially in situations where adjustment of compliance requirements may be necessary;
- Communicate to EMO by:

  Interaction with EMO as needed to define corrective action recommendation for any identified non-compliance situation.
- Implementation for environmental controls and measures specified in the EMP, Sub-Plans.
- Ensuring measures to protect project staff health are implemented.

9. ENVIRONMENTAL MANAGEMENT, MONITORING AND BUDGET ALLOCATION

9.1 Water Quality Management Plan

Surface Water Quality Management, Ground Water Protection Plan and Ensure safe drinking water

Objective	To reduce discharge of wastes that impact water quality and to determine if additional implementation of management practices are necessary to improve and/or protect water quality. Ensure safe drinking water, which is essential for good health.
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation and Decommissioning Phases
Management Action	▪ Put a set of procedure for the stockpiling and removal of waste material (particularly liquid, solid and human waste) from project site; and establishing sewerage facilities on site; ▪ Regularly inspect the accumulated solid waste for periodic removal from site for proper waste treatment or disposal for recycling; ▪ Installation of proper waste water drainage outside work premises. ▪ Provide a rain water drainage system. Keep the drainage clean and clear on a regular basis; ▪ Chemically contaminated run-off should be intercepted and discharged where it will not leak to contaminate ground water. ▪ Provide proper facilities for drinking water near the work area; ▪ Ensure that there is always safe drinking water available and that the water cannot be contaminated by dust, chemicals, or dirt for example spread by insects.
Monitoring Plan	Monitor the waste water from the project area before discharging into the nearby water body. Monitor the solid waste from footwear production process and ensure that they are systematically disposed for recycling and environmental protection measures. Ensure safe drinking water adhering to National Environmental Quality Guidelines, 2015 for safe drinking water and waste water effluent.

Parameters for waste water and drinking water	▪ Turbidity, EC, Total hardness, Total dissolved Solids, Chloride, Sulfate, Calcium, Magnesium, BOD, COD, pH, Temperature, Ammonia for waste water; ▪ Physico-Chemical parameters (e.g. Turbidity, EC, Total hardness, Total dissolved Solids, pH, Temperature, Iron (as Fe), SO_4, Nitrates (as NO_3), Fluoride (F), etc. and Microbiological parameters (E-coli and total coliforms) for drinking water.
Location	One sample at outlet of Project Area (surface water), and one sample for drinking water
Frequency	Twice per year
Budget Allocation	100,000 Kyats / test (100,000 x 2 x 2 Kyats per Year) = 400,000 Ks
Responsibilities	Monitoring by EMP Organization or Third Party

9.2 Drainage Management Plan

Objective	To flow clean water outside the project area
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation Period
Management Action	Avoid removing and altering the natural features of the land as much as possible; Provide proper waste drainage outside work premises, provide a rain water drainage system, keep the drainage clean and clear on a regular basis; Periodically clear drainage, maintain channels to prevent seepage and reduce inefficiencies resulting from siltation and weeds, all access to channels for maintenance in design, application of effective litter prevention and control, implementation of secondary containment procedure that avoid accidental or intentional releases of contaminated containment fluids.
Monitoring Plan	Site supervision during operational period; once a week
Parameters	Good housekeeping and professional landscape and drainage design

Location	Site Project Area
Frequency	Weekly
Budget Allocation	500,000 Kyats/ year
Responsibilities	Monitoring by EMP Organization or Third Party

9.3 Air Quality Management Plan

Objective	To reduce the potential impacts of noise and dust; to reduce exposure to fine dust; to ensure clean physical environment; To monitor emissions from Project activities and establish measures to mitigate emissions from Project activities to meet air quality legislative requirements and to reduce the Project effects to reasonable levels.
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation and Decommissioning Phases
Management Action	The following are some mitigation measures : ▪ Implement rigorous daily housekeeping practice. Use water when cleaning. Take care not to spread dust; ▪ Clean properly at each workplace; avoid spreading of dust, especially from footwear grinding machines, skiving and cutting operations; ▪ Improve local exhaust ventilation at dust generating work station, in particular the footwear grinding work; Enclose or isolate footwear grinding or any other dust generating tasks; ▪ Reduce noise at the source by using properly designed, maintained, and adjusted tools or machines; ▪ Screen or isolate the noise source as much as possible; reduce noise reflection by raising the ceiling or using sound-absorbing materials, use relevant PPE (ear muffs / ear plugs) when necessary;

<table>
<tr><td></td><td>
Avoid burning of materials, vegetation or waste on site
Odor management:

Operators to use relevant PPE (Personal protective equipment) during operation and decommissioning phases;
Keep glue / chemical containers covered. Avoid letting hazardous vapors escape around the workshop.

Footwear Chemical management:

Check all chemical containers are properly labelled and material safety data sheets are provided for all chemical products;
Seek to use water-based chemicals instead of solvent-based ones. Introduce local exhaust ventilation. Keep containers covered;
Change the work method in order to reduce direct handling of hazardous materials. Rotate work tasks;
Provide workers with and use suitable protective clothing and gloves to avoid direct contact with hazardous materials.

Dust Management
Material handling has to be limited to as little as possible to prevent the generation of dust. Avoid spreading of dust.
</td></tr>
<tr><td>Monitoring Plan</td><td>
Monitoring of air quality at project site, and in general ventilation air,
Air quality monitoring, including the occurrence of dust and possible air pollutants, will be carried out to establish the emissions associated with the site activities during Operation.
Monitoring will occur on a Quarterly basis and results of the monitoring program will be recorded and reported quarterly. If adverse conditions are found in a particular area or process, adaptive management policies will be implemented.
</td></tr>
<tr><td rowspan="2">Parameters</td><td>Nitrogen dioxide (NO_2), Ozone (O_3), Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulfur dioxide (SO2), Total Suspend Particulate (TSP), CO, Temp, Relative Humidity.</td></tr>
<tr><td>
NEQEG Noise Level Parameters
<table>
<tr><td>Receptor</td><td>One hour LAeq (dBA)[a]</td></tr>
</table>
</td></tr>
</table>

		Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)	Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)
	Residential, institutional, educational	55	45
	Industrial, commercial	70	70
	[a] Equivalent continuous sound level in decibels		
Location	One sample is measured to cover the whole Project Area		
Frequency	Once per year		
Budget Allocation	1,500,000 Kyats x 1 / year = 1,500,000 Kyats / year		
Responsibilities	Monitoring by EMP Organization or Third Party		

9.4 Waste Management

Objective	Avoid exposure of waste to natural resources such as soil, air and water; due to waste produced from project site. Ensure proper waste management practices to enhance community well-being.
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation and Decommissioning Phases
Management Action	▪ Provide sufficient waste containers of adequate size. Establish a regular system for removing waste from the workplace; ▪ Specify clear responsibilities for waste disposal. The disposal of waste, dumping for solid waste produced from shoe making should be disposed periodically for recycling or municipal waste treatment plant and avoid waste-mountain outside the footwear workshop. ▪ Diversion and management of surface and waste water to minimize water pollution problems. Simple treatment to reduce the dis-charge of suspended solids may also be necessary.

Monitoring Plan	Collected and provided to a waste recycling facility when there is a sufficient quantity to warrant collection. Inspect solid and liquid waste disposal system on site (ensure segregation of waste: glue bins and waste-fabric separation, sewerage facilities functional) for safe environment.
Parameter	Waste generated at the Project is monitored on a monthly basis through waste disposal receipts.
Location	the whole Project Area
Frequency	Weekly
Budget Allocation	300,000 Kyats/ month {(3,600,000) Kyats/ Year}
Responsibilities	Monitoring by EMP Organization or Third Party

9.5 Traffic Management Plan

Objective	To ensure the safety of the traffic To prevent air pollution on transportation routes To have better services of traffic To Reduce disturbance and mortality related to roads and traffic
Legal Requirements	Social Security Law (2012)
Implementation Schedule	During Operation Phases
Management Action	To avoid traffic congestion in the project area, the speed of vehicles and the volume of loads will be limited by regulation. And regular checking on the capacity of trucks and drivers whether they will follow the rules and regulations or not. In addition, puddles and pits are frequently reclaimed and expand the truck routes.
Monitoring Plan	Designate specific roadways or provide alternate routes for light duty vehicles in high activity or congested areas. Adhere to all traffic rules, signals, speed limits and warnings. Design traffic patterns to reduce exposure to blindside hazards. Always ensure equipment is stopped in a safe area Always make eye contact or use hand signals before boarding equipment and again, wait for positive response.

Location	the whole Project Area
Frequency	Daily
Budget Allocation	500,000 Kyats (Lump sum per year)
Responsibilities	Monitoring by EMP Organization or Third Party

9.6 Community Engagement and Development Plan

Objective	To inform communities about footwear production activities, work schedules, potential health and safety issues and how to engage with the project for any grievances Community engagement plan, the following information will be conducted such as raising awareness campaign to local community to understand how they will get benefits developing the project in this areas and the best way to cooperate projects activities
Legal Requirements	Social Security Law (2012)
Implementation Schedule	During Operation Phases
Management Action	Community Engagement Community engagement can foster an open and meaningful dialogue that can not only help to build trust, respect and legitimacy for project operation, but also support effective decision making. This is because engagement can address community concerns, manage expectations, tap local knowledge and help negotiate a mutually beneficial future. In addition, show that where conflicts exist between the company and the local community, delays are common and there are often striking differences in perceptions between the company representatives and communities. Breakdowns in perception, communication and understanding are common. Community Development Employment: Communicate available opportunities at the Project in advance, so as to manage employment expectations; Employment of locals and an increase in salary earners;

	Maximize & monitor local recruitment Prevent nepotism/ corruption in local recruitment structures Promote the employment of women and youth The Company provided they meet the education and skills/experience criteria. The company will implement a multi-skill and entrepreneurship training program to all employees during working life to prepare them for work outside. Education: The company will seek to support schools in the neighborhood by addressing needy areas such as infrastructure development, offering a limited number of scholarships for exceptionally performing students/pupils as an incentive for hard work, sponsoring orphans and pupils from vulnerable families etc. Economic Development: Determine party responsible for relocation. For non-vulnerable households and individuals, negotiate a favorable outcome on a case-by- case basis. Health and Welfare Extensive HIV/ AIDS and other current health awareness campaign Cease construction activities before nightfall Clear identification of workers; prevention of loitering - Liaison with police Do not recruit laborers on-site.
Monitoring Plan	One of the most important aspects of stakeholder engagement is reporting and monitoring to measure progress and allow follow up. This can be done using meeting logs to report on formal meetings, informal meetings, telephone calls, visits of community members to the site or information office, emails or any other form of contact with the community. The meeting logs should also record the type of meeting, attendees/participants, date, issues and be supplemented by a commitment register, a meeting attendance register and an activity register, that lists the action points agreed to.
Location	Nearby Village or local community
Frequency	Regularly Monitoring and Quarterly Reporting
Budget Allocation	700,000 Kyats (Lump sum/year)

Responsibilities	Monitoring by EMP Organization or Third Party

9.7 Occupational Health and Safety

Objective	To reduce operation work-related deaths, injuries, and ill health
Legal Requirements	Social Security Law (2012) Employment and Skills Development Law (2013) The Occupational Explosive Material Law (June 2018)
Implementation Schedule	During Operation and Decommissioning Phases
Management Action	Health and Safety of Population Lack of care or lack of information can cause accidents (e.g. traffic incidences, electrocution where they may suffer injury, and risk of fire hazard). Thus, people or workers under direct influence of project should be informed by project proponent or their appointed representative regarding appropriate security precautions for example: Using appropriate PPE (Personal Protective Equipment) during operation; Participation of training programs regarding adhering to emergency response procedures and activities; Abiding to good and standard practice and procedures for relevant machineries and equipment; and Monitoring of alarm system for emergency conditions. Occupational Health The manager must take effective steps to ensure the safety and health of the workplace. Workers should first be given training prior to the use of machinery / equipment for safety reasons and should report to relevant departments for accidental cases. Pre-employment and regular medical examinations shall be carried out on all plant employees. The Company will provide well-equipped sanitary facilities for its employees. Occupational Safety - . Minimum age of employment is 18 year of age (Children should not be working with footwear chemicals); - One day of rest per week - Limited working hours - Provision of clean water and medical facilities

	- Right of inspectors to survey safety and health Occupational Health and Safety Training The level of training that site personnel receive in emergency preparedness needs to be significantly increased. In particular emphasis should be placed on testing the whole emergency response system, especially under worst case scenarios such as night or weekend. Training shall consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site specific hazard or color coding in use shall be thoroughly reviewed as part of orientation training. Occupational Safety Wear  ***Area Signage*** Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors and the general public as appropriate.
Monitoring Plan	- Define the scope of the Management Plan including roles, responsibilities and time frame; - Prepare a list of potential community health, safety and security risks associated with the proposed Project - Discuss Project commitments, programs, operational procedures and guidance that respond to and mitigate the identified risks

	- Suggest monitoring and reporting procedures and identify Key Performance Indicators to measure the achievements of the proposed Project Commitments and Programs - Anticipate training requirements
Location	Direct Affected Area
Frequency	Regularly Monitoring and Quarterly Reporting
Budget Allocation	2,400,000 Kyats (Lump sum/year)
Responsibilities	Monitoring by EMP Organization or Third Party

9.8 Emergency and Rescue Plan

Objective	Ensure processes for requesting outside emergency support, notification of officials and incident documentation is clearly defined, communication tools are understood and the appropriate action is taken. Ensure training is thorough and often with written instructions available in all areas to support immediate and effective response
Legal Requirements	Natural Disaster Management Law (2013), National Fire Protection Agency (NFPA 58) standard
Implementation Schedule	During Construction, Operation Phases
Management Action	Emergency Contacts Contractor Team Head External Emergency Response Team (EERT) Member Project Engineer (1 No.) Member

Entity	Responsibilities
Contractor Team (ERT)	Communicates / alerts the EERT. Prepares the emergency site to facilitate the response action of the EERT, e.g., vacating, clearing, restricting site.

	When necessary & requested by the EERT, lends support / provides assistance during EERT's response operations
External Emergency Response Team (EERT)	Solves the emergency / incident
Contractor Resources	Provide and sustain the people, equipment, tools & funds necessary to ensure Project's quick response to emergency situations. Maintain good communication lines with the EERT to ensure prompt help response & adequate protection, by keeping them informed of Project progress.

Content

The most crucial aspect of the emergency system is the identification and communication of the emergency to the appropriate persons. Consequently, the names of the appropriate contact person together with their contact numbers would be prominently displayed around the facility. The contact details will be updated on a regular basis.

Each person's responsibility would be cleared with him/her beforehand and a copy of the emergency contingency plan would be distributed to each person, including the responsible and/or affected persons not associated with the Operator:

- Disaster management and firefighting agencies;
- Downstream water supply authorities
- Downstream users that could be affected in the case of an emergency such as local communities
- Relevant government authorities; and
- Approved professional person (engineer).

It must be ensured that operating and supervisory staff are familiar with the emergency plan, and that the content thereof is understood and familiar to them.

The emergency response plan will be updated as circumstances change or operating procedures are amended, and as a minimum in the event of:

- Any additional recommendations made by a professional engineer (annual safety inspections) or environmental auditors;
- Any change in operational procedures and/or management of the project activity;

	The identification of any issues of concern or additional risks as a result of regular inspections and/or monitoring results; and Any unplanned or unforeseen emergency situation. Establish a planning team: Demonstrate management's commitment to the project by appointing a competent team leader and authorizing the leader and the team he assembles to take the necessary steps to develop an emergency response plan. Management should provide the leader with expectations for deliverables and a deadline and budget, if required. The team may elect to meet with municipal and provincial government agencies, first response organizations and others to obtain information. Meetings will also be held with other company personnel such as members, worker safety and health representatives, engineers, maintenance, human resources, purchasing and others. With management's directives and deadlines in mind, the team should also establish schedules and budget for their work and have these approved, if necessary. Training and competency: The level of training that project site personnel receive in emergency preparedness needs to be significantly increased. In particular emphasis should be placed on testing the whole emergency response system, especially under worst case scenarios such as night or weekend. There is an opportunity for providers of training in emergency management to develop courses for site personnel in emergency management for personnel other than for the major roles. This would generate a wider understanding of what happens in an emergency and what needs to happen in what order. Any whole of training in emergency management plans (EMP) should include the post incident analysis and investigation that may be required by the regulator. Documents to review: Health and safety policy Evacuation plan Fire protection and fire-fighting plans Security procedures Mutual aid agreements with other companies Risk management plan Records from previous incidents and drills Environmental policies Accident investigation records Records of past meetings with first responders (fire, police, medical, etc.)

	Identify hazards, estimate probability and assess potential impact on people, property and business. A good starting point is to create an inventory of emergencies which have or could have occurred in: Your facility The area adjacent to your facility The community The region Include the following if appropriate: Fire Chemical spills and leaks Hazardous materials Extreme weather Explosion Electrical emergency Water hazards and floods Mobile equipment Conveyor emergencies Confined space Widespread illness or pandemic Other(s) Take into account such factors as: Patterns of extreme weather such as freezing rain, drought, cyclones, excessive rain Proximity to flood plains, seismic faults, dams, water tables Proximity to companies which produce, use, store or transport dangerous goods The state of the roads leading to and from your facility – are they ever impassable due to heavy mist or reduced visibility – what is the local accident frequency? For isolated operations, the availability of emergency transportation such as ambulance or helicopter Typical employee drive time to and from work Identify emergency resources: More than listing telephone numbers in the emergency procedure, many companies maintain an active relationship with some or all emergency services, providing them with site plans, plant tours and notification when there are major changes to plant, process or materials. Many fire departments, for example, would welcome an opportunity to conduct a training session regarding footwear production work. Resources include but may not be limited to: Fire: may be full-time professional fire fighters; part-time volunteer departments; company employees trained and equipped to fight fires.

	Police: municipal or First National police forces SAR – Search and Rescue: teams of trained and equipped volunteers prepared to search for missing persons or respond to other types of emergencies Medical: provincial or local ambulance service; hospital; local doctor; air ambulance; company employees trained and equipped to provide first aid Municipal government, public works department: may provide assistance with situations involving water, sewer, or other services – may already have plans in place for large scale emergencies Electrical utility: Local municipal or regional electricity utility may provide assistance with situations involving overhead or underground power lines Telephone utility may be required to provide assistance with situations involving telephone or related service or telephone equipment Fuel supplier may be required to provide assistance with situations involving fuel, fuel storage or fuel transfer Ministry of Labor may be consulted Ministry of the Environment: advice and assistance with situations involving release of materials into the air, water or ground Review codes and regulations: Some emergency situations may be caused or complicated by failing to follow the dictates of one or more codes of practice. Legislation is in place to direct companies on procedures to follow and notification to be given in case of an emergency. Codes and regulations include but may not be limited to: ▪ National Fire Code: details fire prevention characteristics to be included in residential and commercial buildings as well as installation, testing and use of fire emergency systems , ▪ National Fire Protection Agency (NFPA 58) standard. Develop training programs: Everyone who works for the company requires some type of training. Even contractors and visitors may require some emergency response training and orientation. Training may include safety meetings, reviews of procedures, use of fire extinguishers, evacuation drills or full-scale disaster exercises. Some or all employees may be trained in fire preventive and emergency first aid training is already mandatory. Typically, a company will assign someone to be responsible for managing the emergency response training program. The training plan should speak to the following considerations: Who is to be trained Who will do the training; employees, contractors, community responders

	What training is required for all employees What training is required for specialist employees What training is required for contractors and their employees What orientation training is required for visitors How can members of the community first response teams be involved with the training programs How to evaluate training and re-training intervals The method of storing and the location of the training records Develop a communication strategy: Effective communication is essential to report emergencies to first response support teams, employees, neighboring businesses and residences, the community, news media and other interested parties such as employees' families and company customers. Even a temporary communication disruption can have a serious effect on the response process. An Emergency Response Organization Chart can play a major role in maintaining effective communication especially during a crisis. The first requirement is a means for alerting all personnel on the site to the emergency. A loud, open-air horn or siren may be effective for most people but operators inside cabs of mobile vehicles may not hear the warning especially if they have air conditioning running at the time. A general alert delivered on all working radio frequencies is effective. The system should be tested on a regularly-scheduled basis. Each employee participate in a fire drill at least once per year. Employees should know where to go when the alarm is sounded. Some notifications are required by law. A list of "Legislated Requirements for Incident Reporting" is included with this guideline as an addendum. Note that, in some cases, "immediate notification" is required. Someone on the emergency team should have responsibility for making reports as required by legislation. Dealing with the news media at the time of an emergency situation can present a special challenge. Experts recommend only one trained person be allowed to brief the media on behalf of the company. Media representatives should not be given free access to the job site. They must be provided with PPE and escorted at all times for their own safety. Where possible, information for media distribution should be printed and distributed as a press release. Write the plan: Every component of every emergency response plan requires the approval of some level of management. Plan development will proceed more smoothly and with fewer revisions if the approvals process and deadlines are established and understood beforehand.

	Not everyone is capable of writing clear, concise copy. Encourage everyone participating in the actual plan development to record information in point form. The project leader should assign the writing tasks to those who are most knowledgeable about sections of the content. Working from your lists of probable emergencies and resources available, develop an approach to deal with the situations. Include a step-by-step procedure, and state who is responsible for taking which actions. Implement the plan: There are several aspects to plan implementation: Management can indicate its “buy-in” to the plan by adding a launch covering letter signed and dated by the most senior manager for the site or operation The employee introduction to the emergency plan may take place through safety meetings, orientation meetings or specific training programs Emergency preparedness information from the plan may be distributed or promoted through posters, bulletin board showings and employee newsletters Supervisors should make a habit of asking employees what they would do if a fire (explosion, cyclone, etc.) occurred. Plan implementation should include a launch with police, fire, medical and other support services Emergency Training: One day of the week-long pre-production startup program will be devoted to refresher training in emergency procedures, fire-fighting and related programs. An emergency evacuation drill will be held at least once during production season. Fire Protection and Fire Fighting Plan: All employees will follow the procedure: In the event of a fire in equipment which has a built-in fire suppression system, (loaders, gen set) activate the system. If you discover a fire in its early stage, notify the office by radio then make the decision whether to fight it with a fire extinguisher – all employees should be familiar with extinguisher locations and how to use them – when in doubt evacuate. For any fire which cannot be fought with hand-held extinguishers, the local municipal fire department will be called – if required, an employee will be designated to lead the fire department to the scene of the fire using a company truck. The company has offered its property for fire fighter training purposes.

	Incident and Injury Plan: First aid kits are located at the site plant, gen set trailer and in each company vehicle. For minor injuries (scrapes, shallow cuts, etc.) all employees are authorized to use materials in any first aid kit but must make a note of the injury and materials used in the kit's log book. For any injury more serious than the above, call the office for assistance. Current-trained first-aiders will determine whether an injury can be treated on site, treated in hospital or requires an ambulance. Security Procedures: Only the main gate will be opened for vehicle access. All other gates at entries to the property will be closed and locked at all times. Report any damage to gates or perimeter fences Incoming customer trucks for pickup must stop at the office. Drivers are not allowed to leave the cabs of their vehicles at any time while on Company property. All other visitors are required to park near the office for check-in and check-out when leaving. All visiting vehicles must be accompanied by a Company vehicle when traveling on company property. Hard hats and safety glasses are available for visitors in the office. No explosives are stored on the company property. Interruption of Electrical Supply: Electrical systems in the office are designed to switch over to power supplied by our generators in the event of a failure of utility-supplied power. Emergency response and preparedness: If Accidents, injuries or health effects and natural disasters occur during the operation, must be prepared to act in a timely manner. In case of emergencies, the first-aid nurses in the workplace and the clinic staff will take charge; and patients will be treated and must be taken to the nearest hospital for a serious condition.
Monitoring Plan	There are several aspects to Monitoring plan: Management can indicate its "buy-in" to the plan by adding a launch covering letter signed and dated by the most senior manager for the site or operation The employee introduction to the emergency plan may take place through safety meetings, orientation meetings or specific training programs Emergency preparedness information from the plan may be distributed or promoted through posters, bulletin board showings and employee newsletters

	Supervisors should make a habit of asking employees what they would do if a fire (explosion, cyclone, etc.) occurred. Plan implementation should include a launch with police, fire, medical and other support services
Location	Direct Affected Area
Frequency	Regularly Monitoring and Quarterly Reporting
Budget Allocation	2,400,000 Kyats (Lump sum/year)
Responsibilities	Monitoring by EMP Organization or Third Party

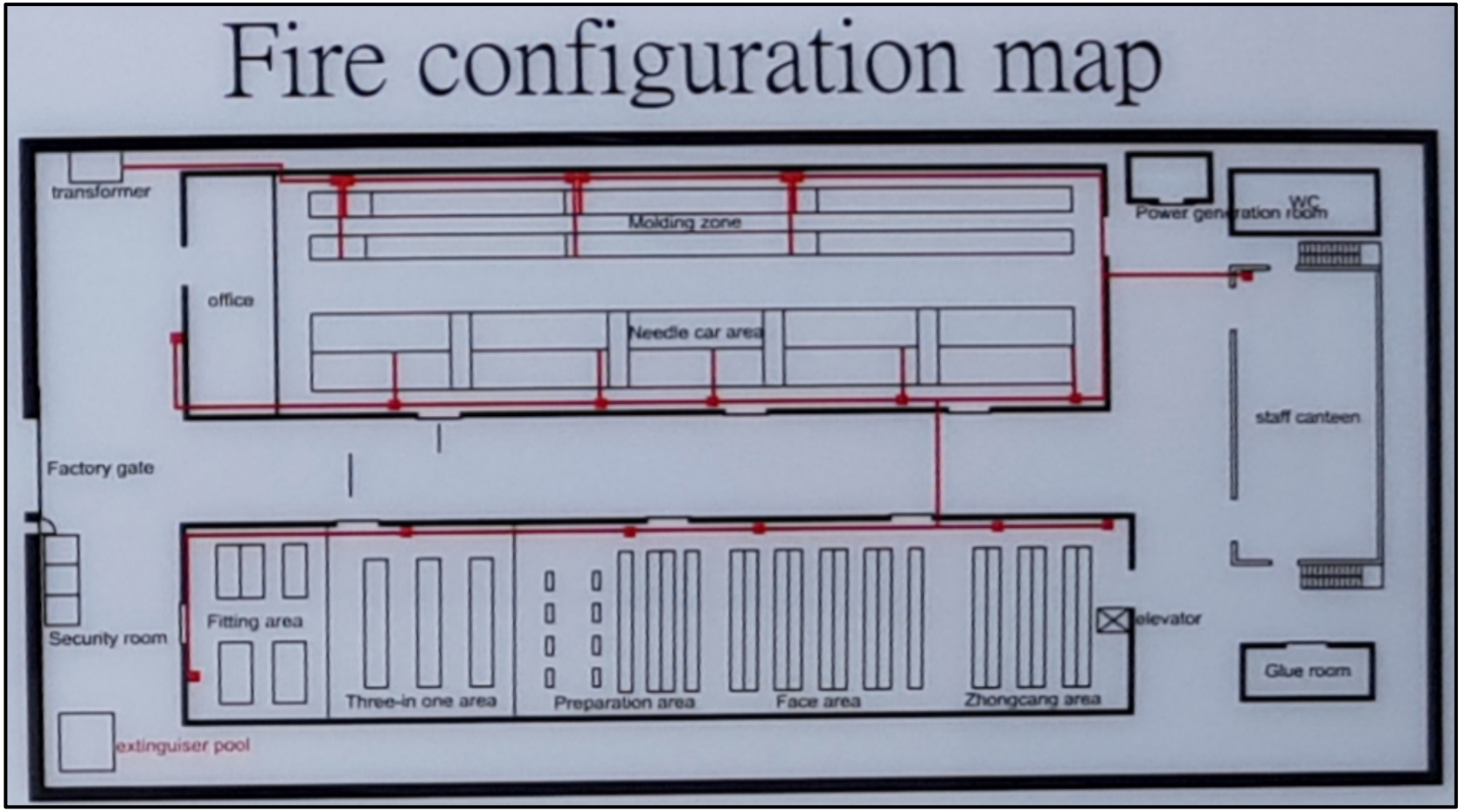

Figure 23: Fire Prevntion Configuration Map

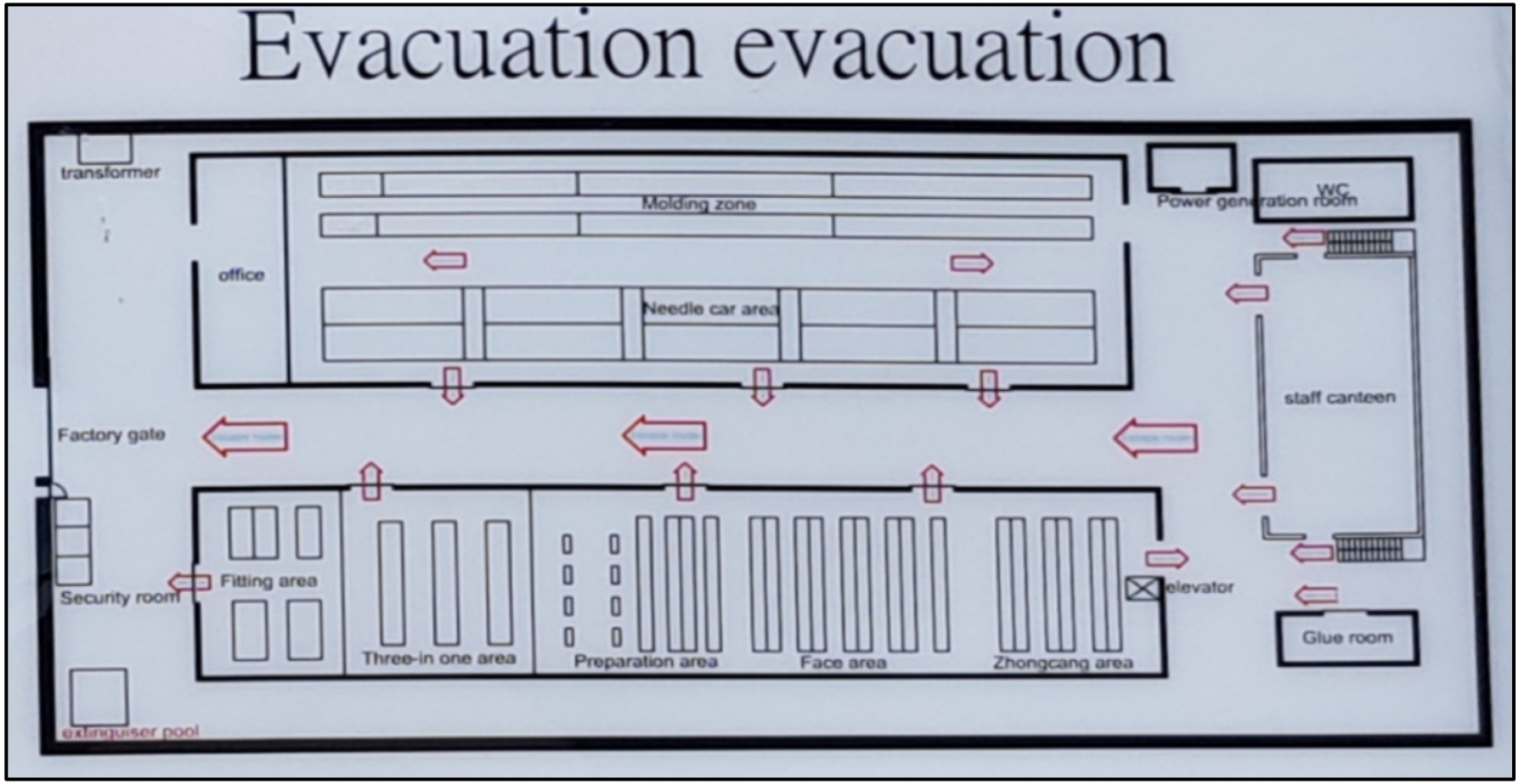

Figure 24: Evacuation Plan

9.9 Corporate Social Responsibility (CSR) and Funding

In the implementation of the CSR, the contribution made by society through the business activities and investment of the company has improved many years ago throughout the world. CSR is a social, environmental and an effect of various economic pressures.

Development Companies should also share some of the benefits of the business with the social, economic, education, health and environmental benefits of the local people and employees. By contributing these activities, it will facilitate better relations between the locals and the company. Therefore, the company should interview the people and the authorities from the local village and take care of their needs.

The project proponent shall use maximum 2% of annual net profit to be allocated as CSR fund starting from the project operation. It is basically suggested to be funded at around 30 lakh kyats. The amount should be contributed in factors tentatively as an example like; 350,000kyats per year in education, 300,000kyats per year in health care and 350,000 kyats per year in protection of environment.

9.10 Restoration and Replantation plan

(1) In the field, nursery garden shall be established seedlings for planting substitutes

(2) Measuring the area for planting suitable trees in the region with the guidance of the relevant township department of forestry.

(3) Planting seedlings in designated areas.

(4) Maintaining the water that comes from the production through the sewer pond for watering.

(5) Employment of a local day laborer to monitor the growth of the plant.

(6) As a daily laborer should be monitored and replaced of crop failure and other condition.

(7) The company will provide support to local daily laborers who will look after the trees.

Table 17: Annual Replantation Programme

No.	Year	Planned Green Area (m^2)	Project Area	Arable Area (m^2)	Total Seedlings
1	First	200	Native Perennial Trees / Floriculture	200	10
2	Second	200	Native Perennial Trees / Floriculture	200	10

No.	Year	Planned Green Area (m^2)	Project Area	Arable Area (m^2)	Total Seedlings
3	Third	200	Native Perennial Trees / Floriculture	200	15
4	Fourth	200	Native Perennial Trees / Floriculture	200	15
Project's Total Planned Green Area = 10% of Project Area		800		800	

9.11 Environmental Monitoring Plan

For the Footwear production operation requires an adequate level of monitoring to ensure a safe and healthy environment.

It is important that the environmental works should be supervised and monitored at all times, in order to ensure that the greatest possible benefits are gained from the Environmental Management process. General guidelines are provided below, as to how the EMP can be managed and monitored.

The Consultant recommends that a person responsible for Environmental management at all works sites, should be seconded to the work program.

This person should have adequate experience in environmental management, and in dealing with relevant project works. This person would also have knowledge in monitoring social / occupational health issues, both on site and with adjacent areas, associated with footwear production work and protection of the environment.

9.11.1 Site Inspection and Audits

The contractor must develop appropriate protocols for regular site inspections and monitor compliance with environmental and social legislation and best practice, which includes World Bank safeguards standards. The project proponent personnel should participate in this process in the context of capacity building for environmental management.

Table 18: Environmental Monitoring Plan

Indicator	Location and Data Collection	Frequency	Parameters	Institution
Operation Phase				
Monitoring EMP Implementation				
1. Mitigation Measures **2. Enhancement Measures**	Project Area (Direct Affected Area)	Daily monitoring and documenting, and quarterly reporting		EMP Organization or Third Party
3. Surface Water, Drinking water	Two samples (wastewater and drinking water) are measured to cover the whole Project Area	Twice per year	▪ Turbidity, EC, Total hardness, Total dissolved Solids, Chloride, Sulfate, Calcium, Magnesium, BOD, COD, pH, Temperature, Ammonia for waste water; ▪ Physico-Chemical parameters (e.g. Turbidity, EC, Total hardness, Total dissolved Solids, pH, Temperature, Iron (as Fe), SO_4, Nitrates (as NO_3), Fluoride (F), etc. and Microbiological parameters (E-coli and total coliforms) for drinking water.	EMP Organization or Third Party
4. Drainage Management	Project Area (Direct Affected Area)	Daily	• Good housekeeping and professional landscape and drainage design	EMP Organization or Third Party
5. Air	One sample is measured to cover the whole Project Area	Yearly	• Nitrogen dioxide (NO2), Ozone (O3), Particulate Matter (PM10), Particulate Matter (PM2.5), Sulfur dioxide (SO2), Total Suspend Particulate (TSP), CO, Temp, Relative Humidity.	EMP Organization or Third Party

Indicator	Location and Data Collection	Frequency	Parameters	Institution
6. Noise and Vibration	One sample is measured to cover the whole Project Area	Yearly	NEQEG Noise Level Parameters Receptor: Residential, institutional, educational — One hour LAeq (dBA)[a]: Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays): 55; Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays): 45 Receptor: Industrial, commercial — One hour LAeq (dBA)[a]: Daytime: 70; Night Time: 70 an Equivalent continuous sound level in decibels	EMP Organization or Third Party
7. Waste Management	the whole Project Area	Weekly	Waste generated at the Project is monitored on a monthly basis through waste disposal receipts	EMP Organization or Third Party
8. Traffic Management	Transportation Route	Daily		EMP Organization or Third Party
9. Community Engagement	Direct Effected Area and In-directed Affected Area	Regularly Monitoring and Quarterly Reporting		EMP Organization or Third Party
10. Occupational Health and Safety	Direct Effected Area	Regularly Monitoring and Quarterly Reporting		EMP Organization or Third Party
11. Emergency and Rescue Plan	Direct Effected Area	Regularly Monitoring and Quarterly Reporting		EMP Organization or Third Party

9.12 EMP and Monitoring Cost

The estimated costs of developing a monitoring program are as follows:

Table 19: Estimated Environmental Management Plan and Monitoring Cost (Operational Phase)

Estimated Environmental Management and Monitoring Cost (Operational Phase)

Section	Description of Monitoring Cost	Unit Cost (Ks)	Unit	Amount (Ks)	Note
8.1	Water Quality Management Plan	100,000	2x2	400,000	Yearly
8.2	Drainage Management Plan	500,000	1	500,000	Yearly
8.3	Air Quality (including Noise) Management Plan	1,500,000	1	1,500,000	Yearly
8.4	Waste Management Plan	300,000	12	3,600,000	Yearly
8.5	Traffic Management Plan	500,000	1	500,000	Yearly
8.6	Community Engagement and Health Care Plan	700,000	1	700,000	Yearly
8.7	Occupational Health and Safety Plan	2,400,000	1	2,400,000	Yearly
8.8	Emergency Response Plan	2,400,000	1	2,400,000	Yearly
8.9	Corporate Social Responsibility Plan	1,000,000	1	1,000,000	Yearly
6.5	Salary for EMO and ESO (EMP Organization)	700,000	12	8,400,000	Yearly
8.10	Restoration and Replantation Programme	500,000	1	500,000	Yearly
Total Estimated Annual Budget for EMP and Monitoring (Kyats)				**21,900,000**	**Kyats**

Estimated Annual Budget Allocation for EMP and Monitoring is 22,000,000 Kyats (Twenty Two Million Kyats only).

Note: *If the project is beyond the current estimated cost, the necessary funds will be expanded. The Environmental Auditor is assumed to be from project proponent's office. However, if some of the works have already been in place, the EMP Budget may be duly budgeted accordingly by the EMO.*

10 STAKEHOLDER ENGAGEMENT

The Stakeholder engagement was conducted at Yacheng Footwear Factory in July 2020. Due to the COVID-19 spread out in that time, other stakeholders could not be participated.

The summary notes from the stakeholder engagement with different key stakeholders are as follows:

Table 20 : Summary Notes from Stakeholder Engagement

Item	Name of Key Informant / Stakeholder	Designation / Organization	Summary Notes
1	Daw Khin Swe Lin	Manager	▪ Yacheng Footwear Co., Ltd. adheres to the Rules and Regulations of the Myanma Investment Corporation (MIC) and Union of Myanmar Government standing orders for CMP (Cut-Make-Pack) process for production of foot wear. ▪ Basically we produce foot wear for ladies (casual and sports). All the raw materials such as leather, glue, cloth, etc. are imported and their end-product footwear is being exported to affiliated company "Yatai" in China. ▪ There is a health clinic in our premises with one nurse to take care of our staff on duty. We have 550 staff, and those who live outside the factory are being provided with transportation to and from project site. Foreign experts, managers and translators are accommodated in the factory premises. ▪ The production process is just cut, glue, stitch and produce the output product according to ordered footwear design. The waste produced is stored in a different store-house and the YCDC (municipality of Yangon) transports them to the land fill site. ▪ There is a tube well and the water is treated by Reverse Osmosis system and the treated and tested water for its physical and chemical parameters are being used for domestic and

Item	Name of Key Informant / Stakeholder	Designation / Organization	Summary Notes
			cleaning purposes on site. ▪ We have emergency plans for prevention of fire hazards and occupational accidents.
2	Ms. Mya Thinn Kyu (Julie)	Representative	▪ There are seven departments in our factory: ▪ Glue Store: The different kinds of glue to be used in the production of foot wear are stored in this room. The rules for safe-handling of glue is pasted outside the storeroom for workers to abide; ▪ Raw material warehouse: The specific fabric, leather, clothes are stored with temperature controlled in this warehouse. ▪ Cutting Department: different components of the footwear are cut according to design. ▪ Three-in-one Department: The components of the footwear are (a) glued, (b) heated, and (c) pressed according to design of the footwear. ▪ Component Department: The department does the finishing touches of the end product and ensures that all specification of the footwear design and components are intact and put in footwear boxes according to foot-size and stamped. ▪ Quality Control: All departments have their own quality control in each step. However, there is one department to test all the end product before being sent for final packing. ▪ Packaging Department: The Packaging of the end product footwear boxes (according to different foot-size number) are packed together in specific boxes (2'x2'x2') ready for export, initially to China and then to other end-user countries in the west.

11. PROPONENT'S CONTRACTUAL AND COMMITMENTS

The Project Proponent will comply with the Myanmar Environmental Conservation Law, Environmental Conservation Rules, Environmental Quality (Emission) Standards and all necessary international standards.

The Project commits to comply, undertake the following list of table 21.

Table 21 List of commitments

Name of Commitment	Sr. No	Explanation of Commitment	Reference in the report (Chapter)
Legislation	1.	• Abide by the terms and conditions, stipulations of special licenses, permits, and business operation certificates issued to them, including the rules, notifications, orders, and directives and procedures issued by the MIC and the applicable laws, terms and conditions of contract and tax obligations;	Chapter 4
	2.	• The Project Proponent is responsible for its actions and omissions and those of its contractors, Sub-contractors, officers, employees, agents, representatives, and consultants employed, hired, or authorized by the company acting for or on behalf of the Project.	
	3.	• Fully implement the EMP, all Project commitments, and conditions, and is liable to ensure that all contractors and subcontractors of the Project comply fully with all applicable Laws, the Rules, the EMP, Project commitments and conditions when providing services to the Project.	
	4.	• Carry out in accordance with the stipulations of the relevant department if it is, by the nature of business or by other need, required to obtain any license or permit from the relevant Union Ministries government	

Name of Commitment	Sr. No	Explanation of Commitment	Reference in the report (Chapter)
		departments and governmental organizations, or to carry out registration;	
	5.	• Close and discontinue the investment only after payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce;	
	6.	• Pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directives and so forth during the period of suspension of investment for a credible reason;	
	7.	• Pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease and death due to the work;	
	8.	• Supervise foreign experts, supervisors and their families, who may be employed in its investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar;	
		• Respect and comply with the labor laws;	
	9.	• Have the right to sue and to be sued in accordance with the laws;	
	10.	• Ensure equal rights for local workers and avoid salary bias, i.e. ensure that local and foreign workers have the same salary at the same level.	
	11.		
	12.	• Ensure that all foreign employees apply for the proper work permit and visa through the Myanmar Investment Commission (MIC).	
	13.	• Provide rights and benefits including but not limited to, leave, holidays, overtime pay, compensation and social security. Most of	

Name of Commitment	Sr. No	Explanation of Commitment	Reference in the report (Chapter)
	14.	the relevant particulars are in the Myanmar Companies Act. • Settle disputes, within the law, between workers, employers, consulting experts or any other personnel involved in the business operation.	
Cultural and Social	1. 2. 3.	• Respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union. • To inform the local administrative office and the Department of Historical Research if any historical thing is found during the project operations. • Abide by the applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage;	Chapter 6
Mitigation measures and management plans	1.	• The Project Proponent will comply with commitments, mitigation measures and management plans stated in this EMP report.	Chapter 8
Monitoring	1. 2.	• Be responsible for, and shall fully and effectively implement, all requirements set forth in the ECC, applicable Laws, the Rules, this Procedure and standards. • Timely notify and identify in writing to the Ministry, providing detailed information as to the proposed Project's potential Adverse Impacts.	Chapter 9

The letter signed by the project proponent for the commitments is described in Appendix G.

12. CONCLUSION AND RECOMMENDATION

Social Status: The proposed project land has no inhabitants living in the area and no resettlement issue identified since the project area has already settled all issues of land acquisition for implementation of the footwear production work by CMP process at Plot No. (87), Yangon Industrial Zone, Mingalardon Township, Yangon Region. The social survey was carried out in the environs of the project site during June 2020. It is observed that the people have no objection to the proposed project and they expect better operations of project to reduce the environmental and social impacts and having job opportunities for local people.

It is recommended that the project to operate according to Standing Law, Rules and Regulations of Country Government and relevant Government Departments and international standardized methods and procedures to prevent from potential impacts and risk caused by the proposed project. There will be job opportunities and capacity building for local people as the project proponent plans to train local youths to operate operation works.

The project proponent shall use 2% of annual net profit be appointed as CSR fund from the commencing year of business. The amount will be generally contributed in portions; 33.3% in education. 33.3% in healthcare and 33.4% in protection of environment.

Environmental Status: The proposed project site is already urbanized with human activities over the past many years. Therefore, only a few trees are observed during the baseline study during June-July 2020. And therefore, there is no sensitive or conservation worthy habitats in surrounding environ of the project area.

The project proponent is desirous to conserve the environment. The affirmation of project proponent regarding environment impact is that; we, the Yacheng Footwear Co., Ltd shall be responsible for the protection as well as preservation of environment in and around the area of the project site. We shall be able to protect pollution of air, water and land and not to cause environment degradation. Our company takes necessary measures in order to fulfill environmental protection to keep the project site environment friendly by inclusion of replanting of trees program as describe in Chapter 7 of this EMP report. The project site grounds as well as the approach roads will have suitable shady side walks, flowering plants and trees and ever green arbors.

There is an expected slight significance of impact on change in noise level, especially during the day time of the operation period. It is recommend that regular monitoring and improvement of sound emitting devices such as gen-sets and grinding machines be equipped with noise shields and relevant sound absorbing devices. Therefore, it becomes important to carry out the Environmental Management Plan as described in this report and mitigation measures to address the potential impacts especially in its environmental settings as described earlier in Chapters 7 and 8 of this report.

Waste generated from the CMP process is mainly from the cutting section and is being collected by the local municipality for recycling of waste products to produce electrical energy at the waste treatment plant at Hlawga, Mingalardon Township, Yangon Region. However, the waste dumping site within the project premises should be monitored to prevent aesthetic beauty of the natural environment and enhance proper landscape of the locality.

All environmental impacts identified are capable of mitigation through a combination of adherence to relevant international design codes and an effective health safety and environment (HSE) policy by the operators.

Therefore, the Proposed Project need to start taking action complying with the basis of JICA or the World Bank Safe Guard Policies: Environmental Health and Safety Guidelines (EHS Guidelines) at website: www.ifc.org/ifcext/sustainability.nsf/Content/EnvironmentalGuidelines or other International Environmental Standards for Environmental and Social Considerations with conformity to The Environmental Conservation Law, July 2012 of the Republic of the Union of Myanmar and Rules Notification No. 50/2014 of MOECAF (Ministry of Environmental Conservation and Forestry) in order to fulfill the environmental objectives of the project proponent:

- To reduce carbon emission and hazardous materials through an initiative role of coping with climate change,
- To develop a green business for securing new growth engines,
- To reinforce an eco-friendly supply chain management (SCM) and green partnership, and
- To manage social responsibility and reinforce the stakeholders' network.

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