MINGCHENG (MYANMAR) FOOTWEAR COMPANY LIMITED

ENVIRONMENTAL MANAGEMENT PLAN

FOR

FOOTWEAR MANUFACTURING FACTORY PROJECT, DAGON MYOTHIT (EAST), YANGON REGION

June 2021

National Engineering & Planning Services Co., Ltd, Myanmar

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ABBREVIATIONS AND ACRONYMS

Abbreviations	
BPC	Bio-Physical and Chemical
CO	Carbon Monoxide
CO_3	Carbon Dioxide
CSR	Corporate Social Responsibility
CMP	Cutting, Making and Packing
EERT	External Emergency Response Team
EIA	Environmental Impact Assessment
EMO	Environmental Management Officer
EMP	Environmental Management Plan
ERT	Emergency Response Team
ERTL	Emergency Response Team Leader
ESIA	Environmental and Social Impact Assessment
ESO	Environmental Site Officer
HSE	Health, Safety and Environment
IFC	International Finance Corporation

MOEE	Ministry of Electricity and Energy
MONREC	Ministry of Natural Resources and Environmental Conservation
NEPS	National Engineering & Planning Services Co., Ltd.
OH & S Code	Occupational Health and Safety Code
pH	Measurement of Acidity and Alkalinity
$PM_{1.0}$	Particulate Matter < 1 μ m
PM_{10}	Particulate Matter < 10 μ m
$PM_{2.5}$	Particulate Matter < 2.5 μ m
SEC	Socio-Economic and Cultural
SIA	Social Impact Assessment
TVOC	Total Volatile Organic Compound

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1. EXECUTIVE SUMMARY

1.1 Summary of Project Description

The Project Proponent "Mingcheng (Myanmar) Footwear Co., Ltd" has been leased by the relevant authority for the land and building premises at Plot No. (47), Myay Taing Block No. 112, Industrial Zone, Min Ye Kyaw Swar Street, Dagon Myothit Eastern Township, Yangon Region[1] to produce a variety of footwear, mostly sports and kids-shoes[2] by CMP (Cut-Manufacture-Pack) system with manufacturing by client-ordered design.

Investment for Mingcheng Footwear Manufacturing Project is 4.54 Million USD (100% Foreign Investment Company by Mingcheng (Myanmar) Footwear Co., Ltd). Land and building are leased from U Than Soe for 2.465 acres (9,975.51 m^2) at 50 years; extendable for another two consecutive ten-years each with mutual agreement between Lessor and Lessee, subject to approval of the MIC (Myanmar Investment Commission).

The Lease Rental is 30,026 USD per annum (3.01 USD per m^2 per annum) for 50 years. On expiry of 50 years, the Lessor will negotiate the rental with Lessee. If the Lessee cannot oblige the rental, the Lessor has the option to terminate the Lease Agreement on the date of expiry of the 50 years.

For manufacturing of varieties of kids-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 Structure-A:** (470' x 120') three-storeyed RC building;
- **Hostel Structure-B:** (80' x 35') three- storeyed RC building;
- **Security and Clinic:** (38' x 15') one storey brick nogging building;
- **Structure for staff / meals:** (100' x 25') Staff Hall Shed.

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 machinery, tools and equipment, electrical materials and chemicals used for production of footwear are usually imported from abroad, and its wastes management follows YCDC (Yangon City Development Committee) guidelines.

At the project site, two tube wells have been drilled and the raw water is collected in ground tanks and pumped to 1500 liter tanks (8 nos.) at the roof-top floor of Structure B; to be treated by RO (Reverse Osmosis) treatment plant for domestic water consumption.

[1] ***Land Lease Agreement, Appendix A***
[2] ***Product Photos, Figure 10***

The required electrical supply is acquired from National Grid with 380 KV Transformer. The factory provides health clinic for workers. The waste is collected by two masonry containers (18'x7'x3' each), one for dry-rubbish and the other for wet-waste, administered by the local YCDC, which collects waste from the factories once a week at the Industrial Zone area.

The project has completed the construction phase of all infrastructures incorporating for warehouse, dormitory, factory and offices, and staff /security offices. Now it is in its operational phase and the plant runs by about 253 staff. Emergency Preparedness Plan and Fire Protection Equipment are being supplied and carried out systematically; abiding to the Fire Services Department's standing rules, regulations, directive and instructions.

1.2 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 36°C and minimum temperature of 22°C. Annual rainfall over the area averages 3217.23mm (126.66 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 5th February of 2021, using DIENMERNTM Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector. During the assessment, the average temperature was 28°C and relative humidity was 48%. The measured parameters are $PM_{1.0}$, PM_{10}, $PM_{2.5}$, TVOC, HCHO and CO_2 during the average room temperature of 28°C and relative humidity of 48%. To reveal the existing status of baseline air quality, the average indoor air quality results were compared with Air Quality Index Guidelines by U.S Environmental Protection Agency (EPA) and OSHA (Occupational Safety and Health Administration), and the test results around the factory are within the permissible limit and in a safe range.

(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 75.6 dBA, which slightly exceeds the permissible limit of 70 dBA. However, the noise level for night time is 70.2 dBA which is found to be approximately the permissible limits of 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 Sept 2020. All of the physio-chemical and microbiological analyses are in comply with the National and WHO drinking water quality guidelines[3].

[3] ***Appendix E-2: Water Quality Test Results for Mingcheng footwear Factory, East Dagon Township, Yangon Region***

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: No sensitive ecosystem including wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, elephant reserve and wetland areas near the project site. However, Yangon International Airport and Golf Courses are situated within 10 km range of the project site.

(h) Land use: Since the project site is located within the most developing township in Yangon City Region, all of four main types of land uses; namely residential, agricultural, transportation and commercial, were observed. Out of the total land use area of 22495 acres, more than 65% of the total area covers urban and built-up area, 8.14% agriculture land and 4.62% of uncultivated land, 2.14% of rural area, 0.58% of industrial area, 4.62 % of uncultivated land and 19.47 % of other uses.

(i) Socio-economic Data: The proposed site is located on the southern part of Dagon Myothit (East) Township, Yangon Region, Myanmar and the site is bordered by four townships namely: Hlegu Township in the north, North- Dagon Township in the South- west, South Dagon Township in the east. Since the project site is located closed to Dagon Myothit Industrial Zone and Dagon University, 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 172277 with total household of 35814. Male female ratio of the study area is 1:1.12 as of 2019. The ethnicity of 94.12% is Burma and others make less than 6% including foreign. Out of the total population, the number of people who can work is 134080 and the unemployment rate is 3.86%. Main livelihoods are government services, industrial worker, merchant, services, livestock breeding, agriculture and casual labor.

1.3 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
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	high
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[4].

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;
- 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.

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

1.4 Summary of Key Informant Interview (KII)

- Mingcheng (Myanmar) 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 kids (casual and sports). All the raw materials such as leather, glue, cloth, etc. are imported and their end-product footwear is being exported to other countries.
- There is a health clinic in our premises with a doctor and a nurse to take care of the staff on duty. At present, there are 253 workers (labors) and 7 Chines employees (6 male and one female). The foreign experts, managers and translators are accommodated in the factory premises in the Hostel building. However, the local labors attend work from their own homes.
- 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 are two tube wells 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.

1.5 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);[5]
- ***Environmental Site Officer (ESO)***, who will assist EMO and carry out the environmental management on site;[6]

Environmental Management Plans for each identified impact[7]:

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.

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.

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

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 မိန်ချိန်း(မြန်မာ)ဖိနပ်လုပ်ငန်းကုမ္ပဏီလီမိတက်သည် ရန်ကုန်တိုင်း ဒေသကြီး၊ ဒဂုံမြို့သစ် (အရှေ့ပိုင်း)မြို့နယ်၊ ရန်ကုန်စက်မှုဇုန် မင်းရဲကျော်စွာလမ်း၊ မြေကွက်အမှတ် (၄)၊ မြေတိုင်းရပ်ကွက်အမှတ်(၁၁၂)တွင် အဓိကအားဖြင့် အားကစားဖိနပ်နှင့် ကလေးစီးဖိနပ်အမျိုးမျိုးကို ၎င်းယူသူဖက်မှ အပ်နှံ ထားသောဒီဇိုင်းအတိုင်း ဖြတ်/ချုပ်/ထုတ်ပိုးသည့်စနစ် (CMP system) ဖြင့် ချုပ်လုပ်သော ဖိနပ်ချုပ်စက်ရုံ ဖြစ်ပါသည်။

စီမံကိန်းအတွက် စုစုပေါင်းမတည်ငွေပမာဏမှာ အမေရိကန်ဒေါ်လာ ၄.၅၄ သန်း (ရာခိုင်နှုန်းပြည့် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု) ဖြစ်ပါသည်။ စီမံကိန်းမြေနေရာနှင့် အဆောက်အဦများကို ဦးသန်းစိုးထံမှ မြေဇင်း ၂.၄၆၅ (၉၉၇၅.၅၁ စတုရန်းမီတာ)ကို နှစ် (၅၀)စာ အတွက် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံရေးကော်မရှင်၏ ခွင့်ပြုချက်နှင့် အညီ မြေပိုင်ရှင်နှင့် မြေဌားရမ်းသူ နှစ်ဦးနှစ်ဖက် သဘောတူစာချုပ်ဖြင့် ဌားရမ်းထားခြင်းဖြစ်ပါသည်။

နှစ် (၅၀) စာ နှစ်စဉ်မြေဌားရမ်းခ အမေရိကန်ဒေါ်လာ (၃၀၀၂၆)နှုန်းဖြင့် ဌားရမ်းထားခြင်းဖြစ်ပြီး၊ စာချုပ် သက်တမ်းကုန်ဆုံးလျှင် မြေပိုင်ရှင်နှင့် (၁၀) နှစ်တစ်ကြိမ်နှုန်းဖြင့် နှစ်ကြိမ် စာချုပ်သက်တမ်းတိုးမြှင့် နိုင်ပါသည်။ အကယ်၍ မြေဌားရမ်းသူဖက်မှ သတ်မှတ်ထားသောစည်းကမ်းများကို လိုက်နာရန် ပျက်ကွက်ပါက ခွင့်ပြုထားသောမြေကွက်ကို မြေပိုင်ရှင်ဖက်မှ သတ်မှတ်ထားသော နှစ်(၅၀)ဌားရမ်းခွင့် စာချုပ်သက်တမ်း ကုန်ဆုံးသည့်ရက်တွင် ပြန်လည်ရုပ်သိမ်းပိုင်ခွင့်ရှိသည်။

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

- (အလျား ၄၇၀ ပေ × အနံ ၁၂၀ ပေ) ရှိသော သုံးထပ် RC အလုပ်ရုံ၊ အဆောက်အဦ - အေ၊
- (အလျား ၈၀ ပေ × အနံ ၃၅ ပေ) ရှိသော သုံးထပ် RC အဆောင်၊ အဆောက်အဦ - ဘီ၊
- (အလျား ၃၈ ပေ × အနံ ၁၅ပေ) ရှိသော လုံခြုံရေးဂိတ်နှင့် ဆေးပေးခန်း၊
- (အလျား ၁၀၀ ပေ × အနံ ၂၅ ပေ) ရှိသော အဆောင်နှင့် စားဖိုဆောင်

ဖိနပ်အမျိုးမျိုးထုတ်လုပ်ရန်အတွက် အသုံးပြုသောစက်ယန္တရားများ၊ကုန်ကြမ်းပစ္စည်းများနှင့် အခြားလိုအပ် သောပစ္စည်းများကို နိုင်ငံခြားမှတင်သွင်းမည်ဖြစ်ပါသည်။ တင်သွင်းလာသော ကုန်ကြမ်းပစ္စည်းများသည် သက်ဆိုင်ရာမှ အန္တရာယ်ကင်းရှင်းမှုရှိကုန်ပစ္စည်းများဖြစ်ကြောင်း ထောက်ခံချက်ရရှိထားပြီးဖြစ်ပါသည်။ ဖိနပ်စက်ရုံ စွန့်ထုတ်အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေး ကော်မတီ၏ စည်းကမ်းများအတိုင်း လိုက်နာမည် ဖြစ်ပါသည်။

စက်ရုံဇရိယာအတွင်းရှိ အဂိစိတွင်း (၂)တွင်းမှ ရရှိသောရေများကို ရေသန့်စက်(RO treatment plant) ဖြင့် သန့်စင်ပြီးနောက် ၁၅၀၀လီတာဆံ့ရေလှောင်ကန် (၈)လုံးဖြင့် သိုလှောင်ထားပြီး အထွေထွေသုံးရေအဖြစ် အသုံးပြုပါသည်။

လိုအပ်သောလျှပ်စစ်ဓာတ်အားကို လျှပ်စစ်နှင့်စွမ်းအင် ပန်ကြီးဌာနမှ ရရှိပါသည်။ ထို့နောက်၊ စက်ရုံရှိ အလုပ်သမားများ၏ ကျန်းမာရေးအတွက် ဆေးပေးခန်းလည်း ထားရှိပေးပါသည်။ စက်ရုံစွန့်ထုတ်အမှိုက်များကို (၁၈x၇x၃)ပေ ပတ်လည်ရှိသော အမှိုက်ကန်နှစ်ခုဖြင့် အမှိုက်အစို/အခြောက်ခွဲ၍ ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးကော်မတီ နှင့်ချိတ်ဆက်၍ တစ်ပတ်နှစ်ကြိမ် စွန့်ပစ်ပါသည်။

ယခုအချိန်တွင် အဆောက်အအုံများ၊ သိုလှောင်ရုံ၊ ရုံးခန်း၊ အဆောင်၊ စက်တပ်ဆင်မှုများနှင့် လုံခြုံရေးဂိတ်များ ဆောက်လုပ်မှုပြီးစီးပြီဖြစ်၍ အလုပ်သမားအင်အား(၂၅၃)ခန့်ဖြင့် လုပ်ငန်းလည်ပတ်နေပြီဖြစ်ပါသည်။ မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် အရေးပေါ်ကိစ္စများအတွက် ကြိုတင်ပြင်ဆင်မှုများလည်း စနစ်တကျ ဆောင်ရွက်ပေးလျက်ရှိပါသည်။

၁.၂။ စီမံကိန်းအနီးပတ်ဝန်းကျင်နှင့် လူနေမှုအခြေအနေအကျဉ်းချုပ်

(က) စီမံကိန်းတည်နေရာသည် ပူအိုက်စိုစွတ်သောရာသီဥတုရှိပြီး အမြင့်ဆုံးအပူချိန်မှာ ၃၆ ဒီဂရီစင်တီဂရိတ် နှင့် အနိမ့်ဆုံးအပူချိန် ၂၂ ဒီဂရီစင်တီဂရိတ်ရှိပါသည်။ လွန်ခဲ့သော ၄နှစ်အတွင်း နှစ်စဉ် ပျမ်းမျှမိုးရေချိန် ၃၂၁၇.၂၃ မီလီမီတာ (၁၂၆.၆၆ လက်မ)၊ နှစ်စဉ်လေတိုက်နှုန်းအမြင့်ဆုံးနှင့်အနိမ့်ဆုံးမှာ တစ်နာရီ ၉.၃ ကီလိုမီတာ နှင့် တစ်နာရီ ၂.၅ ကီလိုမီတာ အသီးသီးရှိပြီး နှစ်စဉ်ပျမ်းမျှစိုထိုင်းစ ၇၃ ရာခိုင်နှုန်းရှိပါ သည်။

(ခ) ၂၀၂၁ခုနှစ်၊ ဖေဖော်ဝါရီလ (၅) ရက်နေ့တွင် စီမံကိန်းပတ်ဝန်းကျင်အတွင်းရှိ လေထုအရည်အသွေးနှင့် ဆူညံမှု တိုင်းတာရန်အတွက် Haxagonal Angle Consulting Team မှ DIENMERNTM Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector စက်များဖြင့် စက်ရုံအတွင်းရှိရွေးချယ်ထားသောနေရာများတွင် တိုင်းတာမှုပြုလုပ်ခဲ့ပါသည်။ လေထုအတွင်းရှိ အမှုန်များနှင့် အဆိပ်သင့်နိုင်သောအငွေ့များအား တိုင်းတာပြီး အဆိုပါတိုင်းတာမှုပြုလုပ်နေချိန်တွင် စက်ရုံပတ်ဝန်းကျင် အပူချိန်မှာ ၂၈ ဒီဂရီစင်တီဂရိတ် နှင့် ပျမ်းမျှစိုထိုင်းစ ၄၈ ရာခိုင်နှုန်း ရှိပါသည်။ ရရှိသောတိုင်းတာမှုရလဒ်များသည် U.S Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA)၏ လေထုအရည်အသွေးညွှန်းကိန်းလမ်းညွှန်ချက်များနှင့် ကိုက်ညီမှုရှိကြောင်း တွေ့ရှိရသည်။

(ဂ) BENTECH GM 1356 စက်၏ ဆူညံမှုတိုင်းတာရလဒ်အရ စက်ရုံအတွင်း နေ့အချိန်အသံဆူညံမှုနှုန်းမှာ ၇၅.၆ dBA နှင့် ညအချိန်အသံဆူညံမှုနှုန်းမှာ ၇၀.၂ dBA အသီးသီးရှိပြီး အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး(ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်၏ သတ်မှတ်တန်ဖိုးဖြစ်သော ၇၀ dBA ထက် အနည်းငယ် ကျော်လွန်ကြောင်းတွေ့ရှိရသည်။

(ဃ)၂၀၂၀ခုနှစ်၊ စက်တင်ဘာလတွင် စက်ရုံအတွင်းရှိ တွင်းရေအရည်အသွေးစမ်းသပ်ချက်ကို ISO Tech Laboratory တွင် ပြုလုပ်ခဲ့ပြီး တိုင်းတာမှုပြုလုပ်သောပါရာမီတာများသည် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး(ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်နှင့် ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့မှ ထုတ်ပြန်ထားသော သောက်သုံးရေစံနှုန်းများနှင့် ကိုက်ညီမှုရှိပါသည်။ ထို့ကြောင့် စက်ရုံပတ်ဝန်းကျင်မှရရှိသော တွင်းရေသည် သောက်သုံးရေအတွက်ပါ အသုံးပြုနိုင်ကြောင်းတွေ့ရှိရသည်။

(c) ၂၀၁၄ ခုနှစ်၊ မတ်လတွင် "လယ်ယာစိုက်ပျိုးရေးနှင့်ဆည်မြောင်းပန်ကြီးဌာနမှထုတ်ပြန်ထားသော မြန်မာနိုင်ငံတွင် တွေ့ရှိရသော မြေအမျိုးအစားများနှင့် မြေအမျိုးအစားများ၏လက္ခဏာများ" အရ စက်ရုံတည်ရှိသော မြေအမျိုးအစားမှာ လယ်မြေအမျိုးအစားဖြစ်ပါသည်။

(စ) အဆိုပြုစီမံကိန်းဖြစ်သည့် ရာစိန်ဖိနပ်စက်ရုံသည် မြို့ပြနှင့်စက်မှုဇုန်အနီးတစ်ဝိုက်တွင် တည်ဆောက်ထားသောကြောင့် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် သိသာထင်ရှားသောအပင်နှင့်သားရဲတိရစ္ဆာန်များမရှိကြောင်း တွေ့ရှိရသည်။ လက်ရှိအချိန်တွင် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် မြို့ပြဖွံ့ဖြိုးတိုးတက်မှုကြောင့် လမ်းမတစ်လျှောက် စိုက်ပျိုးထားသောသစ်ပင်များနှင့် အခြားအပင်ငယ်များသာ ရှိပါသည်။

(ဆ) ထို့ပြင်၊အနီးပတ်ဝန်းကျင်၏ (၁၀)ကီလိုမီတာပတ်လည်တွင် ရန်ကုန်အပြည်ပြည်ဆိုင်ရာလေဆိပ်နှင့် မြို့တော်ဂေါက်ကွင်းများမှအပ အခြားထိခိုက်ပျက်စီးလွယ်သည့်ဂေဟစနစ်များ မရှိကြောင်းတွေ့ရှိရသည်။

(ဇ) စီမံကိန်းတည်ရှိသည့်မြို့နယ်တွင် အဓိကအားဖြင့် လူနေအိမ်၊ စိုက်ပျိုးမြေနေရာ၊ လမ်းပန်းဆက်သွယ်ရေးနှင့် စီးပွားရေးနယ်မြေဟူ၍ မြေအသုံးချသည့်အမျိုးအစား(၄)မျိုး ခွဲခြားထား ပါသည်။ ဒဂုံမြို့သစ် (အရှေ့ပိုင်း)မြို့နယ်၏ စုစုပေါင်းမြေဧက (၂၂၄၉၅) တွင် မြို့ပြနှင့်တည်ဆောက်ရေးအတွက် ၆၅%ကျော်၊ စိုက်ပျိုးမြေ ၈.၁၄% ခန့်၊ မြေလွတ်ဇရိယာ ၄.၆၂%၊ ကျေးလက်ဒေသအတွက် ၂.၁၄%၊ စက်မှုဇုန် ၀.၅၈%၊ နှင့် အခြားမြေအသုံးချမှုများအတွက် ၁၉.၄၇% ကျော် ဖြစ်ပါသည်။

(ဈ) ဖိနပ်စက်ရုံသည် ဒဂုံမြို့သစ်(အရှေ့ပိုင်း)မြို့နယ်၏ တောင်ဘက်ပိုင်းတွင်ရှိပြီး မြောက်ဘက်တွင် လှည်းကူးမြို့နယ်၊ အနောက်မြောက်ဘက်တွင် မြောက်ဒဂုံမြို့နယ်၊ နှင့် အရှေ့ဘက်တွင် တောင်ဒဂုံမြို့နယ်တို့နှင့်ထိစပ်လျက်ရှိပါသည်။ အဆိုပြုစီမံကိန်းသည် ဒဂုံမြို့သစ် စက်မှုဇုန်နယ်မြေတွင် တည်ရှိသောကြောင့် အနီးပတ်ဝန်းကျင်သည် လူများအခြေချနေထိုင်ခြင်းနှင့် စက်မှုကဏ္ဍဖွံ့ဖြိုးတိုးတက်သောနေရာဖြစ်ပါသည်။ သို့ဖြစ်၍၊ လူမှုစီးပွားရေးအခြေအနေသုံးသပ်ချက်များ သည် စက်မှုဇုန်နှင့် လူနေရပ်ကွက်များမှ ရရှိပါသည်။

(ည) ၂၀၁၉ ခုနှစ်၊ စက်တင်ဘာလ ဒေသဆိုင်ရာအချက်အလက်များအရ မြို့နယ်အတွင်းရှိ လူဦးရေမှာ ၁၇၂၇၇ ဦး နှင့် အိမ်ထောင်စုပေါင်း ၃၅၈၁၄ ရှိပါသည်။ မြို့နယ်အတွင်းရှိ ကျား/မ ဦးရေအချိုးမှာ ၁း၁.၁ ဖြစ်ပါသည်။ အများစုနေထိုင်သူမှာ ဗမာလူမျိုး(၉၄.၁၂%) နှင့် နိုင်ငံခြားအပါအဝင် အခြားလူမျိုး (၆%)ခန့် နေထိုင်ကြပါသည်။ စုစုပေါင်းနေထိုင်သူများအနက် အလုပ်လုပ်နိုင်သောလူဦးရေ ၁၃၄၈၈ ဦးရှိပြီး အလုပ်လက်မဲ့ရာခိုင်နှုန်း ၃.၈၆ ရှိပါသည်။ ဒေသခံနေထိုင်သူများ၏ အဓိကအသက်မွေးဝမ်းကြောင်း လုပ်ငန်းများမှာ အစိုးရဝန်ထမ်း၊ စက်ရုံအလုပ်သမား၊ ကုန်သည်၊ မွေးမြူရေးလုပ်ငန်း၊ စိုက်ပျိုးရေး နှင့် ကျပန်းအလုပ်သမား စသည်တို့ဖြစ်ပါ သည်။

၁.၃။ လုပ်ငန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုများနှင့် ထိခိုက်မှုလျော့ချရေးနည်းလမ်းများ

ထိခိုက်မှုနှုန်းများကို အမျိုးအစားလေးမျိုးခွဲ၍ အမှတ်ပေးစနစ်ဖြင့် ခွဲခြားသတ်မှတ်ပြီး အကဲဖြတ် တိုင်းတာရရှိပါသည်။ ပတ်ဝန်းကျင်အပေါ် ထိခိုက်သက်ရောက်မှုများအား အကဲဖြတ်ရရှိမှုများကို အောက်ပါဇယားတွင် ဖော်ပြထားပါသည်။

ရမှတ်	ထိခိုက်နိုင်သည့် အတိုင်းအတာ	အချိန်ကာလ	ပမာဏ	ဖြစ်နိုင်စွမ်း
၁	တိုက်ရိုက်ထိခိုက်မည့်ဖုံ (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 လူမှု စီးပွားရေးအပေါ် သက်ရောက်မှုရှိခြင်း	အလယ် အလတ်
၃	လုပ်ငန်းတည်နေရာမှစ၍ စကေးကျယ်ပြန့်စွာ ထိခိုက်မှု ရှိခြင်း	ကာလရှည် - ထိခိုက်မှုသည် လုပ်ငန်းတည် ဆောက်ပြီးကာလ နောက် ပိုင်း (သို့မဟုတ်) လုပ်ငန်းလည် ပတ်ဆဲကာလ ပြီးနောက် နှစ်တော်တော် များများ ဆက်လက်ထိခိုက် နေခြင်း	မြင့် - သဘာဝပတ်ဝန်းကျင်ဆိုင် ရာ လုပ်ဆောင်ချက်ပြောင်း လဲမှုများကြောင့် လူမှုစီးပွား ရေး အခြေအနေ ပြင်းထန် စွာ ထိခိုက်ခြင်း၊ စဉ်ဆက် မပြတ် ထိခိုက်ခြင်း	မြင့်

အဓိကဖြစ်ပေါ်နိုင်သောထိခိုက်မှုများ၏ ရလဒ်ပေါ်မူတည်၍ အဆင့်သတ်မှတ်ချက်ကို အောက်ပါ အတိုင်း ဖော်ပြနိုင်ပါသည်။

အဆင့်သတ်မှတ်ချက် = (ထိခိုက်နိုင်သည့်အတိုင်းအတာ + အချိန်ကာလ + ဖြစ်နိုင်စွမ်း) x ပမာဏ

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

စီမံကိန်းလည်ပတ်သည့်ကာလ		
စဉ်	စိစစ်သည့် အဓိကအချက်များ	အဆင့်သတ်မှတ်ချက်
ရုပ်ဖြဴနှင့် ဓာတုဗေဒဆိုင်ရာ ထိခိုက်မှု		
၁	မျက်နှာပြင်ရေအရည်အသွေး ပြောင်းလဲမှု	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	ဒေသအတွင်း အသက်မွေးဝမ်း ကျောင်းအခွင့်အလမ်းများ၊ဝင်ငွေနှင့် လုပ်အားခများပြောင်းလဲခြင်း	မြင့်
၆	ဒေသအတွင်း ကုန်သွယ်စီးပွား ဝင်ငွေ /အခွင့်အလမ်းများပြောင်းလဲခြင်း	အလယ်အလတ်
၇	မျက်စိပသာဒနရှိမှုများ ပြောင်းလဲခြင်း	အလယ်အလတ်
၈	လူနေအဆောက်အဦ/ ဆက်သွယ်ရေးအရင်းအမြစ်များ ပြောင်းလဲခြင်း	အလယ်အလတ်

မှတ်ချက် ။ ဇယားတွင်ဖော်ပြထားသောထိခိုက်မှုဇယားတွင် အစိမ်းရောင်အကွက်ခြယ်ထားသော သင့်လျော်ကောင်းမွန်သောသက်ရောက်ထိခိုက်မှုများမှအပ ကျန်ရှိသောထိခိုက်မှုများသည် စိမ်ကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သော အဓိကထိခိုက်မှုများဖြစ်ပါသည်။

အထက်တွင်ဖော်ပြထားသော ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများသည် ဖိနပ်ထုတ်လုပ်ခြင်းလုပ်ငန်းများအတွက် ကျန်းမာရေးနှင့်ညီညွတ်၍ လုံခြုံစိတ်ချရသော လုပ်ငန်းခွင်ဖြစ်စေရေးအတွက် ပတ်ဝန်းကျင်ဆိုင်ရာလုပ်ထုံးလုပ်နည်းများကို အခြေခံထားပါသည်။

စီမံကိန်းလည်ပတ်သည့်ကာလအတွင်း ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများမှာ -

- စွန့်ပစ်သည့်နေရာ/သိုလှောင်သည့်နေရာအနီးရှိရေနွေးတောင်များကို ပုံမှန်ရှင်းလင်းပေးရန်။
- စက်ရုံအတွင်း/အပြင် သန့်ရှင်းသပ်ရပ်မှုရှိစေရန်နှင့် ဖုန်/အမှိုက်မရှိစေရန်။
- စက်ရုံအတွင်း ကျန်းမာရေးနှင့် လုံခြုံရေးအတွက်လုပ်ရိုးလုပ်စဉ်များထားရှိပေးရန်။
- အလုပ်သမားများ၏ ကျန်းမာရေးအတွက် လေကောင်းလေသန့်နှင့် အလင်းရောင်ရရှိမှု ကောင်းမွန်သော အလုပ်ခွင်နေရာ၊ သန့်ရှင်းသောသောက်သုံးရေ၊ သန့်ရှင်းသပ်ရပ်သော ကျန်းမာရေးနှင့် ပတ်သက်သည့် အခြားဂန်ဆောင်မှုများထောက်ပံ့ပေးရန်။
- ပတ်ဂန်းကျင်နှင့်ပတ်သက်၍ 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။

၁.၄။ စီမံကိန်းနှင့်ပတ်သက်သည့် ပုဂ္ဂိုလ်များနှင့်တွေ့ဆုံမေးမြန်းမှု အကျဉ်းချုပ်

- မိန်ချိန်း(မြန်မာ)ဖိနပ်လုပ်ငန်းကုမ္ပဏီလီမိတက်သည် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်၏ လုပ်ထုံးလုပ်နည်းများနှင့် စည်းမျဉ်းစည်းကမ်းများ နှင့် မြန်မာအစိုးရမှ ဖိနပ်ထုတ်လုပ်သည့် လုပ်ငန်းများအတွက် ထုတ်ပြန်ကြေညာထားသော အမိန့်များအတိုင်း လိုက်နာဆောင်ရွက်သွား မည်ဖြစ်ပါသည်။

- အဓိကအားဖြင့် အားကစားဖိနပ်နှင့် ကလေးစီးဖိနပ်အမျိုးမျိုးကို ချုပ်လုပ်ပါသည်။ ကုန်ကြမ်းပစ္စည်းများဖြစ်သော သားရေ၊ ကော်အမျိုးမျိုး၊ ပိတ်သား စသည်တို့ကို နိုင်ငံခြားမှ တင်သွင်းပြီး ချုပ်လုပ်ပြီးသော ထုတ်ကုန်များကို နိုင်ငံခြားသို့ တင်ပို့ပါသည်။

- စက်ရုံဆေးပေးခန်းတွင် အလုပ်ချိန်တစ်လျှောက် ဂန်ထမ်းများနှင့်အလုပ်သမားများ၏ ကျန်းမာရေးစောင့်ရှောက်ရန် ဆရာဂန်တစ်ဦးနှင့် အချိန်ပြည့်သူနာပြုဆရာမတစ်ဦးထားရှိပါသည်။ ဖိနပ်စက်ရုံတွင် နိုင်ငံခြားကျွမ်းကျင်ပညာရှင်(၇)ဦးနှင့် အလုပ်သမား စုစုပေါင်းဦးရေ(၂၅၃၃)ခန့်ဖြင့် လည်ပတ်လျက်ရှိပါသည်။ နိုင်ငံခြားသားပညာရှင်များကို စက်ရုံအတွင်းရှိအဆောင်တွင် နေထိုင်ခွင့်ပေးပြီး အလုပ်သမားများသည် အနီးပတ်ဂန်းကျင်ရှိ မြို့နယ်များမှဖြစ်ပါသည်။

- လက်ရှိစက်ရုံသည် အော်ဒါမှာသောဒီဇိုင်းအတိုင်း ပုံစံဖြတ်ခြင်း၊ ကော်ကပ်ခြင်း၊ စက်ချုပ်ခြင်း ဖြစ်ပါသည်။ စက်ရုံစွန့်ထုတ်အမှိုက်များကို အမှိုက်ကန်သီးသန့်ထား၍ ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးကော်မတီနှင့်ချိတ်ဆက်လျက် စွန့်ပစ်ပါသည်။

- အဂီစိတွင်း (၂)တွင်းမှ တူးဖော်ရရှိသောတွင်းရေများကို (Reverse Osmosis System) ရေသန့်စက်ဖြင့် သန့်စင်စေပြီးမှ စက်ရုံတစ်ဂန်းတွင် လိုအပ်သလို အသုံးပြုနိုင်ရန် ဖြန့်ဝေပေးပါသည်။
- မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် စက်ရုံအတွင်း မတော်တဆထိခိုက်မှုဖြစ်စဉ်များအတွက် အရေးပေါ်ကြိုတင်ကာကွယ်မှုများ ထားရှိပါသည်။
- ဖိနပ်စက်ရုံသည် ဌာနစိတ်(၇)ခွဲ၍ လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။

  (က) ကော်အမျိုးမျိုးသိုလှောင်ခန်း ။ ဖိနပ်ချုပ်လုပ်ရန်အတွက် အသုံးပြုသော ကော်အမျိုးမျိုးကို သီးသန့်သိုလှောင်သည့်အခန်းဖြစ်ပါသည်။ ကော်များကိုင်တွယ်မည့်အလုပ်သမားများအတွက် လိုက်နာရမည့် သတိပေးစည်းမျဉ်းစည်းကမ်းများလည်း အခန်းနံရံများတွင် ကပ်ထားပါသည်။

  (ခ) ကုန်ကြမ်းပစ္စည်းသိုလှောင်ခန်း ။ ပိတ်စ၊သားရေ စသည်တို့ကို သတ်မှတ်ထားသော အပူချိန်ထိန်းညှိပေးခြင်းဖြင့် စနစ်တကျသိုလှောင်သည့် နေရာဖြစ်ပါသည်။

  (ဂ) အဆင့်သုံးမျိုးလုပ်သည့်ဌာန ။ ဖိနပ်ချုပ်လုပ်ခြင်း၏အစိတ်အပိုင်းဖြစ်သော ကော်ကပ်ခြင်း၊ အပူပေးခြင်းနှင့် ဖိစက်ဖြင့်ပုံသွင်းခြင်းစသည်တို့ ပြုလုပ်ရသည့်နေရာဖြစ်ပါသည်။

  (ဃ) အချောသတ်ချုပ်လုပ်သည့်ဌာန ။ ဤဌာနတွင် ချုပ်လုပ်ပြီးသောဖိနပ်များကို လိုချင်သောဒီဇိုင်းအတိုင်းဖြစ်အောင် ဖိနပ်၏အပိုင်းအစများကို အချောသတ်ချုပ်လုပ်ခြင်း၊ တံဆိပ်နှိပ်ခြင်းနှင့် ထုတ်ပိုးခြင်းများပြုလုပ်သောဌာနဖြစ်သည်။

  (င) အရည်အသွေးစစ်ဌာန ။ ဌာနစိတ်အသီးသီး၏ ထုတ်လုပ်မှုအဆင့်တိုင်းတွင် အရည်အသွေးစစ်ဆေးသည့်အဖွဲ့ရှိပါသည်။ ဤဌာနတွင်မူ၊ ထုတ်ကုန်များ၏အရည်အသွေးကို နောက်ဆုံးအဆင့်ထုတ်ပိုးခြင်းမပြုမီ စစ်ဆေးရသောနေရာဖြစ်သည်။

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

၁.၅။ သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်

သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ် ပြီးမြောက်စေရန်အတွက် အဆိုပြုစီမံကိန်းတင် သွင်းသူနှင့် ဆောက်လုပ်ရေးပိုင်းဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မည့်သူများမှ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်ဖြစ်မြောက်ရေးအဖွဲ့အား ဖွဲ့စည်းရမည် ဖြစ်ပါသည်။

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

လေ့လာတွေ့ရှိရသော ပတ်ဝန်းကျင်ထိခိုက်မှုများအတွက် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်များမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

၁။ ရေအရည်အသွေးစီမံခန့်ခွဲမှု၊ မြေအောက်ရေထိန်းသိမ်းမှုနှင့် သန့်ရှင်းသောသောက်သုံးရေ ရရှိရေး အစီအစဉ်
၂။ ရေနွတ်မြောင်းပုံစံ စီမံခန့်ခွဲမှုအစီအစဉ်
၃။ လေထုအရည်အသွေး စီမံခန့်ခွဲမှုအစီအစဉ်
၄။ စွန့်ပစ်အညစ်အကြေးများ စီမံခန့်ခွဲမှုအစီအစဉ်
၅။ ယာဉ်လမ်းကြော စီမံခန့်ခွဲမှုအစီအစဉ်
၆။ အများပြည်သူများနှင့်တွေ့ဆုံမှု နှင့် ဖွဲ့ဖြိုးတိုးတက်စေရေးအစီအစဉ်
၇။ လုပ်ငန်းခွင် လုံခြုံရေးနှင့် ကျန်းမာရေးအစီအစဉ်
၈။ အရေးပေါ်ကယ်ဆယ်ရေးအစီအစဉ်
၉။ အသင်းအဖွဲ့၏လူမှုရေး တာဝန်ခံမှု
၁၀။ ပြန်လည်ပြုပြင်မွမ်းမံခြင်း အစီအစဉ်
၁၁။ ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုခြင်း အစီအစဉ်

အထက်တွင်ဖော်ပြထားသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်ခွဲများကို အောက်တွင် ဖော်ပြထားသည့်ကဏ္ဍအလိုက် 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 စမ်းသပ်မှုပြုလုပ်သည့် နေရာများ
- 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 လျော့ချရမည်ဖြစ်ပါသည်။

2. PROJECT DESCRIPTION

2.1 Project Background

The Project Proponent "Mingcheng (Myanmar) Footwear Co., Ltd." has leased the land and building premises at Land No. 47, Land Survey Area No. (112), Industrial Zone, Dagon Myothit (East) Township, Yangon Region to produce footwear, mostly children and ladies shoes by CMP (Cut-Manufacture-Pack) system with manufacturing by client-ordered design.[8]

Infrastructures at project site are (100% completed):

- **Factory** (470ft x 120ft) three storey Industrial type steel structure with reinforced concrete filled concrete block short columns and a trough profile long runoff roof;
- **Administrative and Dormitory Building** (80ft x 35ft) four storey industrial type structure with reinforced concrete filled concrete block short columns with water treatment tanks at the roof top;
- **Security and Clinic** (38mx15m) one storey brick nogging building.
- **Structure for staff / meals:** (100' x 25') Staff Hall Shed.

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 2.465 acres (9975.51 square meters).

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

Table 1: Raw Materials List of Mingcheng Footwear Manufacturing Project

Sr.No	Particulars	Units
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 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.	kg

[8] *Appendix A: Land Acquisition by Proponent from U Than Soe for industrial work at 50 years lease contract for No. 47, Plot No (112), Min Ye Kyaw Swar Street, Dagon Myothit (East) Industrial Zone, Dagon Myothit Township, Yangon Region, 18th December, 2020.*

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

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.

2.2.1 Project Detail[9]

Project Site: Land No. 47, Land Survey Area No. (112), Industrial Zone, Dagon Myothit (East) Township, Yangon Region

Project Proponent: Mingcheng (Myanmar) Footwear Co., Ltd.

Description of Project: Footwear Manufacturing Project

Project Site Area: 2.465 acres

Project Investment: 4.54 Million USD (100% Foreign Investment Company Mingcheng (Myanmar) Footwear Co., Ltd.)

Land Acquisition[10]: Land leased agreement with U Than Soe for 2.465 acres and the rent for the land lease is US $30026.00 per annum (US $ 3.01 per square meter per annum) for (50) year + (10) years (extendable two times)

Project Completion: Completion of Construction Phase is 100%

[9] *Appendix D: Project Proponent's Document*

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

Project Water Supply: Tube well water, treated by RO treatment Plant for domestic water consumption

Electrical Power Supply: National Grid (Transformer) 360 KVA), 2 Generators

Solid Waste Disposal: Production wastes (dry and wet wastes) are separated into two (18'x7'x3') waste mason ponds, and collected by Local Municipality once a week to dispose to relevant landfill site.

2.2 Project Implementation Program

The construction and installation of the project infrastructures including warehouse, dormitory, factory and offices, and staff /security offices are in its construction phase. Now the plant runs about with 253 employees. Training, Emergency Preparedness Plan and Fire Protection Equipment are being supplied and carried out systematically.

2.2.1 Installations, Technology, Infrastructure

The installation of factory machineries and the construction of dormitory, administrative building, health clinic and security house are accomplished by the proponent with local labors. Construction of canteen for employee is in planning stage.

2.2.2 Proponent Information

The project proponent "Mingcheng (Myanmar) Footwear Co., Ltd." has signed land leased agreement with U Than Soe for 2.465 acres and the rent for the land lease is US $30026.00 for (50) year + (10) years (extendable two times).

Director : Mr. Gao Zhi Yu

Administration Manager : Daw Moet Moet Naing Kyaw

Address : Land No. 47, Land Survey Area No. (112), Industrial Zone, Dagon Myothit (East) Township, Yangon Region

Mobile : +95 9 760901068

Email : hlahlaaye@stl-myanmar.com

2.2.3 Investment Plan

The project investment is 4.54 million US Dollars (100% foreign investment).

2.3 Identification of EMP Experts from third party NEPS

Table 2: 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)				
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
U Kyaw Win	0035	NEPS	01 8562407	Health Assessment, Waste Management, Risk Analysis along supply chains
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

Location Map of Proposed Project Area (Footwear Production Factory)
Dagonmyothit(East) Township, Yangon

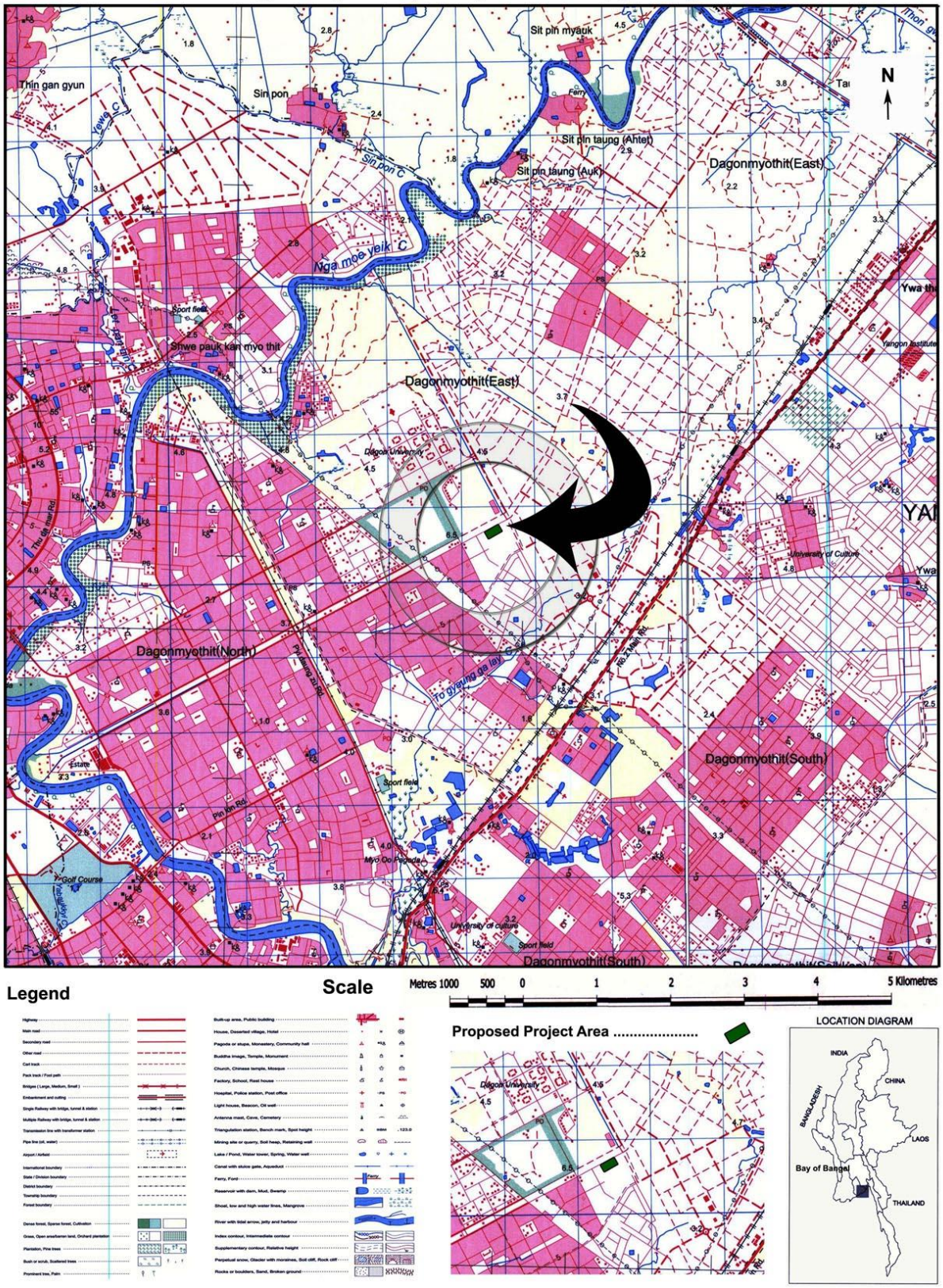


Figure 1: Location Map of Project Area

Figure2: Satellite Location of Project Area

Figure 3: Satellite Image of Project Site and Surrounding Area

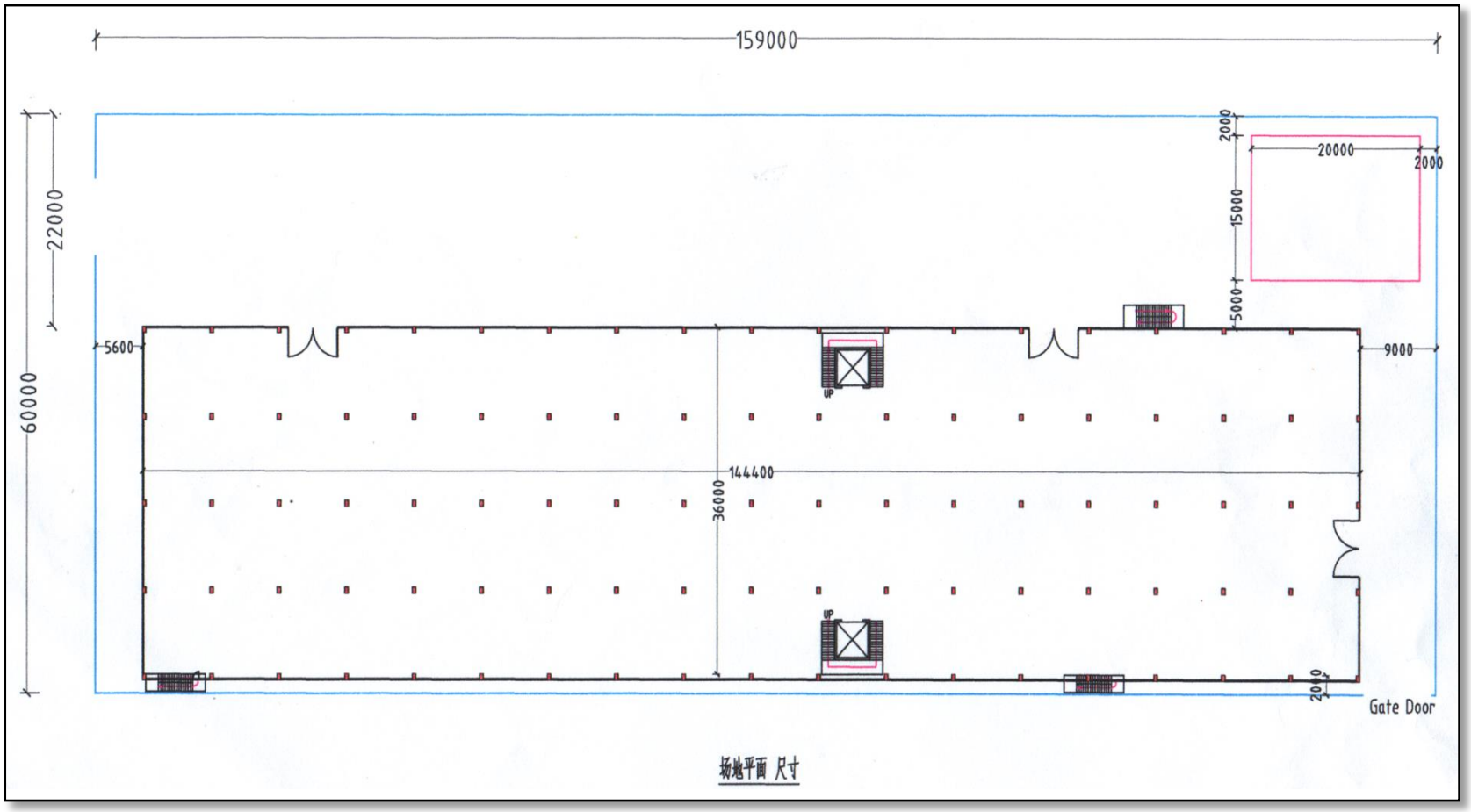


Figure 4: Factory Layout Plan

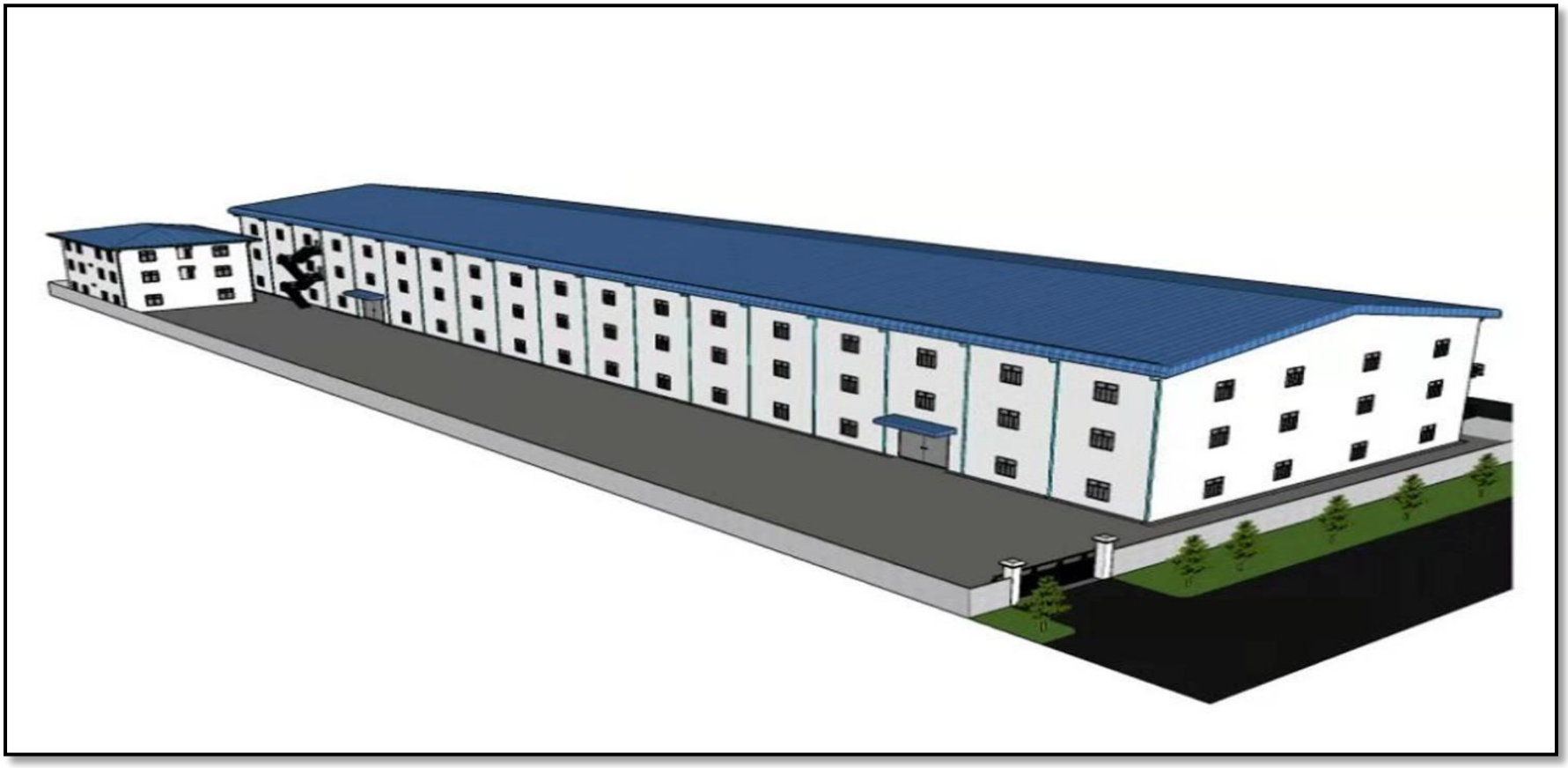


Figure 5: Factory Buildings Designs in the project area

Figure 6: All Buildings in the project area

Figure 7: Fire Water Pump Area

Figure 8: Mingcheng (Myanmar) RO Water Treatment Plant on site

Figure 9: Mingcheng (Myanmar) Drainage System

Figure 10: Finished Products General

3. HEALTH POLICIES AND COMMITMENTS, LEGAL AND INSTITUTIONAL ARRANGEMENTS

3.1 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.

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

Mingcheng (Myanmar) 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 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 – Mingcheng (Myanmar) Footwear Co., Ltd shall have to abide by the Fire Services Department`s rules, regulations, directives and instructions by having factory buildings with Reinforced Concretes and also by having enough fire prevention applications. There will also be under ground water tanks with emergency water pump and fire hoses at standby position.

The fire safety officer to have the Fire Drill Instructions posted at every section of the factory and to provide training to use the fire safety equipment and fire safety procedures.

C. CSR Fund

Mingcheng (Myanmar) Footwear Co., Ltd, shall use 2% of annual net profit be appointed as CSR fund from the commencing year of our business. The amount

should be contributed in factors tentatively as an example like; 0.5% per year in education; 0.5% per year in employees' health care and 1% per year in non-profit training.

The project is being implemented with authorization from the following National Policy and Legislation Government Departments[11].

Myanmar has developed a Goals and Policies to uplift the country's economy in all aspects. The relevant policies are described in below and the Project Proponent commits to support to meet these goals.

1. The National Environment Policy, 2019
2. Myanmar Climate Change Policy, 2019
3. The Constitution of the Republic of the Union of Myanmar, 2008

3.2 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. 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. The Protection and Preservation of Antique Objects Law (2015)
11. The Protection and Preservation of Ancient Monument Law (2015)
12. Myanmar Fire Force Law, 2015
13. Prevention from Danger of Hazardous Chemical and Associated Material Law (2013)
14. Myanmar Insurance Law (1993)
15. The Law on Standardization (2014)

[11] *Appendix A of this Report*

16. Motor Vehicle Law (2015)
17. Public Health Law (1972)
18. The Protection and Prevention of Communicable Disease Law, 1995
19. The Control of Smoking and Consumption of Tobacco Product Law, 2006
20. Employment and skill development law (2013)
21. The Settlement of Labour Dispute Law (2012)
22. The Workmen Compensation Act, 1923 (amend 2005)
23. Labour Organization Law (2011)
24. Minimum Wages Law (2013)
25. Payment of Wages Law (2016)
26. Social Security Law (2012)
27. Law Protecting Ethnic Right (2015)
28. Monogamy Law (2015)
29. Buddhist Women special Marriage Law (2015)
30. Religious Conservation Law (2015)
31. Population Control Healthcare Law (2015)
32. Leaves and Holiday Act (1951)
33. Occupational Safety and Health, 2019

3.3 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 General EHS Guidelines: Introduction, or other similar organizations such as International Programme on the Elimination of Child Labour (IPEC) from ILO (International Labour Office).

3.3.1 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	*Not relevant to the Project as the*	*Accession 16th Sep 1998 (Vienna) &*	*The Project commits not*

Legislation	Relevance	Ratification Status (in Myanmar)	Project Compliance
the Ozone Layer 1988 and Montreal Protocol on Substances that Deplete the Ozone Layer 1989	*Project will not use any ozone depleting substances.*	*Accession 24th Nov 1993 (Montreal)*	*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*

3.4 Proponent's contractual and other 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:

- The Project Proponent will comply with commitments, mitigation measures and management plans stated in this EMP report.
- 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.

- Support programs for livelihood restoration and resettlement in consultation with the PAPs, related government agencies, and organizations and other concerned persons for all Adverse Impacts.
- 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.
- 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.
- Respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union;
- 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;
- 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 departments and governmental organizations, or to carry out registration;
- Immediately inform the Commission if it is found that natural mineral resources or antique objects and treasure trove not related to the investment permitted above and under the land on which the investor is entitled to lease or use and not included in the original contracts.
- 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;
- 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;
- 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;
- 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;

- 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;
- Have the right to sue and to be sued in accordance with the laws;
- Pay effective compensation for loss incurred to the victim, if there is damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a Permit or an Endorsement.
- 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.
- Ensure that all foreign employees apply for the proper work permit and visa through the Myanmar Investment Commission (MIC).
- Provide rights and benefits including but not limited to, leave, holidays, overtime pay, compensation and social security. Most of 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.

3.5 Proponent's Environmental and Social Standards

MONREC has established environmental quality standards, the National Environmental Quality Emission Guidelines (2015) (NEQEG). The NEQEG provide the basis for regulation and control of noise and air emissions and effluent discharges from projects in order to prevent pollution and protect the environment and public health.

The Project Proponent will implement the project by complying as per NEQEG for all phases (construction, operation, disclosure and post-disclosure) where applicable.

In NEQEG guideline, there prescribe the limit for Tanning and Leather Finishing (2.3.2.2) in Garments, Textile and Leather Products (2.3.2). This guideline applies to textile manufacturing using natural fibers (made entirely from chemicals), and regenerated fibers (made from natural materials by processing these materials to form a fiber structure). It does not include polymer synthesis and natural raw material production.

4. DESCRIPTION OF THE ENVIRONMENT

4.1 Climate and Hydrology

The project area is located at Land No. 47, Land Survey Area No. (112), Industrial Zone, Dagon Myothit (East) Township, Yangon Region which is lying at Longitudes 96°13' 15" E and Latitides 16° 54' 13" N; having subtropical climate; hot and humid weather with recorded maximum temperature of 36°C and recorded minimum temperature of 22°C.

The project area lied in Dagon Myothit (East) township which is 11 miles away from the East of Yangon. It shares borders with Hlegu Township in the north, North- Dagon Township in the South- west, South Dagon Township in the east. Therefore, its 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.

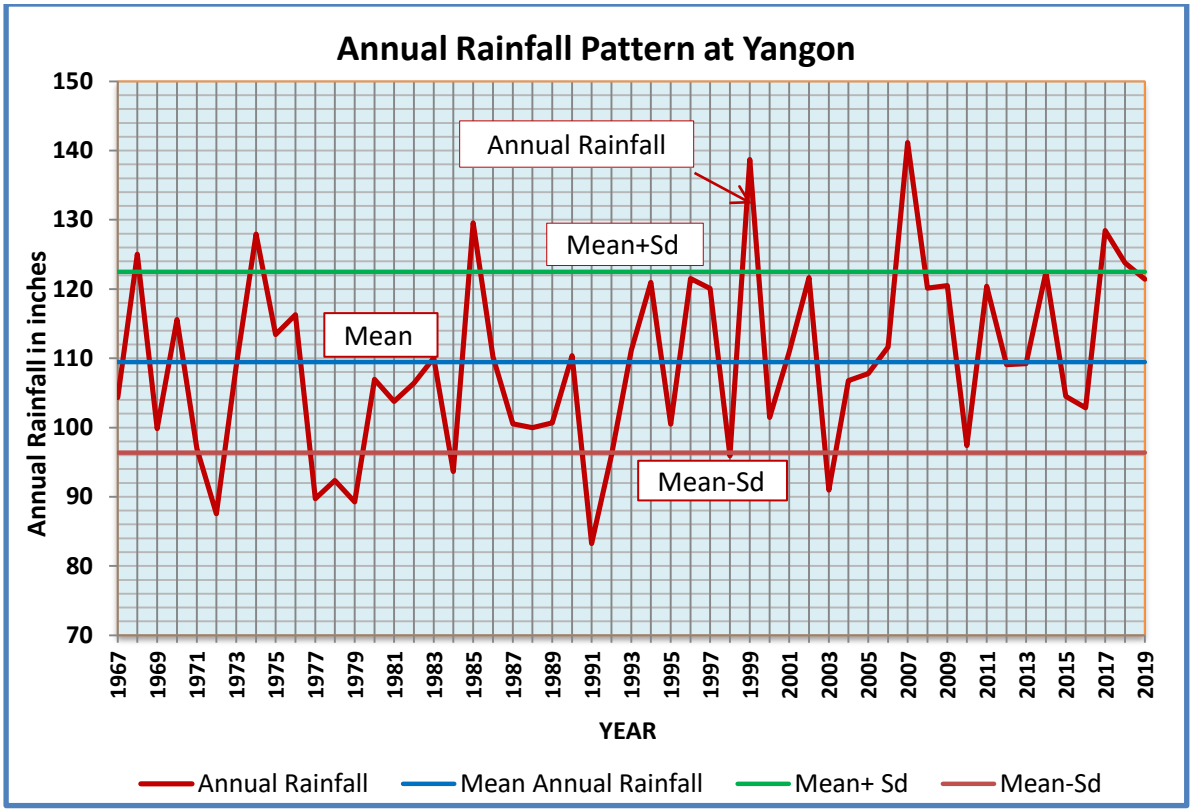
4.1.1 Rainfall and Temperature

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

Sr.No	Year	Rainy Days	Total Rainfall (inches)
1	2016	101	138.85
2	2017	113	134.35
3	2018	115	125.24
4	2019	74	108.21

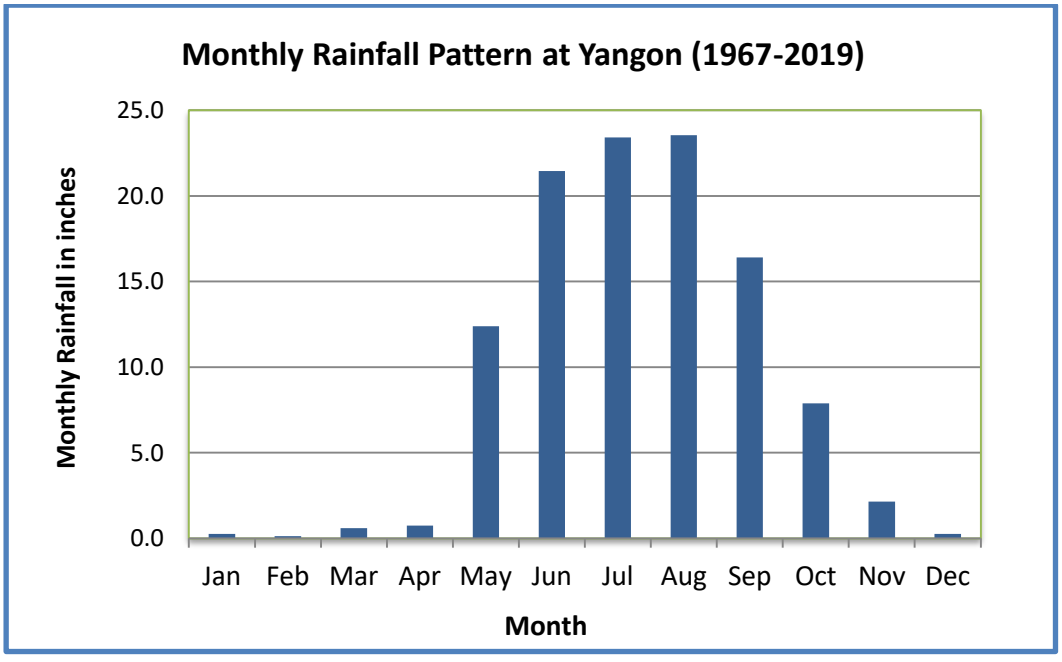
Table 5: Mean Monthly Rainfall in millimeter at Yangon (Mean Year, Wet Year, Dry Year)

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*



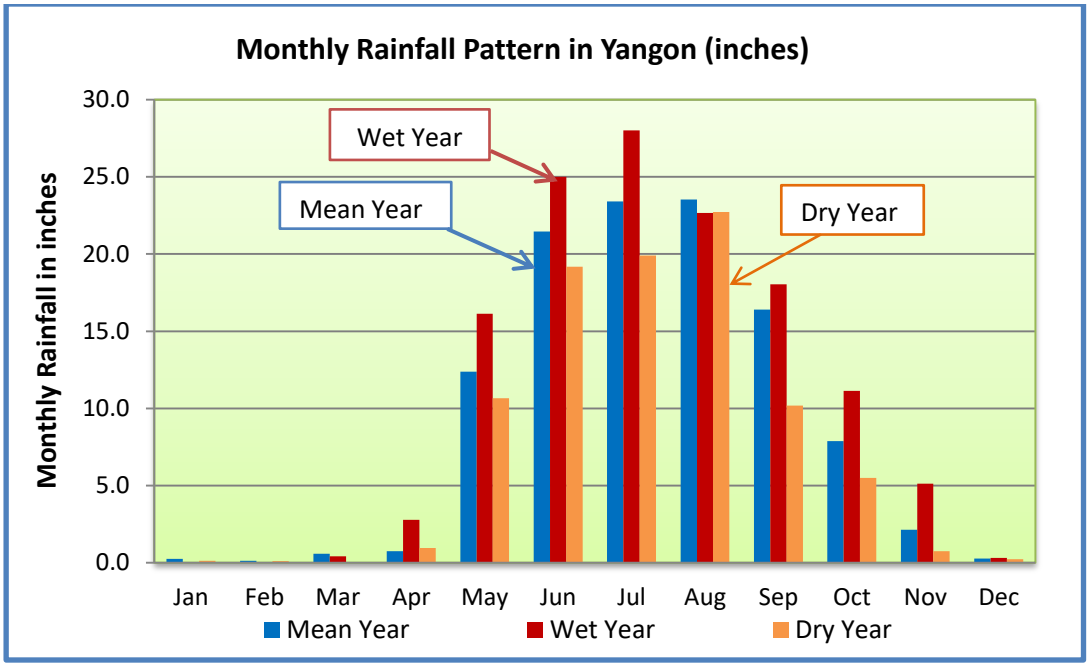
Source: Meteorological and Hydrological Department

Figure 11: Annual Rainfall Pattern at Yangon (1967-2019)



Source: Meteorological and Hydrological Department

Figure 12: Mean Monthly Rainfall Pattern at Yangon (1967-2018)

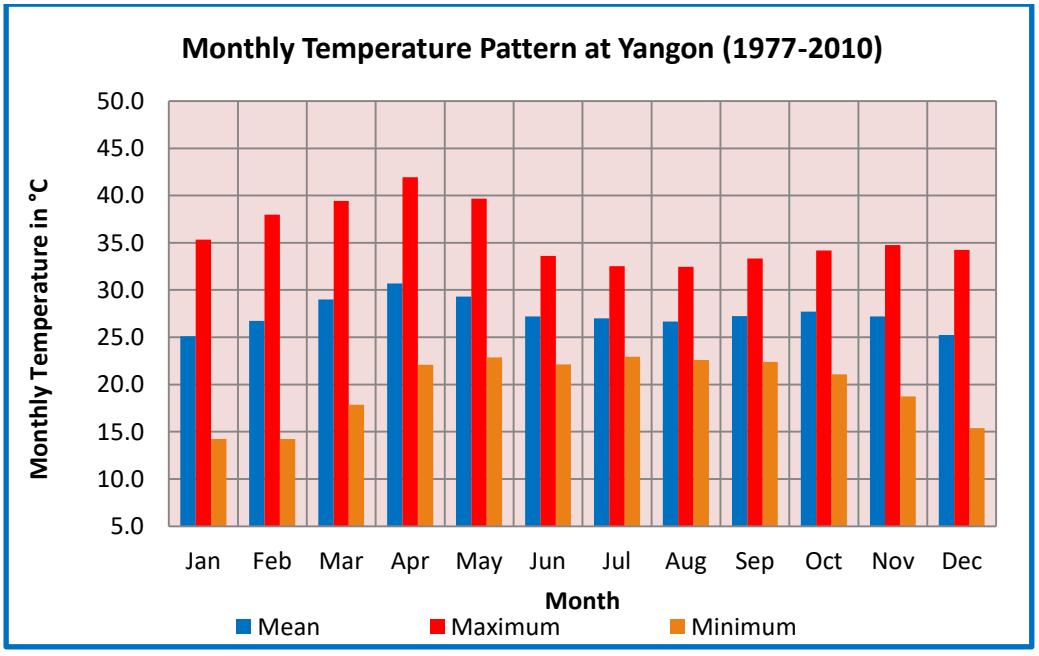


Source: Meteorological and Hydrological Department

Figure 13: Monthly Rainfall Pattern at Yangon (Mean, Wet and Dry Year)

Table 6: Monthly Mean, Maximum and Minimum Temperature 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

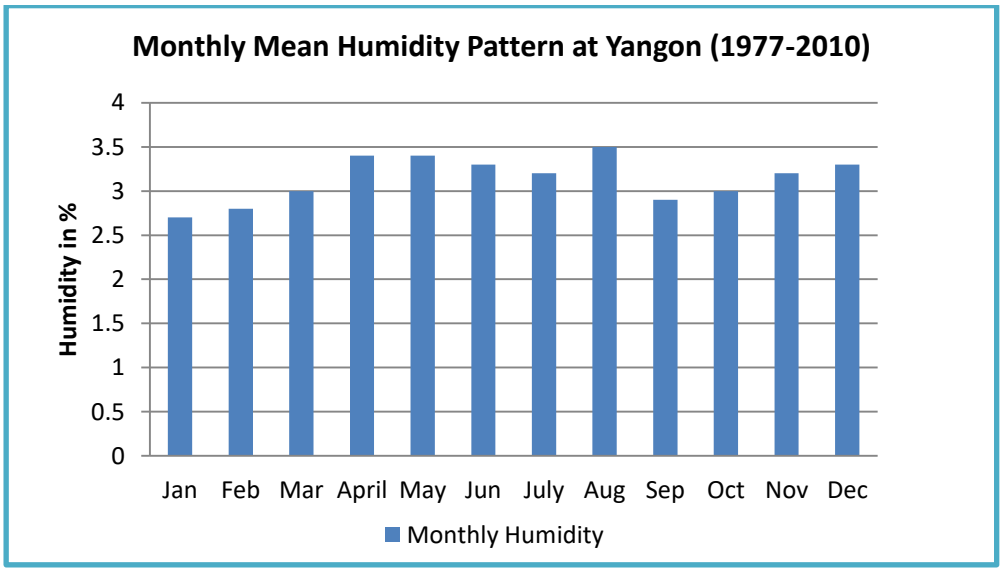


Source: Meteorological and Hydrological Department

Figure 14: Monthly Temperature Pattern at Yangon

Table 7: Monthly Mean Relative Humidity 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

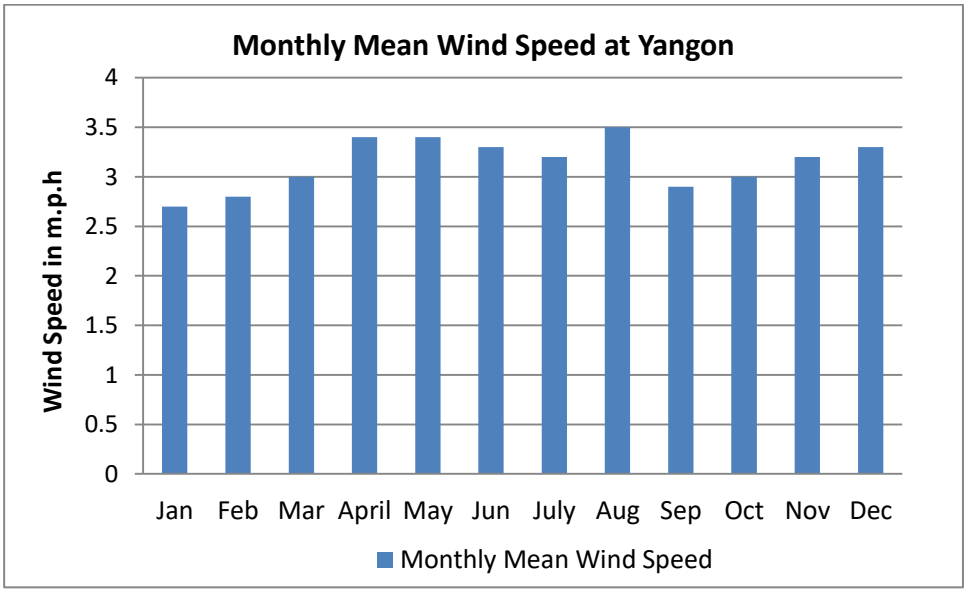


Source: Meteorological and Hydrological Department

Figure 15: Monthly Humidity Pattern at Yangon (1977-2010)

Table 8: Monthly Mean Wind Speed (m.p.h) and Direction (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 16: Monthly Mean Wind Speed at Yangon (1977-2010)

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

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

The baseline environmental data generation has been done during February 2021. 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	None	Royal Mingalardon Golf & Country Club Myanmar Golf Course Okkalapa Golf Course Yangon International Airport
B	Reserved /Protected Forests	None	None	None
C	Wetland of state and national interest	None	None	None
D	Migratory route for wild animals	None	None	None
E	Migratory routes for birds	None	None	None
F	Presence of Terrestrial Fauna	None	None	None
G	Presence of Aquatic Fauna	None	None	None
H	Tree cover	Yes: General road side plantation	Yes: General road side plantation	Yes: General road side plantation
2.	**Physical Environment**			

I	Road connectivity	The site is well connected by roads. It is situated closed to Min Ye Kyaw Swar Road.	No.2 Main Road	No.2 Main Road
J	Rail connectivity	The site is well connected by rails. About 1km north of the site, Dagon University Station is situated.		
K	Defense Installation	None	None	None
L	Densely Populated Area/ Industrial Area	None	East Dagon Industries Zone	Hlegu Township North Dagon Township South Dagon Township
M	Topography	Mainly flat with ground elevation ranging around 30 feet above mean sea level	Mainly flat with ground elevation ranging around 30 feet above mean sea level	Mainly flat with ground elevation ranging around 30 feet above mean sea level
N	Seismicity	Low magnitude	Low magnitude	Low magnitude
P	Surface Water Resources (Rivers)	None	Ngamoeyeik Creek is running through north to south direction.	Yangon River is flowing from north to south direction.
Q	Groundwater	The groundwater resources found below the natural ground surface of the project site. According to key format interview, the tube well water is used for domestic purpose by applying R.O Water Treatment.		
R	Soil and Land Used [12]	Meadow & Meadow alluvial soil Land use in 500 m of site is under road, industrial use and settlements.	Meadow & Meadow alluvial soil Land use in 2 km area of site is under road, industrial use, and settlements.	Lateritic Soils 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, University, Hospital)	Yes (Temples, Schools, University, Hospital)
U	Archaeological Monuments	None	None	None

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

Meteorology: Climate of the project area is subtropical climate; hot and humid weather with maximum temperature of 36°C and minimum temperature of 22°C. During the rainy season, the rainy days last consecutively for 74-115 days. Annual rainfall over the area averages 3217.23mm (126.66 inches) during the past four year. Most rainfall in Yangon results from tropical systems during the period of May and October. 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 48%.

Air Quality[13]: 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 5th February of 2021, using DIENMERNTM Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector. During the assessment, the average temperature was 28°C and relative humidity was 48%. The measured parameters are $PM_{1.0}$, PM_{10}, $PM_{2.5}$, TVOC, HCHO and CO_2. Measurements were recorded in the project area three times for each parameter with duration of 2-min interval between consecutive measurements. To reveal the existing status of baseline air quality, the average indoor air quality results were compared with Air Quality Index Guidelines by U.S Environmental Protection Agency (EPA) and OSHA (Occupational Safety and Health Administration). The air quality test results around the factory are within the permissible limit and in a safe range.

Noise Quality[14]: 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 a point was observed 70.2 dBA and 75.6 dBA during night time and day time respectively. 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 excessed the permissible limit, and for night time, it is found to be closed to the permissible limits as Myanmar National Standard (2015) for Industrial area.

Water Quality[15]: The water quality assessment for R.O water at the project site is done at ISO Tech Laboratory in September 2020. 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 of the selected chemical and physical parameters of water quality test result are within the limit ranges of WHO Standards. Among the parameters test, the color, phenolphthalein alkalinity, carbonate, sulphate, manganese, phosphate and methyl orange acidity ranges indicated nil. Therefore, the water quality assessment indicated that the water is suitable for drinking purposes or industrial uses.

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

[13] *Air Quality Analysis at the project site, Appendix E of this Report*
[14] *Noise Level Analysis at the project site, Appendix E-1 of this Report*
[15] *Water Quality Test Report at the project site, Appendix E-2 of this Report*

Myanmar, Ministry of Agriculture and Irrigation, March 2004, the soils of the project area are Meadow and Meadow alluvial soils which are prominent. About 10 km range of the project area; lateric soil type is also founded which is rich in iron oxide and derived from a wide variety of rocks weathering under strongly oxidizing and leaching conditions. 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.

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 Dagon Myothit (East) Township are da-nih, mangrove forest and other green trees along the road sides. 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: No sensitive ecosystem including national parks, wildlife sanctuaries, migratory routes of wildlife, Biosphere reserve, tiger reserve, elephant reserve, wetlands are present within 10 km distance of the project site.

Land use[16]: 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 a developing township, all of four main types of land uses; namely residential, agricultural, transportation and commercial, can be observed .Out of the total land use area of 22495 acres, more than 65% of of the total area of Dagon Myothit (East) Township covers urban and built-up area , 8.14% agriculture land and 4.62% of uncultivated land, 2.14% of rural area, 0.58% of industrial area, 4.62 % of uncultivated land and 19.47 % of other uses.

Socio-economic Data: The proposed site is located on the southern part of Dagon Myothit (East) Township, Yangon Region, Myanmar and the site is bordered by four townships namely: Hlegu Township in the north, North- Dagon Township in the South- west, South Dagon Township in the east. Since the project site is located closed to Dagon Myotthit Industrial Zone and Dagon University, there are also industries and human settlement around the environment and it is well connected with railways and roads. 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 172277 with total household of 35814. Male female ratio of the study area is 1:1.12

[16] *www.yangon.gov.mm, "East Dagon Myothit Township Data".*

as of 2019. The ethnicity of 94.12% is Burma and others make less than 6% including foreign. Out of the total population, the number of people who can work is 134080 and the unemployment rate is 3.86%. Main livelihoods are government services, industrial worker, merchant, services, livestock breeding, agriculture and casual labor.

This township is a developing township in economic status. The important sectors for the economic development of the vicinity area are industry, trade and services. Most of water supply of the township is submersible water pump distributed from 4 industries and supplied 16700 households. For the project site, water is mainly supplied from two private tube wells; treated with reverse osmosis system and distributed to the entire plant. There are 2 hospitals, 48 clinic centers, 8 rural healthcare centers and 5 NGO in this township. There are no historical and archeological structures in the township. However, within 10km ranges of the project site, Yangon International Airport and several Golf Courses are presented.

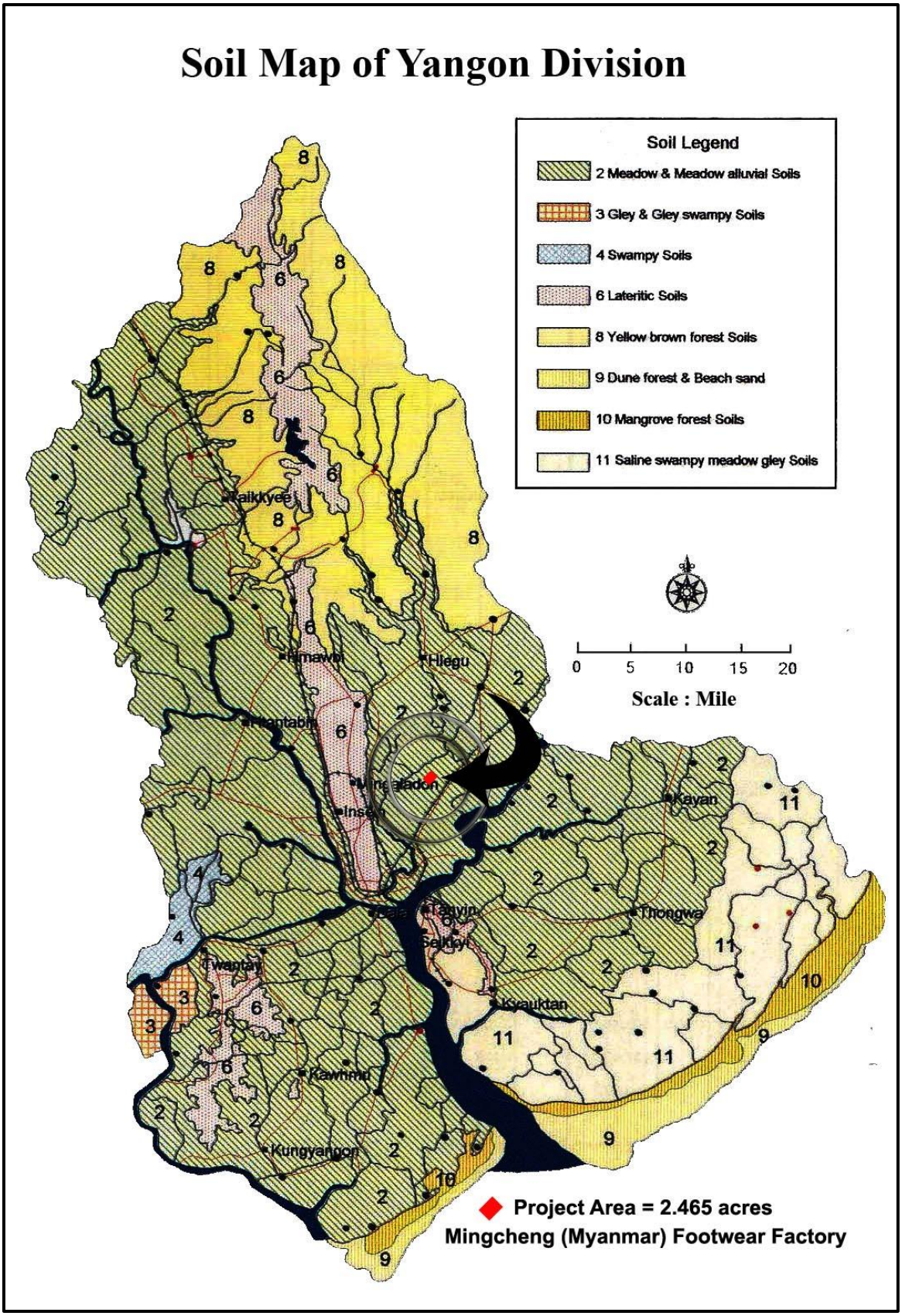


Figure 17: Soil Map of the Project Area

6. SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

6.1 Summary of Potential Impacts

6.1.1 Impact Identification[17]

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 10: 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 11: 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

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

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	high
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

Table 12: Operational Phase Impact Assessment of Proposed Project

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region							
		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**	**3**	**high**
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**

6.2 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	3	High

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.

7. COMPONENTS OF ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

7.1 Health, Safety and Environment

7.1.1 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.

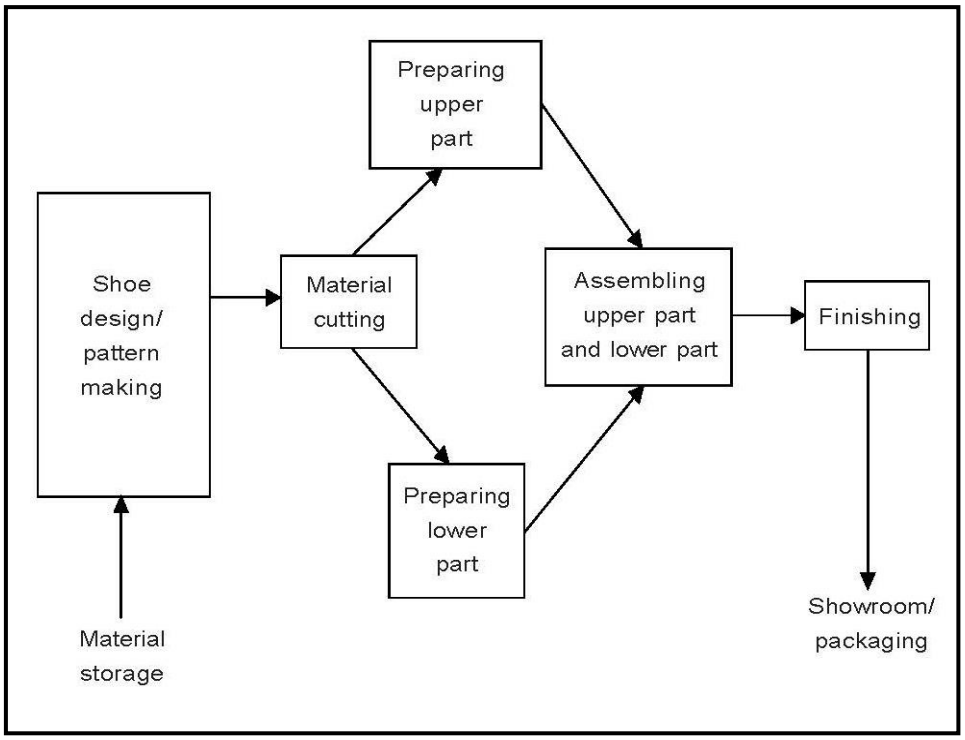
7.1.2 Health and Safety of Local Populations

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.

7.2 Occupational Health and Safety for footwear sector and mitigation measures

Footwear Production[18]

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.

[18] *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[19]: 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:

[19] ***ILO-WISE Manual***

- Provide chairs or benches of the correct height or make seats height individually adjustable;
- 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[20]:

- 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.

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

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:

- 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.

7.3 Abstract Note on EHIA and Management of Occupational Health Hazards

Abstract Note on EHIA (Environmental Health Impact Assessment and Management of Occupational Health Hazards)[21]

Assessment and Findings

Our observatory findings are presented as per following mentioned sub- headings:

1) Medical Service:
1.a) Physical examination.
1.b) Supervision over working conditions
2) Engineering and safety services:
3) Governmental Control:
4) Organization for industrial hygiene.

Type of Hazards:

Most processes and operations of the industry involve one or more potential threats to the health and safety of the worker. These are called occupation hazards. Most of them may be eliminated or much reduced by the application of engineering methods. So, the most important hazards mentioned as per following:

- Excessive heat, cold or humidity
- Compressed air
- Dust, fumes, and gases
- Poisons
- Excessive noise
- Poor illumination, glare and extreme light

[21] ***Appendix G: EHIA Report on Mincheng (Myanmar) Footwear Co., Ltd. By U Kyaw Win, Public Health Engineer***

- Repeated motion, pressure or shock
- Infections
- Radiation hazards
- 10.Accidents
- 11.Poor plant sanitation

Prevention and mitigation of hazards:

Prevention from these hazards is discussed based on the following mitigation measures as necessary as possible.
Some general rules for the protection of workers and public are outlined detail in the Appendix G and Chapter 7 of this report to follow by the client.

1. Location;
2. Construction of buildings;
3. Use of exhaust fans and ducts;
4. Avoidance of direct-contact;
5. Replacement of production methods;
6. Instruction of workers as to the hazards of the process;
7. Supervision - Dangerous operations should be supervised by responsible and well-informed persons;
8. Employment of all personal means;
9. Periodical medical examinations;
10. Bodily cleanliness on the part of workers;
11. Lunch room;
12. Working hours;
13. Maximum Allowable concentrations;
14. The Dust Hazard;
15. Radiation Hazards;
16. Noise Hazard;
17. Light as a hazard;
18. Heat;
19. Compressed Air;
20. Repeated Motion, Pressure, shock;
21. Infections ;
22. Industrial Plant Sanitation;

22(a) Ventilation ;

22(b) Illumination ;

22(c) Water Supply;

22(d) Toilet facilities;

22(e) Packing and store room;

22(f) Waste disposal.

Recommendation -

Raw water quality test result shows that it is not bad. But, the out-put water quality after R.O treatment system should also be tested to ensure the safety of drinking water. If water source, two tube wells are protected well, the water quality will not change. But, R.O removes all particles including nutrient matters which are required and good for health and development of the consumers, and long-time use of this water as drinking water is considerable.

Some personnel drink bottle water but it is to be ensured that the bottle water is the quality product of licensed manufacturing factory because during storage, transport and handling, the water can be contaminated.

Regarding solid waste disposal, wet waste should be disposed once in 4 days to reduce the odor nuisance in the plant environment and dry waste (sharps & chemical) should be categorized and collected with garbage bags by color coding system.
Concerning with liquid waste, it is necessary to ensure the drain water is always running through regular checking and maintaining.
Present numbers of toilet facilities with that of employees are satisfactory. In future, not less than 6 seats per floor would be necessary for woman workers.

If possible, a Safety Engineer and a Physician should be on the staff. Safety engineer must measure temperature, humidity, air dusts etc., analysis, record and report. Physician will be responsible for routine periodic medical examination to the plant workers, keeps the record for individuals and gives necessary advice and reports to the authority. Seeing the warning placards, separate lunch room, first aid kid (if not only for the foreign employees) and clinic are good examples.

Hence, the plant is acceptable since the plant process is not a dangerous one.

7.4 Environmental Mitigation Plan

Table 13: 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			▲				▲
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					▲		

7.5 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:

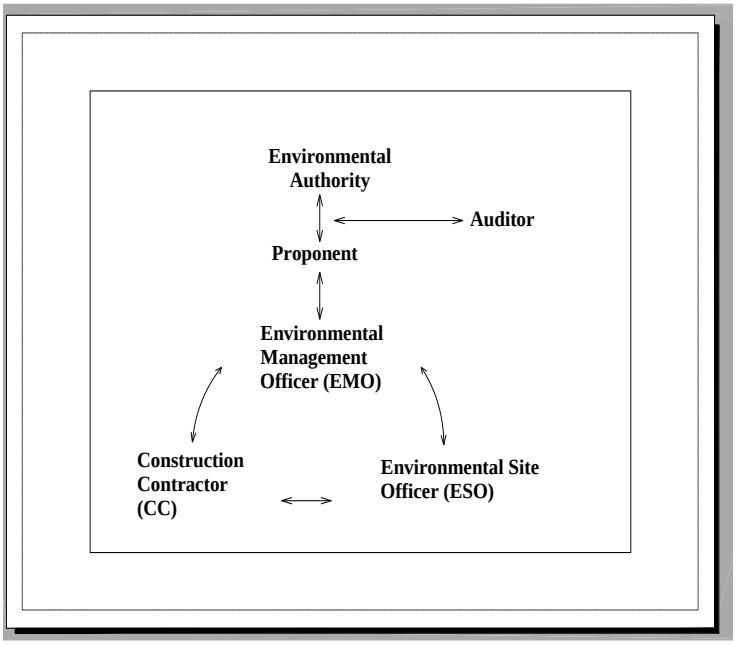


Figure 18: EMP Organization

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.

7.5.1 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.

7.5.2 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.

8. ENVIRONMENTAL MANAGEMENT, MONITORING AND BUDGET ALLOCATION

8.1 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

8.2 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

8.3 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>Total Volatile Organic Compound, Formaldehyde (HCHO), Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), CO_2, Temperature, Relative Humidity.</td></tr>
<tr><td>NEQEG Noise Level Parameters
Receptor | One hour LAeq (dBA)[a]</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		

8.4 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

8.5 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

8.6 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

8.7 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

8.8 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

8.9 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. The amount should be contributed in factors tentatively as an example like; 0.5% per year in education; 0.5% per year in employees' health care and 1% per year in non-profit training.

8.10 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 14: 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
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	

8.11 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.

8.11.1 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 15: 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 a 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 (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.	EMP Organization or Third Party
6. Noise and Vibration	One sample is measured to cover	Yearly	NEQEG Noise Level Parameters	EMP Organization or

	the whole Project Area		Receptor / One hour LAeq (dBA)[a] Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays) / Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays) Residential, institutional, educational: 55 / 45 Industrial, commercial: 70 / 70 an Equivalent continuous sound level in decibels	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

8.12 EMP and Monitoring Cost

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

Table 16: 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 Program	500,000	1	500,000	Yearly
Total Estimated Annual Budget for EMP and Monitoring (Kyats)				**21,900,000**	**Kyats**

Say 22,000,000 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.*

8.13 Summary KII (Key Informant Interview) Notes

KIIs (Key Informant Interviews) were carried out by the Consultant Team during the Social Survey work.

The summary notes from these interviews with different key stakeholders are as follows:

Table 17 : Summary Notes from KII (Key Informant Interviews), January – February 2021

Item	Name of Key Informant / Stakeholder	Designation / Organization	Summary Notes
1	Daw Moet Moet Naing Kyaw	Manager	▪ Our factory is situated in the East Dagon Industrial Zone premises and occupies a space of 2.465 acres. We have one factory-building (470' x 120' three-storied building), and one hostel / office (80' x 35' four-storied) ▪ MINGCHENG 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. ▪ We produce different kinds of foot wear: mainly for casual and sports. All the raw materials such as leather, glue, cloth, etc. are imported and their end-product footwear are expected to be exported to other countries. ▪ The production process is just cut, glue, stitch and produce the output product according to ordered footwear design. ▪ At present, we have 253 worker (labors) and 7 Chinese employees (6 male and one female. ▪ The foreign employees stay in the hostel, but the local labors attend work from home.
2	U Khin Maung Htay	Translator / Assistant Manager	▪ There are two tube wells in our factory compound. Raw water from these wells are pumped into 1500 L tanks, 8 nos. at the roof of the four-storey hostel and then the water passes through the Reverse Osmosis water treatment plant and is distributed to the entire factory buildings and compound. ▪ The treated water is being tested for its physical-chemical and microbiological parameters for its drinkability.

			▪ We have emergency plans for prevention of fire hazards and occupational accidents. ▪ We have 360 KV transformers to run the factory. The electrical power source is from the national grid as our factory is located in the East Dagon Industrial Zone area.
3	Daw Zin Mar Khin	HR Executive	▪ 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. ▪ 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 (1.5’ x 1.5’ x 1’) ready for export, initially to China and then to other end-user countries in the west.

4	Daw Myo Myint Myint Han	HR Executive	▪ There are 7 foreign (Chinese) experts for this foot wear project: 6 male and 1 female. They are all accommodated inside the factory premises at the hostel building. ▪ We have 253 staff, and those who live outside the factory come to work by their own initiatives. ▪ We have separate dining room for staff to eat our lunch during break-time at noon. ▪ The staff brings their own meals from home. ▪ For health care there is a health clinic at the entrance of this compound; administered by one doctor and a nurse. ▪ We have two (18' x 7' x 3') waste-masonry ponds: one for dry waste and the other for wet waste. The local municipality collects the waste once a week and disposes to the relevant landfill site.

9. 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 is located in the (Plot No. 47, Myay Taing Block No. 112) Industrial Zone of Dagon Myothit (Eastern) Township, Yangon Region. The social survey was carried out in the environs of the project site during Jan 2021. 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.

Necessary project staff recruitment is achieved by advertisement through local newspapers, journals, brochures, relevant township labor-office and social media, followed by personal interviews to acquire the needed basic skilled labor and artisans. Knowledge-sharing regarding occupational health and capacity building is conducted for the recruited staff to obtain the required specific (on-the-job) skills at different departments of the factory project.

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 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 should be contributed in factors tentatively as an example like; 0.5% per year in education; 0.5% per year in employees' health care and 1% per year in non-profit training.

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 Jan-Feb 2021. 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 Mingcheng (Myanmar) 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. The 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 recommended 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. However, the waste dumping-container 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.

9.1 References:

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24. The Union of Myanmar, “Environmental Conservation Law of Myanmar”, 2012
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APPENDIX – A

APPENDIX : A

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

MINGCHENG (MYANMAR) FOOTWEAR CO., LTD
Company Registration No. 121295725

မြန်မာနိုင်ငံကုမ္ပဏီများဥပဒေ၂၀၁၇ အရ
MINGCHENG (MYANMAR) FOOTWEAR CO., LTD
အား ၂၀၁၉ ခုနှစ် ဇူလိုင်လ ၁၃ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့်ပြုလိုက်သည်။

This is to certify that
MINGCHENG (MYANMAR) FOOTWEAR CO., LTD
was incorporated under the Myanmar Companies Law 2017 on 13 July 2019 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration

039578

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

CERTIFICATE OF EXPORTER/IMPORTER REGISTRATION

1. Enterprise Name (မြန်မာ/အင်္ဂလိပ်) MINGCHENG (MYANMAR) FOOTWEAR CO.,LTD.

2. Registration No: 121295725 (09-12-19)

3. Registration Term: FIVE YEAR

4. Start Date : 09-12-2019

5. End Date : 08-12-2024

6. Address : (မြန်မာ/အင်္ဂလိပ်) No.(47),Plot No.(112), Min Ye kyaw Swar Street, Dagon Myothit (East) Industrial Zone, Dagon Myothit (East) Township, Yangon Region,Myanmar

7. Business Registration No : 121295725

8. Type of Business : (မြန်မာ/အင်္ဂလိပ်)
- ☐ Sole Proprietorship(တစ်ဦးတည်းပိုင်) ☐ Partnership(အစုအစပ်)
- ☑ Limited Company(လီမိတက်ကုမ္ပဏီ)(~~Myanmar~~/Foreign)
- ☐ Co-operative Society(သမဝါယမအသင်း)
- ☐ Others(Please specify)အခြား(ဖော်ပြရန်) သင်းဖွဲ့မှတ်တမ်းပါလုပ်ငန်း( )ကို ဆောင်ရွက်ခွင့်ရှိသည်။

9. Type of Service : ◉ New ○ Extension

10. Contact No :

095505447		carrie-guo@mingchengshoes.com
Telephone No.	Fax No.	e-mail

11. Remarks :
YRIC Endorsement No.RGN-262/20 9 Date (8-10-2019

12. Terms and Conditions : စည်းကမ်းချက်များ

I hereby register the above mentioned enterprise as Exporter/Importer subject to the following terms and conditions: (အောက်ဖော်ပြပါစည်းကမ်းချက်များဖြင့် ဖိုကုန်သွင်းကုန် လုပ်ငန်းရှင်အဖြစ် မှတ်တမ်းတင်ခွင့်ပြုသည်)

(a) Line of goods permitted - all items except prohibited and restricted items.
ခွင့်ပြုသည့်ကုန်ပစ္စည်းအမျိုးအစည်း - တားမြစ်နှင့်သတ်ထားသော ကုန်ပစ္စည်းအမယ်များမှလွဲ၍ ကျန်ကုန်ပစ္စည်းများအားလုံး

(b) The enterprise must abide by the Export/Import rules and Regulations prescribed for the registered Exporters/Importers. (လုပ်ငန်းရှင်သည် မှတ်ပုံတင် ဖိုကုန်သွင်းကုန်လုပ်ငန်းလုပ်ကိုင်သူများ လိုက်နာရမည့်စည်းကမ်းချက်များကို လိုက်နာရမည်)

Stamp 068 10-1-20

10-1-2020

For Director General
(နိုးနိုင်းဦးစီးအရာရှိ)

10:1.20

EIREG121911EIREGEX12130012

လုပ်ငန်းရည်ရွယ်ချက်များမှာ

စီးဆင်းပိုစနစ်ဖြင့် ဖိနပ်အမျိုးမျိုး ထုတ်လုပ်ခြင်းလုပ်ငန်း

မြန်မာနိုင်ငံစက်မှုကုန်ထုတ်လုပ်သူများအသင်း

MYANMAR INDUSTRIES ASSOCIATION

(Established 1993)

(၁၉၉၃ ခုနှစ်တွင် တည်ထောင်သည်)

အသင်းဝင်လက်မှတ်

အမည် ---------- MR. GAO ZHI YU ----------

နိုင်ငံသား / လုပ်ငန်း မှတ်ပုံတင်အမှတ် ---------- PP. NO. EA 6938490 ----------

အလုပ်အကိုင် / လုပ်ငန်းအမျိုးအစား ---------- MINGCHENG (MYANMAR) FOOTWEAR CO. LTD.

လိပ်စာ ---------- Plot No. 47, Myay Taing Block No. 112, Industrial Zone,

Dagon Myo Thit (East) Tsp, Yangon. ----------

မြန်မာနိုင်ငံစက်မှုကုန်ထုတ်လုပ်သူများအသင်းတွင် အသင်းသားအမှတ် ---- 4922 ---- ဖြင့်

အသင်းဝင်တစ်ဦးဖြစ်ပါသည်။

အထွေထွေအတွင်းရေးမှူး

ဥက္ကဋ္ဌ

ရက်စွဲ ----------

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ရန်ကုန်တိုင်းဒေသကြီးအစိုးရ
ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ
စီမံခန့်ခွဲရေး၊ ပြည်သူ့ဆက်ဆံရေးနှင့်ပြန်ကြားရေးဌာန

၀၄၃၁၂၈၀၂၉

(၂၀၂၀/၂၀၂၁) ဘဏ္ဍာနှစ် လုပ်ငန်းလိုင်စင်

(စက်ရုံ၊ အလုပ်ရုံ၊ သိုလှောင်ရုံသုံးစွဲရန် အထောက်အကူပစ္စည်းထုတ်လုပ်ခြင်း၊ ရောင်းချခြင်း၊ တည်ခင်းခြင်း၊ ဖြန့်ဖြူးခြင်း၊ ဝန်ဆောင်မှုလုပ်ငန်း၊ အခြားလုပ်ငန်း)

စီမံရေးရာဌာန(လုပ်ငန်း)

ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ၊ စီမံခန့်ခွဲရေးဆိုင်ရာ နည်းဥပဒေ၊ အခန်း (၂) နည်းဥပဒေ ၃(ဈ)အရ အောက်အမည်ပါသူတို့အား လိုင်စင်နှုန်း **၁၀၀၀၀၀၀/- ကျပ်** (စာဖြင့်၊ ကျပ် **ဆယ်သိန်းတိတိ) ပေးသွင်းစေပြီး ဒဂုံအရှေ့** မြို့နယ်၊ **၁၁၂**ရပ်ကွက် ၊ **မင်းရဲကျော်စွာ** လမ်း ၊ အမှတ် **၄၇**၊ အခန်းအမှတ် - တွင် **MING CHENG (MYANMAR) FOOTWEAR CO.,LTD** အမည်ပါ **ဖိနပ်အမျိုးမျိုးထုတ်လုပ်ခြင်း** ဆိုင်/လုပ်ငန်းအား လုပ်ကိုင်ခွင့်ပြု၍ ဤလုပ်ငန်းလိုင်စင်ကို ထုတ်ပေးလိုက်သည်။

စဉ်	အမည်	နိုင်ငံသားစိစစ်ရေး ကတ်ပြားအမှတ်	လိပ်စာ
၁။	Mr.Gao ZhIYu	EA6938490	အမှတ်(၄၇)၊ မင်းရဲကျော်စွာလမ်း၊ ၁၁၂ ရပ်ကွက်၊ စက်မှုဇုန်၊ ဒဂုံအရှေ့

ဤလုပ်ငန်းလိုင်စင်သည် **၂၀၂၁** ခုနှစ်၊ စက်တင်ဘာ ၃၀ ရက်နေ့တွင် သက်တမ်းကုန်ဆုံးသည်။

ဤလုပ်ငန်းလိုင်စင်အား မြင်သာသောနေရာတွင် မှန်ဘောင်ဖြင့် ချိတ်ဆွဲထားရမည်။

ဌာနမှူး (ကိုယ်စား)

*ပူးတွဲပါလိုင်စင်စည်းကမ်းများအား လိုက်နာဆောင်ရွက်ရမည်။

Myanmar Companies Online Registry - Company Extract

Company Name (English)
MINGCHENG (MYANMAR) FOOTWEAR CO., LTD

Company Name (Myanmar)
-

Company Information

Registration Number	Registration Date	Status
121295725	13/07/2019	Registered
Company Type	**Foreign Company**	**Small Company**
Private Company Limited by Shares	Yes	Yes
Principal Activity	**Date of Last Annual Return**	**Previous Registration Number**
15 - Manufacture of leather and related products 14 - Manufacture of wearing apparel	25/07/2019	-

Addresses

Registered Office In Union	Min Ye Kyaw Swar Street, , No.47, Plot No.112, Dagon Myothit (East) Industrial Zone, Dagon Myothit (East) Township Yangon Region, Myanmar

Officers

Name:	MR. GAO ZHI YU	Type:	Director
Date of Appointment:	13/07/2019	Date of Birth:	19/06/1966
Nationality:	China	N.R.C./Passport:	EA 6938490
Gender:	Male	Business Occupation:	-
Name:	MS. SHI, HUI TING	Type:	Director
Date of Appointment:	13/07/2019	Date of Birth:	06/10/1971
Nationality:	China	N.R.C./Passport:	EB0833821
Gender:	Female	Business Occupation:	-

Ultimate Holding Company

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

Share Capital Structure

Total Shares Issued by Company	Currency of Share Capital
8,000,000	USD

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	8,000,000	150,000.00	7,850,000.00

Members

Myanmar Companies Online Registry - Company Extract

Company Name (English)	Company Name (Myanmar)
MINGCHENG (MYANMAR) FOOTWEAR CO., LTD	-

Name of Company: MINGCHENG SPORTS PRODUCTS CO., LTD. QUANZHOU
Registration Number: 913505217640570745 Jurisdiction of Incorporation: China

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	8,000,000	150,000.00	7,850,000.00

Mortgages and Charges

Form / Filing Type	Effective Date

No records available

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

Filing History

Form / Filing Type	Effective Date
AR | Annual Return	25/07/2019
C-3 | Change to share capital or register of members	17/07/2019
A-1 | Application for incorporation as a private company limited by shares	13/07/2019

Yangon Region

LAND LEASE AGREEMENT

BETWEEN

LESSOR

U THAN SOE

AND

LESSEE

MINGCHENG (MYANMAR) FOOTWEAR CO., LTD

Date : 18 th, December ' 2020.

LEASE AGREEMENT FOR LAND AND BUILDING

This LEASE AGREEMENT is made : -

U THAN SOE (N.R.C No.12/BaHaNa (Naing) 003758), No. (B/1208), Pearl Condo, Sayar San Quarter, Bahan Township, Yangon Region, the Republic of the Union of Myanmar (hereinafter referred to as" **the LESSOR**" which expression shall, except where the context requires another and different meaning therefrom,include its successors, legal representatives and permitted assigns), of the ONE PART.

AND

MINGCHENG (MYANMAR) COMPANY LIMITED (Company Registration No.**121295725**), registered office at No.(47), Plot No. (112), Min Ye Kyaw Swar Street, Dagon Myothit (East) Industrial Zone, Dagon Myothit (East) Township, Yangon Region, the Republic of the Union of Myanmar(hereinafter referred to as" **the LESSEE**" which expression shall, except where the context requires another and different meaning therefrom,include its successors, legal representatives and permitted assigns), for the purpose of this agreement represented by its Director **MR. GAO ZHI YU** (PASSPORT NO. EA 6938490), of the OTHER PART.

WHEREAS

(A) The LESSEE engages in the business of provide **Manufacturing of Footwear on CMP Basic** and whiches to rent the land for the operation of its business.

(B) The LESSOR owned the land with building in Yangon Region, Myanmar and whiches to lease the land to the LESSEE to operate its business.

(C) The LESSOR desirous to lease the land and building to the LESSEE and the LESSEE desires to lease the land from the LESSOR subject to the term and conditions of this Agreement.

NOW, THIS AGREEMENT WITNESSETH AS FLOOW.

1. SCOPE OF LEASE AGREEMENT

The leased land at Yangon Region, Dagon Myothit (East) Township, Dagon Myothit (East) Industrial Zone, Myay Taing Block No. (112), Min Ye Kyaw Swar Street, Plot No.(47), 2.465 acres (9,975.51 square meter) with all enjoyable right as per map attached as appendix A hereto (which shall form an integral part of this Lease Agreement) together with any and all rights, easements and appurtenances hereto, as more particularly described in the map attached hereto Annex (A).

2. LEASE PERIOD

2.1 The term of lease is (50) years, from the date of signing of this agreement by both the LESSOR and the LESSEE.

2.2 On expiry of (50) years term the lease may be extended for another (2) consecutive terms of (10) years each with mutual agreement between the LESSOR and the LESSEE subject to approval of the Myanmar Investment Commission.

3. LEASE RENTAL

3.1 The rent for the land lease is US$ 30,026.00 (United States Dollar Thirty Thousand Twenty Six Only) for (2.465) acres (equivalent to 9,975.51 square meter) calculated at US$ 3.01 per square meters per annum for (50) years.

3.2 On expiry of (50) years, the LESSOR will negotiate rental with the LESSEE and if the LESSEE cannot oblige to the rental, the LESSOR has the option to terminate the this Lease Agreement on the date of expiry of (50) years.

4. PAYMENT OF RENT

4.1 Under above para 2.1 and 3.1, rent for First term of lease for (1) year, the LESSEE shall pay US$ 30,026.00 to LESSOR on the date of signing of this agreement.

4.2 Under above para 2.1 and 3.1,The LESSEE shall pay the remaining (49) years rent shall be paid (3) months in advance prior to the commencement date of rental year.

4.3 Rent paid shall not be refundable in the event the LESSEE terminate leaves the Lease Land before the lease term without any valid reason.

5. EFFECTIVE DATE OF THE LEASE

The effective date of this Lease Agreement shall be the date on which this Lease Agreement is signed by both the LESSOR and the LESSEE.

6. LESSEE'S RIGHTS AND OBLIGATIONS

The LESSEE hereby covenants with the LESSOR that during the terms of the Lease for the followings.

6.1 The LESSEE undertakes to utilize the land lease for **Manufacturing of Footwear on CMP Basis** with the business licence of authority concerned in accordance with existing law. If desirous to transfer the business or change other business, it will be done with the prior written permission of the LESSOR.

6.2 Undertaking to pay the rent regularly as to the method prescribed under above para (4).

6.3 The LESSEE undertakes not to make sub-let, mortgage, insure or transfer in any way of the whole land or any part thereof during term of lease.

6.4 The LESSEE shall have right to renovating and repairing in any way on the leased land according to need of business and the LESSEE undertake to bear the cost related to the said renovating and repairing prior to permission and agreement of LESSOR.

6.5 To keep the Leased Land in good condition at the cost of the LESSEE throughout the lease term. Provided that any damage or loss (except natural wear and tear) caused to the Leased Land during the lease period shall be repaired at LESSEE's cost to the normal standard.

6.6 To pay Stamp duty and Commercial Tax imposed on the leased land during the term of Lease.

6.7 To pay all municipal taxes, utility charges, such as electricity, water, workers payment and welfare, other applicable tax relating to LESSEE's business during the lease period.

6.8 Wages, Salary, Benefit and compensation of the workers is only concerned with the LESSEE during and after completion of term of lease.

6.9 Undertaking not to occur any unlawful disturbance to the environment due to business or employees of the LESSEE.

6.10 The LESSEE undertake not to use leased Land in any manner against the laws. Neither the LESSOR nor the Land is bound by or responsible for such illegal act conducted by the LESSEE, and for which the LESSEE must take full responsibility to settle.

6.11 The LESSEE agrees to allow the LESSOR for reasonable inspection of the leased land during the term of lease by prescribing time limit.

6.12 If the term of lease is terminated upon after the expiry date of the lease period, the LESSEE undertakes to return the leased land in good condition to the LESSOR. The LESSEE acknowledges that the whole leased premises shall be according to the management of the LESSOR upon after the expiry date of the lease period.

6.13 The LESSEE shall be responsible for preservation of the environment in and around the area of the land and to control pollution of air, water and land, and other environmental degradation.

6.14 Upon the expiration of the Lease Term, the LESSEE shall transfer to the LESSOR any building and structure it has constructed on the leased Land.

7. LESSOR'S RIGHTS AND OBLIGATIONS

The LESSOR do hereby covenants with the LESSEE during the term of the Lease for the followings.

7.1 The LESSOR handed over the Land to the LESSEE on the signing of this agreement today.

7.2 The LESSEE shall peacefully and quietly hold the land and utilize for the business activities during the term of this agreement without any interruption or disturbance of whatsoever nature by the LESSOR or any person or persons whomsoever lawfully claiming to represent the LESSOR.

7.3 The LESSOR shall give full co-operation and assistance to the LESSEE in liaison with the local authorities upon the request of the LESSEE.

7.4 The LESSOR shall pay income tax relating to leasing the land.

e to inspect the land with a prior written consent of the LESSEE.

7.6 If the LESSEE fails to pay the Rent in accordance with the under above para (4) and fails to rectify such non-payment due to reasons solely attributable to the LESSEE's fault within (60) days from the date of a written notice, the LESSOR may take the possession of the land.

8. GOVERNING LAW & JURISDICTION

This lease Agreement shall be read, construed, interpreted and governed, in all respects, by the laws of The Republic of The Union of Myanmar and the parties hereby submit to the jurisdiction of the relevant court of Myanmar and all courts competent to hear appeals therefrom.

9. ASSIGNS AND SUCCESSORS

This Agreement shall bind not only the Parties, but also their assigns or successors, whether by merger, consolidation, reorganization, or otherwise.

10. RENEGOTIATION OF AGREEMENT

10.1 In the event that situation or condition arise due to circumstances not envisaged in the Agreement and that it warrants amendments to this Lease Agreement, the parties hereto shall make necessary negotiations with a view to making such amendments.

10.2 Such amendments are subject to the approval of the Myanmar Investment Commission.

11. ARBITRATION

In the event of any dispute between the parties, the parties agree to conduct an amicable settlement in the first stage. Any dispute, controversy or claim arising out of or ralating to this Agreement or the breach, termination or invalidity thereof, which cannot be settled amicably in the first stage shall be referred to and finally resolved by arbitration under the Myanmar Arbitration Law 2016 through two (2) arbitrators and one (1) umpire. The LESSOR and the LESSEE shall each appoint an arbitrator and the arbitrators shall nominate the umpire. The language of arbitration shall be English. The cost for such arbitration proceeding shall be borne by the Party against whom the award is made.

12. TERMINATION

12.1 This Agreement shall terminate upon expiry of the Term as stipulated Article(2), unless otherwise agreed in writing between the Parties.

12.2 This Agreement may be terminated upon the occurrence of any of the following events.

(a) by the non-defaulting Party, if the defaulting Party defaults in the performance of its obligations under this Agreement and fails to remedy such default within sixty (60) days from its receipt of written notice of such default from the non-defaulting Party.

...ny of the representations and warranties made in or deemed made pursuant to this Agreement by the LESSOR proves to be untrue or incorrect in any material respect; or

(c) by the LESSEE with a written notice to the LESSOR, where the concession agreement or LESSOR's right to use the land has been terminated or revoked by the relevant authority of Myanmar.

12.3 This Agreement may be terminated by either Party if any governmental authority requires alteration or modification of any law or of any provision of this Agreement, which shall materially and adversely affect such Party's interest, including, without limitation, the expropriation of all or part of its assets. Neither Party shall be liable to the other Party for its failure to perform its obligation under this Agreement.

13. FORCE MAJEURE

13.1 If either party is temporarily rendered unable wholly or partly by force majeure to perform its obligations or accept the performance of the other party under this Lease Agreement, the affected party shall give notice to the other party within 14 (fourteen) days after the occurrence of the cause relied upon, giving full particulars in writing of such force continuance of the disability so caused, but for no longer period than reasonable; and such cause shall, as far as possible, be removed with all reasonable dispatch. Neither party shall be responsible for any delay caused by force majeure.

13.2 The term, "force majeure" as applied herein shall mean Act of God, restraints of a Government, strikes, industrial disturbances, wars, blockades, insurrections, riots, epidemics, civil disturbances, explosions, fires, floods, earthquakes, storms and other causes similar to the conditions as enumerated herein which are beyond the control of either party and which,by the exercise of due care and diligence, either party is unable to overcome.

14. ASSIGNMENTS

The LESSEE has the right to assign, or transfer its interest in **Manufacturing of Footwear on CMP Basis** factory to any Company or individual, local or foreign,with the consent of and on terms agreed by the LESSOR, subject to the existing laws of Republic of Union of Myanmar and the approval of Myanmar Investment Commission.

15. MINERAL RESOURCES AND TREASURES

15.1 Natural resources or antique or ancient monument or treasures discovered unexpectedly from, in or under the lease land hereunder during the term of this Agreement, shall be the property of the Government of the Republic of the Union of Myanmar, and the Government of the Republic of the Union of Myanmar shall be at liberty to excavate the above said property at any time.

15.2 The LESSEE shall inform promptly to the Head of the relevant administration office and the Myanmar Investment Commission within 24 hours from the time of such discovery.

16. INTEGRAL PART OF AGREEMENT

This Agreement together with Appendices hereto shall, for all purposes, form the integral part of the Agreement.

17. NOTICE

Any notice or other communication required to given or sent hereunder shall be in English Language and be left or sent by prepaid registered post (airmail, if overseas) or telex or facsimile transmission or international courier to the party concerned at its address given underneath, or such other address as the party concerned shall have notified in concurrence with this clause to the other party.

The addresses of parties are as follows.

LESSOR : **Name -** **U THAN SOE**
Address - No.(B/1208), Pearl Condo, Sayar San Quarter, Bahan Township, Yangon Region.

LESSEE : **Name -** **MINGCHENG (MYANMAR) FOOTWEAR CO., LTD**
Address - No.(47), Plot No.(112), Min Ye Kyaw Swar Street, Dagon Myothit (East) Industrial Zone, Dagon Myothit (East) Township, Yangon Region.

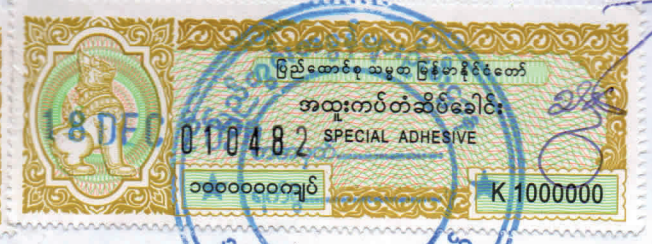
18. LANGUAGE

This Agreement shall be written in English. If this agreement translated into any language other than English, the translation is reference only.

19. RETRANSFER OF LEASED PROPERTY

19.1 Upon the expiry of Term or termination of this Agreement, the LESSEE shall transfer the land to the LESSOR in good condition and shall leave all immovable items on " as it is ".

19.2 The LESSEE shall settle in full all dues incurred under this Agreement and shall also provide the LESSOR with documents in support of such settlement.



IN WITNESS WHEREOF THE PARTIES hereto have set their respective hands and affixed their seals hereunder on the 18th day of December 2020.

LESSOR

ဦးသန်းစိုး

U THAN SOE

12/BaHaNa (Naing) 003758

LESSEE

GAO ZHI YU

MR.GAO ZHI YU

P.P.No. PEA 6938490

Director

MINGCHENG (MYANMAR)

FOOTWEAR CO.,LTD

In the presence of:

(1)

Name : Tin Tin Hlaing

Designation : 12/AuKaMa(N) 210059

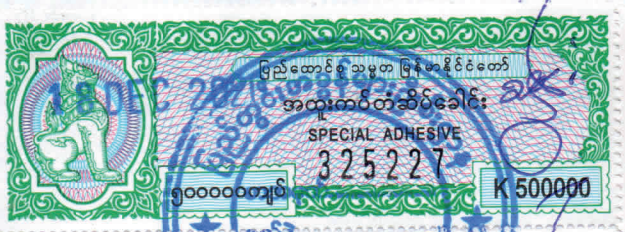
Address : 14/5/241, Wunna Kyaw Shwe RD, North Okkalapa Tsp, Shwe Pauk Kan.

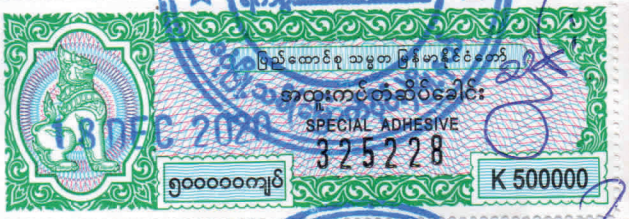
(2)

Name : San Sint Sint Htun

Designation : 13/Taka na (N) 004592

Address : 36/1CA, A1, Yawlae Street 2a. North, Thingangyun Tsp, Yangon





APPENDIX – B

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

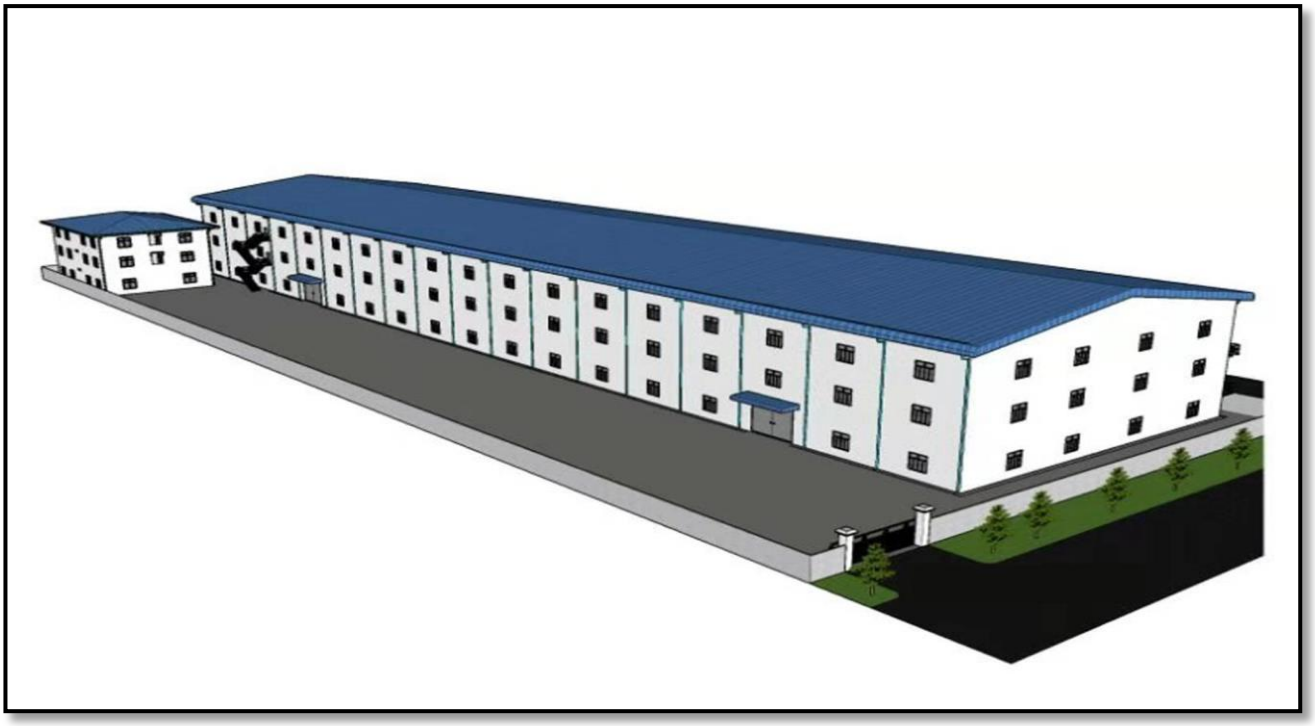


Photo-1 : Factory

Photo-2 : Project Buildings

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

Photo-3 : Hygienic Supply

Photo-4 : Warehouse

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

Photo- 5: Fire Water Pumping Area and Equipments

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region




Photo 6: Water Supply and R.O Treatment

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

Photo 7: Raw Materials

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

Photo 8: Production Process

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

Photo 9: Products and Packing

APPENDIX: B

Photo Records of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

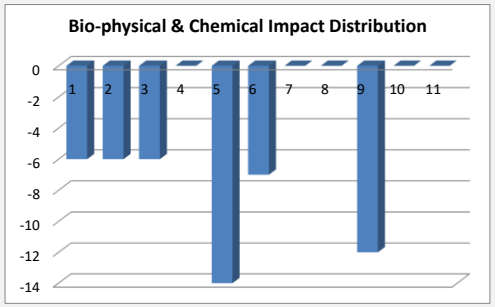
Photo 10: Waste Management

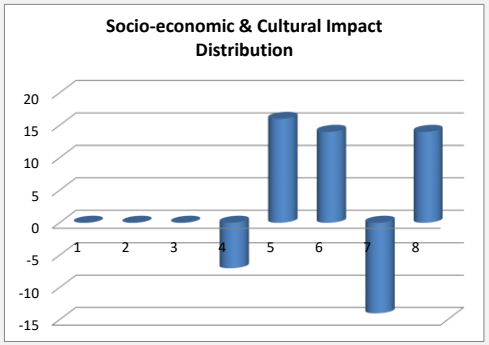
APPENDIX – C

Impact Assessment Matrix for Footwear Production Factory Project CMP

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Mingcheng (Myanmar) Footwear Production Project, Dagon Myothit Township (East), Yangon Region

		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**	Cumulative Score (default negative)
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**	-6
BPC/2	**Changes in groundwater quality**	**No significant potential polllution to ground water sources**	**1**	**3**	**1**	**2**	**low**	-6
BPC/3	**Changes to drainage patterns**	**Changes to drainage pattern due to operation of factory**	**1**	**3**	**1**	**2**	**low**	-6
BPC/4	**Changes in rates of erosion and siltation**	**Risk of soil erosion and siltation**	**0**	**0**	**0**	**0**	**low**	0
BPC/5	**Changes to air quality**	**Potential gas emission from CMP process for footwear production**	**2**	**3**	**2**	**2**	**medium**	-14
BPC/6	**Changes to ambient noise levels**	**Significant changes in noise level due to operation of machines and equipment**	**2**	**3**	**1**	**2**	**low**	-7
BPC/7	**Changes to aquatic biota**	**Soil erossion, sedimentation and siltation to nearby Creek**	**0**	**0**	**0**	**0**	**low**	0
BPC/8	**Changes to terrestrial biota**	**No significant changes in terrestrial biota**	**0**	**0**	**0**	**0**	**low**	0
BPC/9	**Changes to disease vector populations**	**Significant occupational health risk to factory staff (noise/ air)**	**1**	**3**	**2**	**2**	**medium**	-12
BPC/10	**Changes to land cover**	**No further land cover change during operational phase of manufacturing of electrical equipment**	**0**	**0**	**0**	**0**	**low**	0
BPC/11	**Changes to areas of natural habitat**	**No further significant impacts on natural habitat in project area**	**0**	**0**	**0**	**0**	**low**	0
Socio-Economic & Cultural								
SEC/1	**Changes involving loss of private assets**	**No potential impact**	**0**	**0**	**0**	**0**	**low**	0
SEC/2	**Changes involving loss of cultural heritage**	**No impact in operational phase.**	**0**	**0**	**0**	**0**	**low**	0
SEC/3	**Changes involving displacement of people**	**No potential social impact**	**0**	**0**	**0**	**0**	**low**	0
SEC/4	**Changes to local traffic patterns**	**Potential changes in traffic patterns due to transport vehicles**	**2**	**3**	**1**	**2**	**low**	-7
SEC/5	**Changes in local wage labour incomes/ livelihood opportunities**	**Possibility of Increased income and livelihood opportunities due to the project.**	**2**	**3**	**2**	**3**	**high**	16
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**	14
SEC/7	**Changes in visual amenity**	**Enhanced infrastructure appears with natural landscape.**	**2**	**3**	**2**	**2**	**medium**	-14
SEC/8	**Changes to public infrastructure/community resources**	**Expected infrastructure development**	**2**	**3**	**2**	**2**	**medium**	14





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

APPENDIX – D

Myanmar Investment Commission

Company Name	**MINGCHENG (MYANMAR) FOOTWEAR COMPANY LIMITED**
Location	**Plot No. (47), Myay Taing Block No. (112), Industrial Zone, Dagon Myothit (Eastern) Township, Yangon Region.**
Business	**Manufacturing of Variety of Shoes on CMP Basis.**

List of Directors

No.	Name	Nationality	Occupation
(A)	QUANZHOU MINGCHENG SPORTS PRODUCTS CO.,LTD Represented by its Directors : -	Incorporated in Republic of China Registration No. 9135052176405707 45	-
(1)	MR. GAO ZHI YU	Chinese	Director
(2)	MS. SHI, HUI TING	Chinese	Director

Investment Plan

No.	Particulars	Foreign	Total
1.	In Cash	0.150	0.150
2.	In Building (Construction Cost)	0.780	0.780
3.	In Machinery & Equipment (Import)	2.855	2.855
4	In Tool & Equipment (Import)	0.079	0.079
5.	In Electrical Materials (Import)	0.676	0.676
	Total	**4.540**	**4.540**

*နိုင်ငံခြား ရင်းနှီးမြုပ်နှံမှု မတည်ငွေရင်းအား 2 နှစ် အတွင်း ယူဆောင်လာပါမည်။

Production List (Year-1)

No.	Particulars	Production Export (Pairs) 30%	Charges (US$/Pairs)
1.	VTY Kids Sports Shoes	200,000	1.20
2.	VTY Kids Sports Shoes	300,000	1.20
3.	VTY Kids Sports Shoes	300,000	1.20
4.	Cortina + Deltex Kids Shoes	180,000	2.00
5.	Cortina + Deltex Kids Shoes	150,000	2.00

Employment & Salary (Year-1)

	Local	Foreign	Total
Number of employees	1,030	15	1,045
Minimum Salary	Ks. 150,000.00	Ks. 1,200,000	-
Maximum Salary	Ks. 500,000.00	Ks. 1,500,000	-

List of Machinery & Factory's Accessories/Operating Machinery (Brand New)

No.	Particulars	Total Value (Million US$)
1.	Machineries & Equipment	2.855
2.	In Tools & Equipment	0.079
3.	In Electrical Material	0.676

ဝန်ထမ်းများ၏ လစာပေးချေမှုအတွက် ရင်းလင်းတင်ပြခြင်း

တစ်နေ့တာအနိမ့်ဆုံးလုပ်အားခ	၅,၅၀၀
အလုပ်လုပ်ရက် ၁ နာရီအချိန်ပိုလုပ်အားခ	၇၀၀
အစိုးရရုံးပိတ်ရက် ၁ နရီအချိန်ပိုလုပ်အားခ	၁,၂၀၀
လစဉ်လကုန်ရက်တိုင်းပေးမည့်ရက်မှန်ကြေး လုပ်အားခ (A,B,C အမှတ်ပေါ်မူတည်ပြီး)	၁၀,၀၀၀– ၂၀,၀၀၀
Bonus တစ်လတစ်ကြိမ် (ဝန်ထမ်း၏ လုပ်ဆောင်ချက်ပေါ်မူတည်ပြီး	၁၀,၀၀၀– ၂၀,၀၀၀

ပြည်တွင်းဝန်ထမ်းများအား ခေါ်ယမှုအစီအစဉ်

ကုမ္ပဏီတွင် ဝန်ထမ်းများခေါ်ယူရာတွင် သတင်စား၊ ဂျာနယ်၊ လက်ကမ်းစာစောင်၊ မြို့နယ်အလုပ်သမားရုံးနှင့် Social Media တို့၌ ကြေညာကာ လိုအပ်သည့် အလုပ်သမားအရေအတွက်အား ကုမ္ပဏီမှ ခေါ်ယသွားမည်ဖြစ်သည်။

လူတွေ့စီစစ်ရာတွင် သက်ဆိုင်ရာအထောက်အထားများနှင့်အတူ ကျွမ်းကျင်မှုပေါ်မူတည်၍ စီစစ်မေးမြန်းကာ ဝန်ထမ်းများခန့်အပ်သွားမည်ဖြစ်ပါသည်။ စီစစ်မေးမြန်ရာတွင် ရာထူးပေါ်မူတည်ပြီး သက်ဆိုင်ရာကုမ္ပဏီရှိ တာဝန်ရှိသူများက အရည်အချင်းစစ်ဆေးမေးမြန်သွားမည်ဖြစ်သည်။

စီစစ်ဆုံးဖြတ်မှုပြီးဆုံးပါက ဝန်ထမ်းများအား အစမ်းခန့် ၃လအား သက်မှတ်ထားသော ရာထူးပေါ်မှုတည်ပြီး လစာပေးအပ်သွားမည်ဖြစ်ပါသည်။

Product Photos

1. VTY Kids Sports Shoes

2. VTY Kids Sports Shoes

Product Photos

3. VTY Kids Sports Shoes

4. CORTINA+DELTEX Kids Shoes

4. CORTINA+DELTEX Kids Shoes

လုပ်ငန်းတွင် အသုံးပြုမည့် ကုန်ကြမ်းပစ္စည်းအမျိုးအစားပုံ

1. Glue

2. PU Leather

3. Wrap Paper

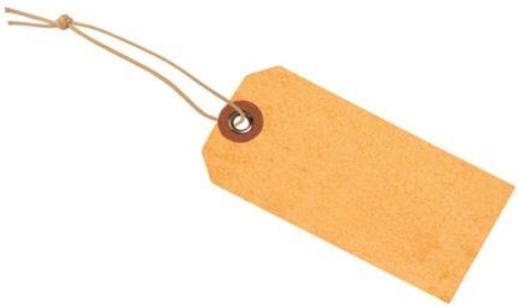
4. Reflective Leather

လုပ်ငန်းတွင် အသုံးပြုမည့် ကုန်ကြမ်းပစ္စည်းအမျိုးအစားပုံ

5. Outsole

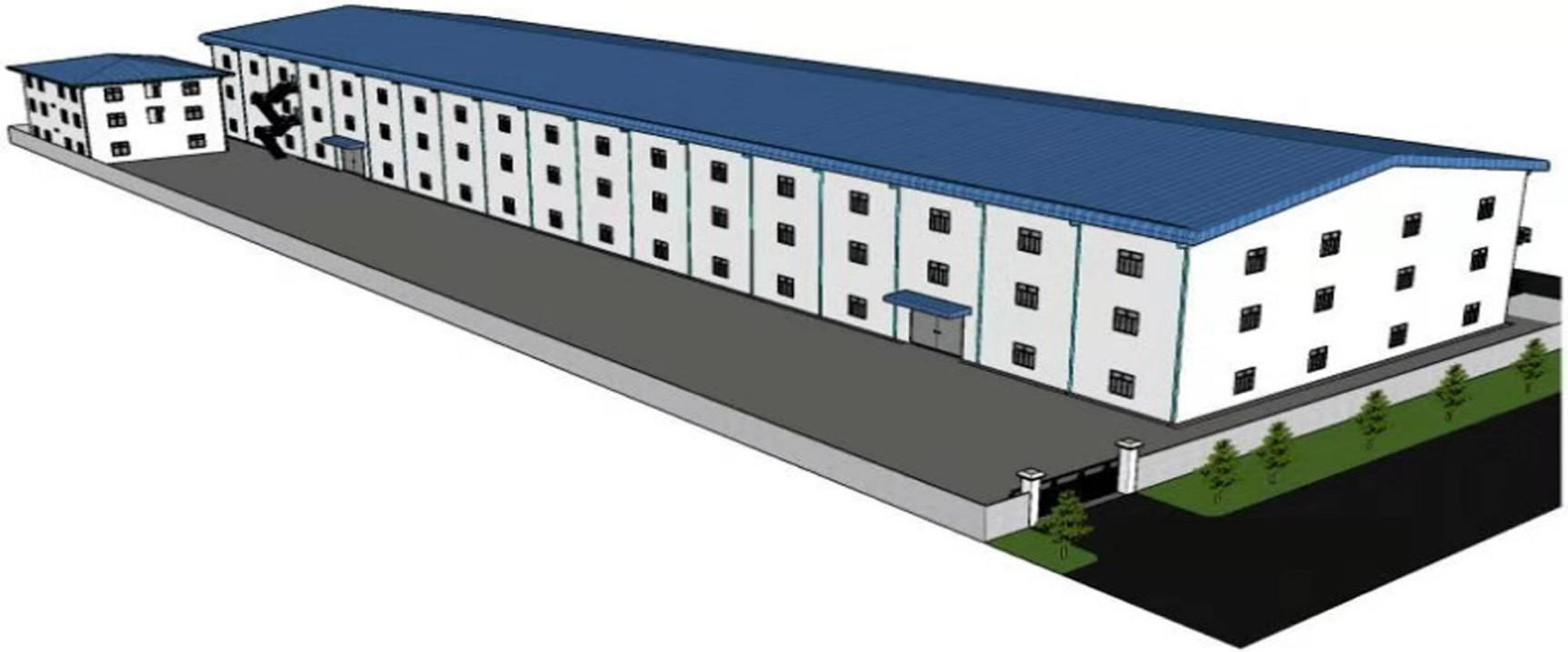
6. Shoelace

7. Tag

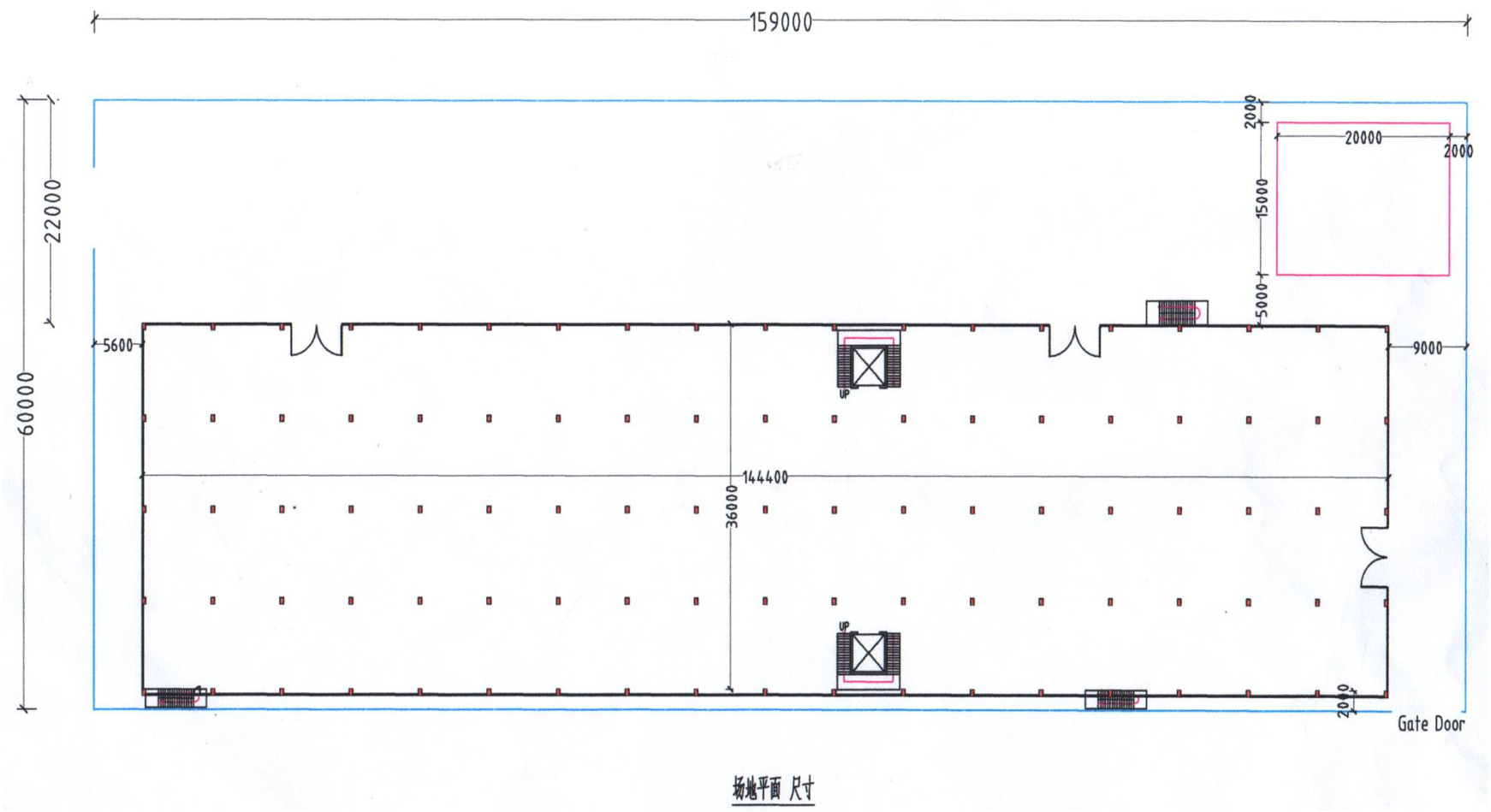


8. Desiccant

Factory Photo



Factory Layout Plan



Land

Location - **Plot No. (47), Myay Taing Block No. (112), Industrial Zone,**

Dagon Myothit (Eastern) Township, Yangon Region.

Area of Land - (2.465) Acres, (9,975.51 sq mtr)

Land/Building lease rate –US$ 30,026 Per annum (US$ 3.01 per sq m/per annum)

Size and Number of Building(s) - (470' x 120') Three Storey
- (80' x 35') Three Storey

Proposed land or building use/lease period - Initially (50) years+Extendable to two times of (10) Years

Company profile

Company Name	**QUANZHOU MINCHENG SPORT PRODUCTS CO.,LTD**
Location	**Huangzutang Town, Houxi Village, Huian.**
Type of Business	**Production of Shoes, Hats, Clothing and Others Supporting Goods.**
Investment Capital	**HKD Five Million Only**
Employees	**1,000**

Corporate Social Responsibility (CSR)

We will contribute minimum 2 % of Net Profit after Tax for CSR activities.

No	Particulars	Contribution %
1	Public School	0.5%
2	Non-profit Training	1%
3	Employees (Healthcare)	0.5%

Fire Safety Plan

MINGCHENG (MYANMAR) FOOTWEAR COMPANY LIMITED shall have to abide by the Fire Services Department`s rules, regulations, directives and instructions by having factory buildings with Reinforced Concretes and also by having enough fire prevention applications. There will also be under ground water tanks with emergency water pump and fire hoses at standby position.

We will appoint the fire safety officer to have the Fire Drill Instructions posted at every section of the factory and to provide training to use the fire safety equipment and fire safety procedures.

Environmental Control Plan

MINGCHENG (MYANMAR) FOOTWEAR COMPANY LIMITED

Environmental Control Plans

Not to occur environment and social impact (or) to lessen defect and Environmental Management Plan – **EMP** will be implemented.

We will follow in accordance with Law, Regulation, Procedure and Directives prescribed for environmental control.

We will perform above activities within (3) three months after getting permission.

APPENDIX – E

HEXAGONAL ANGLE
INTERNATIONAL CONSULTANTS CO.,LTD.

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Yangon, Myanmar.
Tel: +959 898333722
Email: info@hexagonalangle.com
Website: www.hexagonalangle.com

Date: 5th February, 2021

Indoor Air Quality Analysis Report

(အခန်းတွင်းလေအရည်အသွေးတိုင်းတာစစ်ဆေးမှုအစီရင်ခံစာ)

1. INTRODUCTION

Indoor air quality measurement was conducted by Hexagonal Angle Consulting Team upon request of Min Chang (MM) Co., Ltd at the project area which is located at Dagon Myothit (East) Township on 5th February, 2021. The indoor air quality measurement was carried out in a total of 5 places, which mainly includes office area, production and storage areas. During that day, the average temperature was 28°C and humidity was 48%.

Indoor air quality parameters such as $PM_{1.0}$, $PM_{2.5}$, PM_{10}, TVOC, HCHO and CO_2 were measured using DIENMERN™ Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector. The detailed information of the measurement devices is mentioned in the APPENDIX.

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Figure: Location Map of Project Area

2. METHODOLOGY

Measurements were recorded in the project area three times for each parameter with duration of 2-min interval between consecutive measurements. To reveal the existing status of baseline air quality, the average indoor air quality results were compared with Air Quality Index Guidelines by U.S Environmental Protection Agency (EPA) and OSHA (Occupational Safety and Health Administration).

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Standard Parameter for Carbon Dioxide (CO_2)

CO2 concentrations in acceptable outdoor air typically range from 300-500 ppm. Adverse health effects from CO2 may occur since it is an asphyxiant gas. At concentrations above 15,000 ppm, some loss of mental acuity has been noted. The OSHA PEL is 5,000 ppm as an 8-hour TWA.

Table - Indoor Air Quality Index (AQI)

Index Value	Descriptor	Cautionary Statements
0-50	Good	None
51-100	Moderate	Unusually sensitive people should consider limiting prolong exposure
101-150	Unhealthy for sensitive groups	Children and adults with respiratory disease should limit the exposure
151-200	Unhealthy	Both children and adults should limit the exposure
201-250	Very unhealthy	All ages of people with respiratory disease should avoid all the exposure

* A Guide to Air Quality Index by U.S Environmental Protection Agency (EPA)

Table - Standard Parameter for Formaldehyde (HCHO)

Standard Guideline	Unit	Range
0.101-0.200	mg/m^3	Light
0.201-0.300		Medium
0.301 or more		Heavy

* A Guide to Air Quality Index by U.S Environmental Protection Agency (EPA)

Table - Standard Parameter for Total Volatile Organic Compound (TVOC)

Standard Guideline	Unit	Range
0.600	mg/m^3	Safe
0.601 or more		Danger

* A Guide to Air Quality Index by U.S Environmental Protection Agency (EPA)

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3. Air Quality Measurement Information (လေတိုင်းတာခြင်းအချက်အလက်)

Air Sampling Location (လေတိုင်းတာသည့်နေရာ)	Min Chang (MM) Co., Ltd. ဒဂုံမြို့သစ် အရှေ့ပိုင်း မြို့နယ်။		
	Latitude (လက်တီတွဒ်)	16°54'12" to 16°54'17"N	
	Longitude (လောင်ဂျီတွဒ်)	96°13'13" to 96°13'20"E	
Township (မြို့နယ်)	Dagon Myothit (East) Township (ဒဂုံမြို့သစ် အရှေ့ပိုင်း မြို့နယ်)		
State/Region (ပြည်နယ်/တိုင်း)	Yangon Region (ရန်ကုန်တိုင်း)		
Client (တိုင်းတာလိုသူအမည်)	Min Chang (MM) Co., Ltd.		
Date (တိုင်းတာသည့်နေ့စွဲ)	5th February 2021		
Logging Duration (Hours) (တိုင်းတာမှုကြာချိန်)	2 mins per points		
	Log on Time (Date, Time) စတင်တိုင်းတာသည့်အချိန် (နေ့ရက်၊ အချိန်)	5.1.2021	10:20AM
	Log off Time (Date, Time) တိုင်းတာပြီးသည့်အချိန် (နေ့ရက်၊ အချိန်)	5.1.2021	11:12AM
Air Quality Measuring Equipment (တိုင်းတာသည့်စက်)	DIENMERN™ Multifunctional Air Quality Detector		
	SMART SENSOR-Carbon Dioxide Detector		
Station Height (above ground) စက်တည်ထားသည့်အမြင့် (မြေပြင်မှ)	Ground		

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The locations where indoor air quality measurement and photos taken during field survey are as described below.

Figure – Air Quality Measurement Locations

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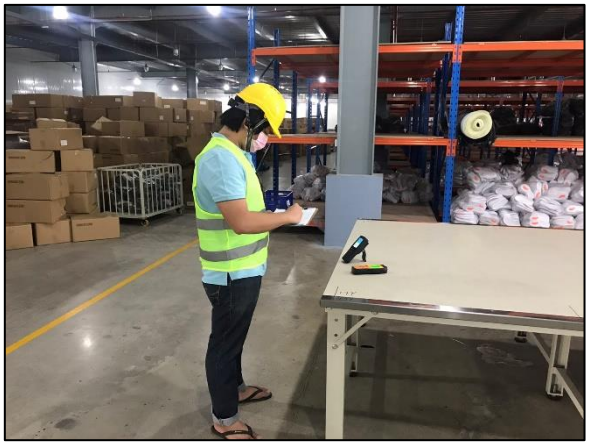
Office Area

Production Room

Production Room

Storage Room



Storage Room

Office Room

Figure – Photos taken during air quality measurement field survey

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4. Air Quality Sampling Result (လေအရည်အသွေးတိုင်းတာမှုရလဒ်)

No.	Location	Parameter	Activities	Result	*EPA (Air Quality Index, AQI)
1	Office Area	Particulate Matter (PM)	No Operation	38.67 µg/m^3	Moderate
		Particulate Matter ($PM_{2.5}$)		62 µg/m^3	
		Particulate Matter (PM_{10})		79 µg/m^3	
		Total Volatile Organic Compound (TVOC)		0.052 mg/m3	Safe
		Formaldehyde (HCHO)		0.009 mg/m3	ND
		Carbon Dioxide (CO2)		571.67 ppm	-
2	Storage Room (1)	Particulate Matter (PM)	Loading and Unloading of materials	49.33 µg/m^3	Moderate
		Particulate Matter ($PM_{2.5}$)		81.33 µg/m^3	
		Particulate Matter (PM_{10})		104.33 µg/m^3	
		Total Volatile Organic Compound (TVOC)		0.26 mg/m3	Safe
		Formaldehyde (HCHO)		0.058	ND
		Carbon Dioxide (CO2)		630.67 ppm	-
3	Storage Room (2)	Particulate Matter (PM)	Loading and Unloading of materials	49 µg/m^3	Moderate
		Particulate Matter		78.33 µg/m^3	

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No.	Location	Parameter	Activities	Result	*EPA (Air Quality Index, AQI)
		($PM_{2.5}$)			
		Particulate Matter (PM_{10})		99.67 µg/m^3	
		Total Volatile Organic Compound (TVOC)		0.264	Safe
		Formaldehyde (HCHO)		0.066 mg/m3	ND
		Carbon Dioxide (CO2)		602 ppm	-
4	Production Room (1)	Particulate Matter (PM)	Operation	37 µg/m^3	Moderate
		Particulate Matter ($PM_{2.5}$)		65 µg/m^3	
		Particulate Matter (PM_{10})		83.33 µg/m^3	
		Total Volatile Organic Compound (TVOC)		0.372 mg/m3	Safe
		Formaldehyde (HCHO)		0.061 mg/m3	ND
		Carbon Dioxide (CO2)		594.67 ppm	-
5	Production Room (2)	Particulate Matter (PM)	Operation	40 µg/m^3	Moderate
		Particulate Matter ($PM_{2.5}$)		64.33 µg/m^3	
		Particulate Matter (PM_{10})		84 µg/m^3	
		Total Volatile Organic Compound (TVOC)		0.215 mg/m3	Safe
		Formaldehyde (HCHO)		0.212 mg/m3	Medium

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No.	Location	Parameter	Activities	Result	*EPA (Air Quality Index, AQI)
		Carbon Dioxide (CO2)		595.33 ppm	-

* A Guide to Air Quality Index by U.S Environmental Protection Agency (EPA)

NG = No Guideline, ND = Not Detected

Analyzed by

Than Htike Zaw
Environmental Engineer
Hexagonal Angle International Consultants Co., Ltd.

Checked by

Aye Myat Thiri
Environmental Team Leader
Hexagonal Angle International Consultants Co., Ltd.

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APPENDIX

Appendix 1 **Dienmern** - Multifuctional Air Quality Dectector

Appendix 2 **Smart Sensor** - Carbon Dioxide Detector

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Appendix 1 **Dienmern** - Multifuctional Air Quality Dectector

PRODUCT WARRANTY AND SPECIFICATION		Brand: Dienmern Multifunctional Air Quality Detector
MANUFACTURE DATE	**EQUIPMENT DETAILS**	**RECEIVER**
June, 5, 2020	Ean: 0889251537592 Part Number: DM106A UNSPSC Code:41110000 UPC: 889251537592	Hexagonal Angle International Consultants Co., Ltd. No.233/2, 1st Floor, Daung Min Street, 14/3 Quarter, South Okkala Township, Yangon, Myanmar. +959 898333722 info@hexagonalangle.com

Battery	Alarm Type	Warranty	Sensor Type	Detection Time	Calibration	Wall-Mounted	Value	Color
2000mAh Rechargeable Lithium Battery	Buzzer	12 Months	Laser	3s	One-Touch	Yes	8-in-1	Black

VALUE	SPECIFICATIONS
PM2.5, PM1.0, PM10, HCHO, TVOC, Temperature, Humidity and AQI Real Time Display	Charging Temp:-10℃-45℃ Formaldehyde Test Object Range:0-1.999mg/M3 Tvoc Test Object:Tvoc;Test Range:0.000-9.999mg/M3 Test Time:5 Min Pm2.5/Pm1.0/Pm10 Test Test Particle Population:2.5um,1.0um,10um Test Particle Mass:Pm2.5,Pm10; Sample Time:3 Sec;Test Range:0-999ug/M3 Relative Humidity:20%-85% Test Temp:-10℃-45℃

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Email: info@hexagonalangle.com
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Calibration Certificate

Instrument SN: 889251537592
Calibration Date: 2-Oct-20
Part Number: DM106A
UPC: 889251537592
UNSPSC: 41110000
Manufacture Date: 5-Jun-20
Created By: Langder Technology Co.,Ltd
Battery: 2000mAh Rechargeable Lithium Battery

Sensor Type	Particle Type	Number of Test Particles	Passesd/Failed	Detection Range	Detection Method	Detection Temperature
Laser Scattering	PM1.0	1.0μm	Passed	0-999μg/m^3	Concentration(per liter)	10°C - 45°C
	PM2.5	2.5μm				
	PM10	10μm				

Sensor Type	Gas Type	Detection Range	Detection Technology	Adopt Method/Sampling Technology	Standard	Passesd/Failed
Semi Conductor Sensor	HCHO	0-1.999mg/m^3	Semi Conductor Sensing Technology	Diffuse Collection	≤0.10mg/m^3(indoor air quality standard GB/ T18883-2002	Passed
	TVOC	0-9.999mg/m3			≤0.6mg/m^3(GB/T18883-2002 and GB 50325-2001 Class II cvil construction)	Passed

Note: Next Calibration due date is June 2021

Manager

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INTERNATIONAL CONSULTANTS CO.,LTD.

Office: No. 233/2, 1st Floor, Daung Min Street,
14/3 Quarter, South Okkalapa Township,
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Email: info@hexagonalangle.com
Website: www.hexagonalangle.com

Shenzhen ZKT Technology Co., Ltd.
2F, Building 1, Maozhoushan Industrial Park, Houting Community, Shajing Street, Bao'an District, Shenzhen, China

ZhongKai

Certificate of Compliance

Certificate Number: ZKT-2018040732C

Certificate's Holder	:	Langder Technology Co., Ltd. 2F,C Building, Yin Feng Industrial Zone, Xixiang, Bao'an District, Shenzhen City, Guangdong Province, China.
Manufacturer	:	Langder Technology Co., Ltd. 2F,C Building, Yin Feng Industrial Zone, Xixiang, Bao'an District, Shenzhen City, Guangdong Province, China.
Trade Mark	:	Dienmern
Product	:	Air Quality Monitor
Model(s)	:	DM106 DM105, DM306, DM103, DM202, DM108, DM503, DM308, DM608 DM502.
Test Standard	:	EN 55032:2015, EN 55035: 2017 EN 61000-3-2: 2014, EN 61000-3-3: 2013

This Attestation of Compliance is issued on a voluntary basis for electrical equipment below the voltage limits of EMC Directive 2014/30/EU. The essential requirement are fulfilled accordingly based on the technical specifications applicable at the time of issuance. See also notes overleaf. It is only valid in connection with the test report number: ZKT-2018040732E.

CE

Shenzhen ZKT Technology Co., Ltd.
Approved
Manager
Apr. 25, 2018

This Certificate of Conformity is based on single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant . Directives to be observed.

Tel.: 0086-755-23065534 Fax.: 0086-755-23065534
Http://www.zkt-lab.com E-mail: zkt@zkt-lab.com

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Appendix 2 **Smart Sensor** - Carbon Dioxide Detector

SMART SENSOR

CE

CERTIFICATE OF CALIBRATION

Instruments details
Model number: A08200
Description: Carbon Dioxide Detector
Serial number: 3954871
Date of manufacture: 2019-6-5

Reference documents for the calibration:
JJG 635-2011

Place and environmental conditions of the calibration:

Place	Temperature	RH
SMARTSENSOR FQC:	25±2℃	55%±5%RH

Function Range Mode	Normalized Value	Actual Value	Permissible Error
	(PPM)	(PPM)	(PPM)
Measure Value			
CO_2	350	350	3

Unit:PPM

SMART SENSOR QC

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Certificate of Calibration

SMART SENSOR®

Model No: AR8200
Description: Carbon dioxide Detector
Serial number: 3954871
Date of Manufacture: 5/6/2020

Reference documents for the calibration: JJG 635-2011
Calibration date: 2/11/2020

Place and Environmental condition of calibration

Place	Temperature	RH	
SMARTSENSOR FQC	25±2°C	55%±5%RH	
Function Range Mode	Noemalized Value	Actual Value	Permission Error
Mesure Value	(PPM)	(PPM)	(PPM)
CO_2	350	353	3

Note: Next Calibration due date is June 2021

APPENDIX: E-1

Noise Level Analysis Report

Noise Level Measurement Information

Location	Land No. 47, Land Survey Area No. (112), Industrial Zone		
Township	Dagon Myothit (East) Township		
State/Region	Yangon Region		
Client	Mingcheng (Myanmar) Footwear Company Limited		
Date	5.2.2021		
Logging Duration (Hr)	24 hours		
	Log on Time (Date, Time)	5.2.2021	13:00 AM
	Log on Time (Date, Time)	6.2.2021	13:00 AM
Device	BENTECH GM 1356 (Digital Sound Level Meter)		

Duration	Results	NEQG Guideline (For Industrial and Commercial Area)
Day Time	75.6 dBA	70 dBA
Night Time	70.2 dBA	70 dBA

ISO TECH LABORATORY

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

ISO 9001:2015 Cert. No. 688600

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

W0920 392

WATER QUALITY TEST RESULTS FORM

Client: Ming Cheng Sports Equipment Co.,Ltd
Nature of Water: Drinking Water
Location: East Dagon Township
Date and Time of collection: 15.9.2020
Date and Time of arrival at Laboratory: 15.9.2020
Date and Time of commencing examination: 16.9.2020
Date and Time of completing: 18.9.2020

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

pH	7.4		6.5 - 8.5
Colour (True)	Nil	TCU	15 TCU
Turbidity	1	NTU	5 NTU
Conductivity	100	micro S/cm	
Total Hardness	22	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	16	mg/l as $CaCO_3$	
Magnesium Hardness	6	mg/l as $CaCO_3$	
Total Alkalinity	52	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	Nil	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nil	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	52	mg/l as $CaCO_3$	
Iron	0.08	mg/l	0.3 mg/l
Chloride (as CL)	5	mg/l	250 mg/l
Sodium Chloride (as NaCL)	8	mg/l	
Sulphate (as SO_4)	Nil	mg/l	500 mg/l
Total Solids	51	mg/l	1500 mg/l
Total Suspended Solids	1	mg/l	
Total Dissolved Solids	50	mg/l	1000 mg/l
Manganese	Nil	mg/l	0.05 mg/l
Phosphate	Nil	mg/l	
Phenolphthalein Acidity	2	mg/l	
Methyl Orange Acidity	Nil	mg/l	
Salinity	0.1	ppt	

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

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

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

APPENDIX – F

FOOTWEAR LAW

1 *OVERVIEW OF THE POLICY, LEGAL AND ISTITUTIONAL FRAMEWORK*

The following section provide an extracted section concerning regulatory requirements that will be applicable to the Project and national guidelines that are of relevance to the proposed Project.

1.1 *CORPORATE ENVIRONMENTAL AND SOCIAL POLICIES*

The Project Proponent will develop an Environmental Policy which includes the company's commitments to health, safety and environment. This Policy is now preparing.

1.1.1 *Policies*

Myanmar has developed a Goals and Policies to uplift the country's economy in all aspects. The relevant are described in Table 1.1 and the Project Proponent commits to support to meet these goals.

Table 1.1 Myanmar Relevant Policies

Poolicies	Descriptions
The National Environment Policy, 2019	As per Clause 7 in this Policy, there builds on Myanmar's 1994 National Environmental Policy and reaffirms its core values: • The wealth of the nation is its people, its cultural heritage, its environment and its natural resources. • It is the responsibility of the State and every citizen to preserve our natural resources in the interests of present and future generations. • Environmental protection should always be the primary objective in seeking development. In order to meet the visions, the Government of the Republic of the Union of Myanmar adopts the following 23 National Environmental Policy principles as the guiding framework for achieving: a clean environment and healthy, functioning ecosystems; sustainable economic and social development; and the mainstreaming of environmental protection and management: *The project proponent wishing to implement the project to align with this policy and comply the rules and regulations in order to support this.*
Myanmar Climate Change Policy, 2019	This is established with the vision to be a climate-resilient, low carbon society that is sustainable, prosperous and inclusive, for the wellbeing of present and future generations. In Clause 12, there clearly set-up a guiding principles for • Sustainable development • Precaution • Prevention • Environmental integrity • Shared responsibility and cooperation • Inclusiveness • Good governance • Climate justice and equity

	• Gender equality and women's empowerment *The project proponent commits to support the Government in order to meet the above-mentioned principles*
The Constitution of the Republic of the Union of Myanmar, 2008	The Constitution of the Union of Myanmar is the supreme law of the country and has provisions regarding the protection of the environment in Myanmar. *The Project Proponent commits to comply as these three Articles in the Constitution provide a basis for legalising and institutionalising environmental health impact assessment and social impact assessment.* There stipulates that: • The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in the atmosphere in the Union; The Union shall enact necessary law to supervise extraction and utilization of State owned natural resources by economics forces (Article 37 (a,b)); • The Union shall protect and conserve natural environment (Article 45). • Every citizen has the duty to assist the Union in carrying out the following matters: ▪ preservation and safeguarding of cultural heritage; ▪ environmental conservation; ▪ striving for development of human resources; ▪ protection and preservation of public property (Article 390).

1.2 MYANMAR LEGAL FRAMEWORK

Environmental legislation and arrangements for environmental conservation in Myanmar are developing rapidly. The laws governing for environmental conservation, impact assessment, procedures and relevant section have been explored in section 1.2.1 and section 1.2.2. The Project Proponent will comply all the rules and regulations that have been prescribed in Myanmar with good practices.

1.2.1 Myanmar Legislation Relevant to the Project

Laws related to environmental and social issues and hence relevant to the EIA Study for the proposed Project are included in *Table 1.2*.

Table 1.2 Myanmar Legislation and Relevance to Project

Laws and Regulations	Description
The Environmental Conservation Law, 2012	
	▪ Section 7(O) states that the Ministry to manage a proponent to provide compensation for environmental impact and contribute funds. ▪ Section 14 states for the requirement of emissions to the environment to meet stipulated environmental quality standards. ▪ Section 15 states for the requirement of proponent to provide onsite controlling equipment to monitor, control, manage, reduce or eliminate pollutants, or if impracticable, arrange environmentally-sound disposal. ▪ Section 23&24 mentions the need for prior permission from the Ministry for the business that have been categorized for causing impact on the environmental quality

Laws and Regulations	Description
	and right to issuing permit with terms and conditions relating to environmental conservation after scrutinizing. ▪ Section 29 provides that the proponent shall not violate any prohibition contained in the rules, notifications, orders, directives and procedures under the Environmental Conservation Law.
The Environmental Conservation Rules, 2014	
The Ministry of Natural Resources and Environmental Conservation, in exercise of power conferred under sub-section (a) of section 42 of the Environmental Conservation Law, issues this rules by No. 50 of 2014 on the date of 5 June, 2014.	
Section 56	The person who carries out any project, business or activity shall arrange and carry out for conducting the environmental impact assessment for any project, business or activity by a qualified third person or organization accepted by the Ministry.
Section 69	Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants and the hazardous waste or hazardous material stipulated by notification under the Law and any of these rules at any place which may affect the public directly or indirectly. Any person shall not carry out to damage the ecosystem and the natural environment which is changing due to such system, except for carrying out with the permission of the Ministry for the interest of the people.
EIA Procedure(2015)	
The EIA Procedure sets out the procedures for completing an IEE, EIA and/or EMP in Myanmar. This includes information on project categorisation, responsibilities of project developers and ministries, EIA review, monitoring and auditing, among other issues. Section 102 to 105, there prescribed responsibility for adverse impacts, ▪ *The proponent has to bear full legal and financial responsibility for actions and omissions and those of other related to the project proponents.* ▪ *That proponent has responsible to support programs for livelihood restoration and resettlement in consultation with all stakeholders.* ▪ *And the proponent has full responsibility to implement the EMP, the requirements set forth in ECC, Project commitments and conditions when providing services to the Project and inform the Ministry with detailed information as to the propose project's potential adverse impacts.* Section 106 to 110, regarding for the monitoring, *the project proponent has responsible to undertake comprehensive self-monitoring* ▪ to notify and identify in writing to the Ministry for any breaches of its obligations or other performance failures or violations of the ECC and EMP ▪ to submit monitoring reports to the Ministry ▪ to submit the monitoring report within ten (10) days of completing a monitoring report and the information to be included. Section 113,115, 117, there stipulated, for the purposes of monitoring and inspection, the event of emergency, the proponent has the responsibilities to ▪ grant the ministry and/or its representatives; ▪ grant the Ministry access to any places relating to project activities;	
National Environmental Quality (Emissions) Guidelines (2015)	
The NEQ guidelines set out emission standards for air, noise and effluent discharges for oil and gas terminal operations. The project shall consider emissions standards in its environment impact assessment and environmental management plan.	
Myanmar Investment Law, 2016, The Pyidaungsu Hluttaw Law No. 40/2016	
	▪ Section (50)(d), it is stipulated that the investor have to register the land lease contract at the office of Registry of Deeds in accordance with the Registration Act.

Laws and Regulations	Description
	▪ Section (51), it is mentioned for appointment, replacement, providing for the employment of staff and workers, ensuring to comply the entitlements and rights in the labor laws and rules, settling dispute regarding HR issues. ▪ Section (65), regarding for responsibilities of investors, it is prescribed as that the investor have to ▪ respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union (a); ▪ inform to the Commission if it is found that natural mineral resources or antique objects and treasure trove are not related to the investment permitted(e); ▪ not make any significant alteration of topography or elevation of the land on which is entitled to lease or to use, without the approval of the Commission(f). ▪ abide by applicable laws, rules, procedures and best standards practiced internationally for investment(g); ▪ list and keep proper records of books of account and financial statement(h); ▪ pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directive and so forth during the period of suspension of investment for a credible reason(j); ▪ shall pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease and death due to the work(k); ▪ supervise foreign experts, supervisors and their families, who employ in their investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar(l); ▪ respect and comply with the labor laws(m); ▪ have the right to sue and to be sued in accordance with the laws(n); ▪ allow the Commission to inspect in any places, when the Commission informs the prior notice to inspect the investment(p); ▪ take in advance permit or endorsement of the Commission for the investments which need to obtain prior approval under the Environmental Conservation Law and the procedures of environmental impact assessment, before undertaking the assessment, and shall submit the situation of environmental and social impact assessment to the Commission along the period of activities of the investments which obtained permit or endorsement of the Commission (q).
Myanmar Investment Rules, Notification no. 35/2017	
	▪ Section 202, stated that the investor shall comply with all terms and conditions in the permit and other applicable laws when the investment is carried out. ▪ Section 206, stated that if the investor desires to appoint expert foreigner as senior manager, technical and operational expert or advisor according to subsection (a) of the section 51 of the Law, he shall submit the application attached with passport, expertise evidence or degree certificate and summary of biography of such foreigner to the Commission and obtain the approval.
The Import and Export Law, 2012	
	▪ Section 7, states that a person who obtained any license shall not violate the conditions contained in the license.
The Forest Law (2018)	
	The Forest Law is enacted by Pyihtaungsu Hluttaw in September, 2018. It empowers, to declare for the reserved forest for the maintaining a sustained yield of the forest produce, to manage the forest land.

Laws and Regulations	Description
	▪ Section 12(a), mentioned that it needs prior approval from the Ministry if desirous to implement the development work or economic project within a forest land and forest covered land. ▪ (c) Whoever desirous to undertake as in sub-section (a), has to comply the Environmental Conservation Law and the stipulations from respective Laws.
Conservation of Water Resources and Rivers Law (2006)	
	In Section (11)(a), (19), it outlines prohibitions for the following activities: ▪ No person shall dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk. ▪ No one shall dispose of any substance into the river creek that may cause damage to waterway or change of watercourse from the bank or vessel." The empowerment of this Law is provided to the Ministry of Transport for controlling navigation of vessels in the rivers and creeks as well as communicating with local and foreign government and organizations for conservation of water resources, rivers and creeks. Also, to carry out conservation works for water resources, rivers and creeks, in accordance with the relevant international conventions, regional agreements and bilateral agreements for environmental conservation.
The Protection and Preservation of Antique Objects Law (2015)	
	▪ Section 12 states that the person who finds any object which has no owner or custodian, needs to inform the relevant Ward or village-tract administrator if he knows or it seems reasonable to assume that the said object is an antique object. ▪ Section 13 states a procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation
The Protection and Preservation of Ancient Monuments Law (2015)	
	▪ Section 12 states that a person who finds an ancient monument over one hundred years old under the water or above ground shall promptly inform the relevant Ward or Village-Tract Administrative Office. ▪ Section 13 states a procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation. ▪ Section 20 states no one shall damage ancient monuments including using machinery which causes vibration and discharging chemical substance.
Myanmar Fire Force Law, 2015	
	The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans. According to Section 25: The factory, workshop, highway bus, airport, jetty, hotel, motel, guest house, collective-owned building, market, work-site or business exposed to fire hazard of the owner or manager shall; (a) Not fail to form the reserve fire brigade (a) Not fail to provide materials and apparatuses for fire safety; in conformity with the directive of the Fire Services Department
Prevention from Danger of Hazardous Chemical and Associated Material Law (Pyidaungsu Hluttaw Law No 28/2013)	
	▪ Chapter 7 – "Any person, who wants to do the business of chemical and associated materials, shall apply to the central body for the acquisition of the license, attached with the management plan for the environmental conservation in accord with the stipulations".

Laws and Regulations	Description
	▪ Chapter 8 – "20. License holder shall apply to the central supervising body in accord with the stipulation for the relevant chemicals and associated materials using for his chemicals and associated materials business" for a certificate. ▪ "22. The registered certificate holder shall abide by the regulations contained in the registered certificate and shall follow the order and directives issued from time to time by the central supervising body". ▪ Section 15 states that a) before works, license holder shall be inspected by the relevant supervising and inspection team for safety and machinery/equipment check and b) The persons who are discharging the duty shall be asked to attend foreign training or preventative trainings conducted by government departments and organisations. ▪ Section 16 provides that licence holders shall a) follow the licence regulations, b) follow directives on safe handling and shall ask workers to strictly follow c) shall provide necessary safety equipment and issue free personal protective equipment to workers, d) provide training in occupational saftey e) determine the hazard to the environment, people and animals f) provide fit for work medical check-up and keep records g) send permission letter to Department of Township Administration if the chemicals and associated material are permitted to store h) acquire in advance guidance and agreement from fire service department if using inflammable materials or explosives i) transport only the permitted amount of chemicals in accordance with prescriptive stipulations j) obtain approval of central supervising body if transporting chemical and associated material from the permitted region to any other region h) abide and operate in accordance with related environmental laws to avoid impacts and damage to the environment. ▪ Section 17 states the licence holder must have insurance in accordance with stipulations in case of compensation is required for losses related to people, animals and environment. ▪ Section 23 states the registered certificate holder shall apply again for using chemical which are not in the registered list. ▪ Section 27 states the license holder shall a) classify the hazard level of chemicals and related substances in advance b) show Material Safety Data Sheet and warning signage c) provide safety equipment, personal protective equipment and training on their use d) possess, transport, store, use and discharge chemicals and related materials in accordance with stipulations, e) not import or export chemicals and related materials banned by the central supervising board.
Myanmar Insurance Law (1993)	
The Myanmar Insurance is established under this Law as a legal entity having perpetual succession, capable of suing and being sued in its own name. The rules for establishing insurances in the country are established. ▪ Section15 states it is compulsory for owners of motor vehicles to have Third Party Liability Insurance with Myanma Insurance ▪ Section 16 states it is compulsory for organisations operating as an enterprise which may cause damage to life and property of the public or may pollute the environment to have General Liability Insurance with the Myanma Insurance.	
The Law On Standardization (2014)	
This is for the reducing the technological barriers for the trade and supportive for the development international free trade zone and for the development of Myanmar economy and social, the standardization will utilize for the smoothness of technology transfer and invention. There it empowers to organize the council for setting up the policy, guideline and to implement to practice the national standard in respective production and service.	
Motor Vehicle Law (2015)	
This is for reducing environmental pollution caused by motor vehicles and the Department has the right to issue directives, the standards, guidelines for the purposes of improting,	

Laws and Regulations	Description
manufacturing, assembling, maintaining to be safe in accident and environment conservation.	
Public Health Law, 1972	
The project owner will cooperate with the authorized person or organization in line with the section 3 and 5 of said law. • Section 3: The project owner will abide by any instruction or stipulation for public health. • Section 5: The project owner will accept any inspection, anytime, anywhere if it is needed.	
The Protection and Prevention of Communicable Disease Law, 1995	
• Section 3 of Chapter 2 states that the Department of Health will carry out immunisations and health education activities related to communicable diseases • Section 4 of Chapter 2 states that the Department of Health will carry out immunisation or other measures in the event of a Principal Epidemic Disease or a Notifiable Disease occurs and the public will abide by the measures. • Section 9 of Chapter 5 of this law states that all persons are responsible for reporting an outbreak of a communicable disease to the nearest Health Officer. • Section 11 of Chapter 6 states that Health Officer may undertake investigations and medical examinations to prevent the control the spread of Principal Epidemic Disease.	
The Control of Smoking and Consumption of Tobacco Product Law, 2006	
Chapter (6), Section (9), states that the person-charge has to keep the caption and mark referring that it is a non-smoking area, arrange the specific place where smoking is allowed and keep the caption and mark also referring that it is a specific place where smoking is allowed, supervise and carry out measures so that no one shall smoke at the non-smoking area and accept the inspection when the supervisory body comes to the place for which he is responsible.	
Employment and Skill Development Law, 2013	
5. (a) (1) If the employer has appointed the employee to work for an employment, the employment agreement shall be made within 30 days. But it shall not be related with government department and organization for a permanent employment. 15. The Project Proponent (a) shall carry out the training for each work or compounding the work individually or group- wise by opening on- job training, training systematically at worksite, sending outside training and training by using information technology system, for arranging the training program to enhance the employment skill of the workers; (b) appointing the youths of 16 years as apprentice, shall arrange the training for technology relating to the employment systematically in accord with the regulations prescribed by the skill development team.	
The Settlement of Labour Dispute Law, 2012	
The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. • Section 38 provides that no employer will fail to negotiate and coordinate in respect of a complaint within the prescribed period without sufficient cause • Section 39 provides that no employer shall alter the conditions of service of workers involved in disputes prior to investigation by tribunals • Section 40 provides that no party shall strike or lock-out without negotiation, conciliation and arbitration by Arbitration Body. • Section 51 provides that employer if commits acts without sufficient cause, may be liable to pay full compensation to workers as determined by Arbitration Body or Tribunal.	

Laws and Regulations	Description
The Workmen Compensation Act, 1923 (amended 2005)	
The Workmen's compensation act had been promulgated in 1923, amended in 2005, to provide for the payment by certain classes of employers to their workmen of compensation for injury by accident. There it clearly described for the liability for compensation of employer's, amount of compensation, compensation to be paid when due and penalty for default, method of calculating wages, review, commutation of half-monthly payments, payment of a lump sum amount, distribution of compensation, compensation not to be assigned, attached or charged, notice and claim, power to require from employers statements regarding fatal accidents, reports of fatal accidents and serious bodily injuries, medical examination, contracting, remedies of employer against stranger, compensation to be first charge on assets transferred by employer, special provisions relating to masters and seamen. The amendment law is for revising the monetary amount to update.	
Labour Organization Law, 2011	
This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labour organizations systematically and independently. • Section 17 provides that Labour Organisations are free to organise and negotiate workers rights if not meeting labour laws. • Section 18 provides that Labour Organisations may demand re-appointment of worker if cause of dismissal is related to labour organisation membership or activities or not conform with labour laws. • Section 19 provides that Labour Organisations have the right to send representatives to conciliation tribunals. • Section 20 provides that Labour Organisations have the right to participate and discuss workers rights and interests with government and employers • Section 21 provides that Labour Organisation have the right to participate in collective bargaining in accordance with labour laws. • Section 22 provides that Labour Organisation may take collective actions in accordance with the relevant procedures, regulations and law.	
Minimum Wages Law, 2013	
This Law was enacted to meet with the essential needs of the workers, and their families, who are working at the commercial, production and service, agricultural and livestock breeding businesses and with the purpose of increasing the capacity of the workers and for the development of competitiveness. • Section(12), (a-e), it is stipulated that the employer shall not pay wage less than the minimum wage stipulated, not have the right to deduct any other wage; • Section(13) (a-g), it is stipulated that the employer shall inform rates of minimum wage relating to the business, allow the entry and inspection of the inspection officer, give the sick worker holiday for medical treatment in accord with stipulation and give holiday for the matter of funeral of the family of worker without deducting from the minimum wage.	
Payment of Wages Law, 2016	
Salaries are to be paid at the end of the month or, depending on the size of the employing enterprise, between 5-10 days before the end of the month. The employer is permitted and required to withhold income tax and social security payments. Other deductions, e.g. for absence, may only be withheld in accordance with the law. • Section 3: The employer (a) will pay for salary either Myanmar Kyats or Foreign Cash permitted by National Bank of Myanmar. When delivery the salary (b) If the employer needs to pay the other opportunities or advantages, he can pay cash together with other materials according employee's attitude. • Section 4: When the contract finish, employer need to pay the salary (not more than one month) to employees. For the permanent worker, need to pay per monthly. If more than	

Laws and Regulations	Description
	100 employees, need to pay within the 5 days from the end of month. If fire the employees, need to pay salary within two days after fire. When employee dies due to the accident, need to pay money as an insurance to employee's family within two days. • Section 5: If the employer has difficulties to pay wages on time because of significant events (eg natural disaster), the employer must report to the Department with evidence of payment at later date agreed with the employee. • Section 9: When cut the salary due to the employees' absence, total cut salary not more than 50 % of his salary. • Section 10: Employer need to approval form the department as a penalty and cannot more than actual ravage rate when cut salary. No cut salary from the employees under 16 age. • Section 14: If an Employee carries out overtime work, he/she must be allowed the presiding overtime rate as set by the Law.
Social Security Law, 2012	
The Establishments Applied this regulations as guiding body for better social providing for mine workers. The prescriptions most relevant to the project are: • Section 18 (b), it is stipulated that the employer can deduct contributions to be paid by worker from his wages together with contribution to be paid by him and pay to the social security fund and in such case he can incur the expense. • Section 51: The employer (a) shall pay contribution monthly to Employment Injury Benefit Fund at the rates stipulated under section 50. Moreover he shall also bear the expenses for paying as such; (b) shall pay defaulting fee stipulated under section 88, in addition to the contribution if fails to contribute after effecting insurance for employment injury benefit. • Section 53 (a) The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment; • Section 54 - The employer shall report to the relevant township social security office immediately if a serious employment accident occurs to his insured worker. There shall not be any delay without sufficient cause to report as such. A team of officers and other staff who inspect the establishments, if it is found out the employment injury, death, and contracting disease, shall report to the relevant township social security office in accord with the stipulations. • Section 75, there it is clearly prescribed for keeping records of work and lists.	
Law protecting Ethnic Right, 2015	
This is for the Equal right between the Ethnics living in Myanmar. It enacted that if an ethnic loose the right, he can complain to the Regional or State Government to get the equal chance and find the equal right. • Section 5 of Chapter IV provides that project matters shall be informed, coordinated and undertaken in consultation with ethnic groups if projects are in areas with ethnic groups.	

The Succeeding laws to protect the right of Myanmar national similar in nature to this are

1. Monogamy Law (2015): Concerning all those who are living in Myanmar, Myanmar Citizens who live outside of Myanmar, and foreigners who marry Myanmar citizens while living in Myanmar for preventing misconducting marriages.

2. Buddhist Women Special Marriage Law (2015): Concerning the marriage between Buddhist Woman and other religious man. There prescribed the legal procedure, the

Laws and Regulations	Description
	conditions to be complied by non-Buddhist husband, the customs for dividing property when divorcing. ***3. Religious Conversion Law (2015):*** This is enacted for the freedom to convert from one religion to another, or a person without a religion has the freedom to convert to a religion. There prohibited to apply for a religious conversion with an intent to insult, disrespect, destroy, or abuse a religion. ***4. Population Control Healthcare Law (2015);*** This is for alleviate poverty, provide adequate quality healthcare, and ensure that family planning improves maternal and child health in the country. This Empowers region or state government that concerned with the special zone for healthcare to form region or state population control healthcare group to implementing the task as per the directives of the Ministry and region or state government and the Union Territory Governing body.
Leaves and Holidays Act, 1951	
	Under the Leave and Holidays Act (1951), every employee shall be granted paid public holidays as announced by the Government in the Myanmar Gazette. On average, Myanmar has 26 public holidays per year, depending on the date of the variable holidays. Myanmar law recognizes various types of leave. Leave is governed by the Leave and Holidays Act (1951), but additional rules may apply in accordance with other laws, such as the Social Security Law (2012) for employees contributing to the Social Security Fund.
Occupational Safety and Health, 2019 (Pyidaungsu Hluttaw Law No.8.2019)	
	The Project Proponent commits to comply for: • Responsibilities of the employers and the employee • Responsibilities of the manufacturer, traders, installation or deployment, and construction and demolishment • Information/Notice, investigation and reporting

1.2.2 International Agreements and Treaty

Relevant international conventions to which Myanmar is a signatory include those related to waste management, biodiversity conservation and labour conventions. The key international conventions of relevance to the Project are included in *Table 1.3*.

Table 1.3 International Conventions 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 not 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 Transboundary 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

1.3 PROPONENT'S CONTRACTUAL AND OTHER 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:

- The Project Proponent will comply with commitments, mitigation measures and management plans stated in this EIA report.
- 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.
- Support programs for livelihood restoration and resettlement in consultation with the PAPs, related government agencies, and organizations and other concerned persons for all Adverse Impacts.
- Fully implement the EMP, all Project commitments, and conditions, and is liable to ensure that all contractors and subcontractors of the Project comply fully with all applicable Laws, the Rules, this Procedure, the EMP, Project commitments and conditions when providing services to the Project.

- 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.

- Respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union;

- 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;

- 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 departments and governmental organizations, or to carry out registration;

- Immediately inform the Commission if it is found that natural mineral resources or antique objects and treasure trove not related to the investment permitted above and under the land on which the investor is entitled to lease or use and not included in the original contracts.

- To inform the village 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;

- 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;

- 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;

- 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;

- Supervise foreign experts, supervisors and their families, who employ 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;

- Have the right to sue and to be sued in accordance with the laws;

- Pay effective compensation for loss incurred to the victim, if there is damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a Permit or an Endorsement.

- 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.

- Ensure that all foreign employees apply for the proper work permit and visa through the Myanmar Investment Commission (MIC).

- Provide rights and benefits including but not limited to, leave, holidays, overtime pay, compensation and social security. Most of 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.

1.4 INSTITUTIONAL FRAMEWORK

In Myanmar, matters pertaining to Health, Safety and Environment (HSE) requirements are generally under the jurisdiction of the ministries and state-owned enterprises. Key ministries and agencies that have jurisdiction over HSE matters in mining operations are included in *Table 1.4*.

Table 1.4 Key Ministries and Agencies Involved in HSE

Ministry/Agency	Responsibility
Ministry of Natural Resources and Environmental Conservation (MONREC)	The Environmental Conservation Department (ECD) of MONREC has ultimate responsibility in the review and approval, or otherwise, of submissions under the IEE/EIA process.
Myanmar Investment Commission (MIC)	MIC is a government agency responsible for coordinating with ministries (such as the MOEE) and other state entities to facilitate foreign investment in Myanmar. The MIC is also responsible for granting MIC permits which enable foreign investors to carry out business activities under the Myanmar Investment Law (2016).

1.5 PROJECT'S ENVIRONMENTAL AND SOCIAL STANDARDS

MONREC has established environmental quality standards, the National Environmental Quality Emission Guidelines (2015)(NEQEG). The NEQEG provide the basis for regulation and control of noise and air emissions and effluent discharges from projects in order to prevent pollution and protect the environment and public health.

The Project Proponent will implement the project by complying as per NEQEG for all phases (construction, operation, disclosure and post-disclosure) where applicable.

In NEQEG guideline, there prescribe the limit for Tanning and Leather Finishing (2.3.2.2) in Garments, Textile and Leather Products (2.3.2). This guideline applies to textile manufacturing using natural fibers (made entirely from chemicals), and regenerated fibers (made from natural materials by processing these materials to form a fiber structure). It does not include polymer synthesis and natural raw material production.

1.5.1 Effluent Levels

Effluent and storm water flows should be managed so as to achieve the following effluent levels as per prescribed in section 2.3.2. Garments, Textile and Leather Products; 2.3.2.2. Tanning and Leather Finishing

Table 1.5 NEQEG on Effluent Discharge Levels

Parameter	Unit	Guideline Value
5-day Biological oxygen demand	mg/l	30
Adsorbable organic halogens	mg/l	1
Ammonia	mg/l	10
Cadmium	mg/l	0.02
Chemical oxygen demand	mg/l	160
Chromium (hexavalent)	mg/l	0.1
Chromium (total)	mg/l	0.5
Cobalt	mg/l	0.5
Color	m^{-1}	7 (436 nm[a], yellow) 5 (525 nm, red) 3 (620 nm, blue)
Copper	mg/l	0.5
Nickel	mg/l	0.5
Oil and grease	mg/l	10
Pesticides	mg/l	0.05-0.10[b]
pH	S.U.[c]	6-9
Phenol	mg/l	0.5
Sulfide	mg/l	1
Temperature increase	^{0}C	<3[d]
Total coliform bacteria	100 ml	400
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50
Zinc	mg/l	2

[a]Nanometers

[b]0.05 mg/l for total pesticides (organophosphorus pesticides excluded), 0.10 mg/l for organophosphorus pesticides

[c]Standard unit

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

1.5.2 Air and Noise Emission

The principle sources of air emission are fugitive dust from earth works and materials handling and transport facilities. Prevention and control of air emissions should be sufficient to achieve the general air emission guideline for ambient air quality. The air emission parameters are taken from *Section 2.3.2.2.Tanning and Leather Finishing* and noise from *Section 1.3* of the NEQEG and shown in Table 1.6 and Table 1.7 respectively.

Table 1.6 Air Emissions Levels (for leather finishing)

Parameter	Unit	Guideline Value µg/m^3
Upholstery leather	kg of hazardous air pollutant loss per 100 m^2 of leather processed	3.3
Water resistant/specially leather		2.7
Non-water resistant leather		1.8

Table 1.7 NEQEG Noise Level Parameters

Receptor	One hour LAeq (dBA)[a]	
	Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)	**Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)**
Residential, institutional, educational	55	45
Industrial, commercial	70	70

[a] Equivalent continuous sound level in decibels

APPENDIX - G

Environmental Health Impact Assessment

Report on Ming Cheng (Myanmar) Footwear Co., Ltd.

1. Introduction

On 9.2.21, our group (NEPS) including Environmental Engineer and Sanitary Engineer went to Ming Cheng (Myanmar) Footwear Co., Ltd to detect possible EIA & EHIA of the work place.

The footwear factory is situated premises at Plot No. (47), Myay Taing Block No. 112, Industrial Zone, Min Ye Kyaw Swar Street, Dagon Myothit Eastern Township, Yangon Region. Besides, it is surrounded by some factories (i.e. Bakery and the others)

2. Background

2.1 At present there are 253 workers (labours) and 7 Chinese employees (6 males and one female) because Ming Cheng co.,ltd is a china origin and most of the labors are females. Moreover, they are now giving on job training to the new workers before full-swing operating. They (Chinese) reside in a three storey building within the factory compound. There are no provision of residential and meal for the labors. The working hours are (8) hrs: from (9:30 am) to (17:30 pm) with lunch break (11:30am) to (12:30pm).

Regarding EHIA, we detected from the industrial Hygiene and occupational hazard aspect.

2.2 Responsible persons met; Human Resource manager, Daw Moe Moe Naing Kyaw, and her some staff members, we met and discussed.

3. Findings & Comments

Our observatory findings are presented as per following mentioned sub- headings.

3.1 Medical Service

Though we have no information about this work it should be carried out by physicians, dentists and nurses.

3.1(a) Physical exanimation: These are given to new employees for the purpose of eliminating those unfit for work or those who have some latent condition which could be aggravated by a new exposure.

Periodical routine physical examinations are important since they have the advantage of revealing previously unsuspected working hazards.

3.1(b) Supervision over working conditions: The physician is the health officer of the plant. He/she should be able to interpret the engineer's reports on health hazards and apply them effectively. Furthermore, the prevention of health hazards requires not only the installation of preventive measures but also their intelligent use. So, health education should be given to the labors and would be discussed by the same employee groups who meet periodically to discuss the safety problems of their plant. In other words, reeducation or climination of health hazards is a product of team work between management and the employee.

No safety Engineer was found there but a good example is a bill-board (warning placard) COVID-19 noticing, was stuck on the wall at the entrance of factory.

3.2 Engineering and safety services

The application of engineering to industrial hygiene require basic: training in addition to knowledge of ventilation, chemistry of fumes and gases, physiology, toxicology, industries sanitation and the broad field of public health.

3.2(a) Engineering in Industrial Hygiene: After the physician has recognized the physical injury or disease, caused by the hazardous process or environment, engineering methods leading to remedies should then be applied. These are (1) determination of the plant conditions that are causing the hazard;(2) the use of precise quantitative measurements or statistics to establish the exposure or other factors that result in injury or disease; (3) the devising of methods of controlling or minimizing the dangerous conditions and study of their effectives.

3.2(b) Safety: The safety engineer has the necessary training or knowledge to recognize conditions or practices that might result in accidental injuries to workers. If a complete physical record is kept of each employee, including aptitude tests, individuals who are especially prone to accidents may be eliminated from certain occupations.

Daily inspections of all operations should be made by the safety Engineer. Safety committee, made up of workers should be formed under a central plant committee. Each plant should have at least one first-aid or stretcher crew composed of interested employees who have had some special training. A clinic room was seen in this factory. Besides, First Aid materials were also seen in residential building of foreign employees.

3.3 Governmental Control

Many workers in small industries depend for health protection upon the state region and local health departments which in turn must be supported by adequate laws. The government has many and varied laws governing factories, being concerned with inspection of steam boilers, dust removal, regulating working hours, provision for emergency exists, reporting occupational

disease, the installation of safety devices, proper ventilation and lighting , and sanitation of work rooms and toilet rooms. In this regard, we have, in our country, government organizations like ECD, DOH, factory Inspectors and private NGO, like NEPS and etc.

3.4 Organization for industrial hygiene

The real and potential progress in the field of industrial hygiene is indicated by the fact that each state region has industrial hygiene services in actual operation on the state level.

So far, there is no separate organization for industrial hygiene in our country. For long time ago, this service is carried out by the coordinated effort of occupational Health and Environmental Sanitation divisions under public health unit. But, since 3-4 years ago, OH has organized hygienists on the staff.

4. Discussion on prevention

4.1 Occupational Hazards

Only when we know about the 'Occupational Hazards' Event, We may plan the prevention precisely. Most processes and operations of the industry involve one or more potential threats to the health and safety of the worker. These are called occupation hazards. Most of them may be eliminated or much reduced by the application of engineering methods. So, the most important hazards mentioned as per following:

1. Excessive heat, cold or humility
2. Compressed air
3. Dust, fumes, and gases
4. Poisons
5. Excessive noise
6. Poor illumination, glare and extreme light
7. Repeated motion, pressure or shock
8. Infections
9. Radiation hazards
10. Accidents
11. Poor plant sanitation

Prevention from these hazards is discussed in the following paragraphs as necessary as possible.

Some general rules for the protection of workers and public may be:

1. **Location** - Plant should not be located near by the crowded area, not within the residential buildings, better in industrial zone (not for all).

2. **Construction of buildings** - The buildings should be constructed so that the dangerous processes are isolated. For example, windows are provided proportionately to the floor area of working place.

3. **Use of exhaust fans and ducts** - They are placed as close to the source as possible so that poisonous air-born materials will be removed quickly. These require careful design. In this plant, four big inhaust fans were installed at each workplace, but, no exhaust fans were seen. Actually, both (inhauls & exhaust fans) are essential.

In breathing, mixed audience consumes about 0.6 cubic foot of carbon dioxide per person per hour to the atmosphere. 0.5% of carbon dioxide, at the expense of oxygen, would require a slight increase of lung ventilation, while 10% cannot be endured for more than a few minutes (Bureacu of mines, USA, circular).

Ventilation codes call for new fresh air per person per minute that would keep carbon dioxide content to a low level. These requirements were 30 cubic foot/P/ min. At present, however, carbon dioxide content is not considered as a reliable index for new fresh air or for prevention of odors. Almost 10 cubic foot of new fresh air /p/ minute is required.

4. **Avoidance of direct contact** - So for as possible, direct contact between the workers and dangerous substances must be avoidance, for example, by wearing hand gloves and other protective devices. In this plant, workers are sticking some parts of shoe together with glue, in which unknown chemicals consisted, without gloves.

5. **Replacement of production methods** - If necessary, replacement of particularly dangerous production methods with less or no dangerous methods and substitution of less or no dangerous chemicals or agents for the more dangerous ones.

6. **Instruction of workers as to the hazards of the process** - Instructions for the precautions that should be taken by the worker to a void poisoning or other injury should be delivered. Warning placards should be used to supplement other instructions. Covid-19 warning placard seen at the plant is a good example.

7. **Supervision** - Dangerous operations should be supervised by responsible and well informed persons.

8. **Employment of all personal means** - All personal means such as clothing, gloves and respirators appropriate to the hazards encountered should be employed. These devices should not, however, replace the better alternative of attacking the basic causes of the hazards. Furthermore, such safety devices are not always used and may get out oforder or otherwise lose their efficiency without knowing that.

9. **Periodical medical examinations** - Medical examination will lead to provision for transferring workmen who show signs of poisoning (i.e., crowd poisoning, chemical or radiation poisoning and etc.) to other occupants. In occupations that may give rise to chronic poisoning, a periodic shifting of workers may be advisable.

10. **Bodily cleanliness on the part of workers** - This includes bathing and changing of clothing at the end of working day. Work clothing must be frequently cleaned in non-hazardous ways. This requirement is the responsibility of industry authority to furnish suitable clothing lookers, washrooms and shower baths.

11. **Lunch room** - Lunches should not be eaten in the work room. It was seen that a lunch room was provided in the plant compound.

12. **Working hours** - Working hours in the hazardous operations should be as short as possible. The office hours of the plant will be 8 hours from 9:30 am to 5:30pm. The maximum concentration refers to average concentration of 8 hour working shift. The amount of that may be exceeded for short periods depends upon a number of factors such as the nature of contaminant whether short periods of high concentration produce active poisoning whether results are cumulative and the frequency of occurrence of high values and for what periods of time. All these must be considered before deciding whether a hazard exists.

13. **Maximum Allowable concentrations-** Many of the industrial poisons are air-borne, as fumes, gases, dusts, and vapors. The impinger or the electrostatic precipitator may be used if it is known that the poisonous material is a dust. As a result of many observations and much experience a great deal has been learned of the effects of certain substances upon workers and this knowledge has been translated into allowable concentrations.

The maximum allowable concentration is defined as that amount of atmospheric contaminants which can be tolerated by man for daily exposure with no impairment of health or well-being either immediately or after years of exposure.

14. **The Dust Hazard** - The workers in many industries are exposed to a serious health hazard as a result of dust inhalation. The injurious effects of the inhalation of a harmful dust are proportional to the amount of dust breathed, which in turn, is related to the amount of dust in the atmosphere and the length of time it is breathed.

Dusts may be classified as inert, irritating and toxic. The inert ones do not poison the body although they may cause undesirable effects. The inert dusts are less harmful than other types although a considerable amount of respiratory disease is attributed to them, Metallic and mineral dusts are considered more dangerous in predisposing to respiratory disease. (e.g. silicosis, asbestos and etc.). "Silicosis" sets up conditions favorable for fatal pulmonary

tuberculosis. Asbestos dust has the same effect as silica, the resulting disease being known as "asbestosis". It has been discovered that silica dust particles in numbers over 10 million per cubic foot of air will be injurious to workers. Not more than 5 million particles per cubic foot could be allowed. Similarly, limit of safety in the lead dust content of the air is 1.5 milligrams per 10 cubic meters of air (approximately the amount breathed per day), except for prolonged exposure in excess of 8 hours daily.

The atmospheric dust content could be measured by impinger or electrical precipitator. The preventive measures include mechanical removal of the dusts by exhaust systems or the wearing of respirators or helmet over the nose and mouth by workers.

15. **Radiation Hazards** - The industrial use of radioactive compounds such as luminous paint has long been recognized as a serious industrial health hazard. Other hazards noted in this field involve shoe store clerks who work near fluoroscopic shoe-fitting machines.

Protective measures include proper construction of laboratories and buildings, disposal of radioactive wastes, a service that determines radiation present in the air and personal protective measures.

16. **Noise Hazard** - Noise levels at or near 100 decibels are harmful to the human ear. To safeguard the worker, noise should be reduced by use of the following expedients, (1) diminution of sound at its sources, (2) isolation of noisy operations, (3) reduction by sound insulation and (4) use of personal protective devices.

17. **Light as a hazard** - Workers required to handle or view glowing materials and showing eye affections caused by the excessive illumination. Excessive eyestrain may be caused in industrial processes by poor illumination, by glare, improper brightness contrasts, and flicker and by poor illumination combined with close use of the eyes for long period. Prevention is obtained by use of cobalt and dark glasses.

18. **Heat** - Excessive heat is a hazard to workers. The effects are heat exhaustion, colic, and cramps. If there are rapid variations in temperature, congestion of the internal organs may result with possibility of rheumatic and neuralgic affections, gastrointestinal catarrh, pneumonia, and other disorders.

Exposure to a cold humid atmosphere lowers the power of resistance and is conducive to rheumatic and pulmonary diseases.

Preventive measures include air conditioning to obtain proper temperature and humidity with use of helmet, and goggles to protect from radiant heat.

19. **Compressed Air** - The workers who work in air greater than atmospheric pressure are exposed to a disease known as the bends. The increased pressure causes air to be dissolved in the blood, a condition which is not dangerous unless the air pressure suddenly greatly reduced. Bubbles of nitrogen then form in the veins as well as arteries and interfere with circulation, collapse and death being very likely to occur. The danger is overdone med by reducing the air pressure gradually.

20. **Repeated Motion, Pressure, Shock** - using the same muscles in the same motion for many hours in a day may affect the workers so that they loses the ability to continue the operation, although the muscles respond to his will in all other respects. This condition is called an "occupational neurosis". The well-known "writer's cramp" is an example. Rest and medical attention are required by the victims of this condition.

21. **Infections** - Certain occupations present hazards from infections. Anthrax is common among workers in leather and hair. So far as possible hides and hair should be disinfected. Workers with open cuts should not handle unsterilized hides or hair, gloves should be worn, and washing facilities are necessary.

Cutting workers use oily or soapy liquids to cool the substance while it is being cut. Such cutting compounds are used and returned many times. Frequently they become vehicles for large numbers of performing bacteria and are responsible for spreading wound infections and furunculosis (boils). The remedy is sterilization of the compound by heat in central reservoirs before it is re-circulated.

22. Plant sanitation - The sanitation of industrial plant is directed toward obtaining proper conditions for conserving health and improving the efficiency of the workers. This includes proper ventilation, heating and lighting, the furnishing of pure drinking water, adequate toilet facilities, adequate and clean lunchrooms, and good housekeeping of the plant in general.

A highly important provision is the delegation of this responsibility to some qualified person. Leaving of this important matter to the individual foremen of various departments will be unsatisfactory. Even in small plants where more dependence must be placed upon state or city factory inspectors, instructions, responsibility, and the necessary authority should be given to some permanent member of working force. The personal manager could be charged with this responsibility because of his / her advantageous relationship with labor and management. Also private NGO (Third Party) could be assigned.

22(a) Ventilation - The ventilation of industrial plants should be based upon the comfort standard with the necessary attention paid to the activity required of the worker by his occupation. This may change the usual relationships of temperature, humidity, and air

movement to bring the atmospheric conditions into the comfort zone. An additional requirement is that at least 20 square feet of floor space and 200 cubic feet of air space should be provided for each worker.

Besides normal ventilation, the problem of removing injurious dusts, fumes, vapors and gases must be solved. This requires exhaust systems. Of equal importance is the fact that such systems should be operated at all times when protections are needed.

22(b) **Illumination** - A working room requires sufficient lighting to reduce eye strain and to prevent accidents. Supplementary lighting is sometimes necessary to give proper illumination for special types of work. Here also care should be taken to avoid high brightness ratio in the field of vision. A ratio of 10:1 should not be exceeded and 5:1 is preferable limit.

The illumination is measured by a foot-candle meter at the place of work with attention to proper brightness ratios and prevention of glare. But, allowable light intensity for a work place is 5 W/ft^2.

For natural illumination of one storey industrial buildings, the window area should be at least 30 percent of the floor area. If only one wall has windows, the width of the room should not exceed twice the height from the floor to the top of the windows. If windows are in two parallel walls, the width between should not exceed six times the height.

Here, in this plant, estimation by calculation with inverse square law shows illumination intensity is 5 F/ft^2 plus additional 4W/ft^2 by ceiling lamps. This means that illumination is good enough for work place but not in store and packing room at the ground floor.

Glare occurs when there are high brightness ratios anywhere in the field of vision. Glare causes discomfort and directly influences the ability and the continued urge to see. When light strikes a surface, it will be absorbed or reflected. If the surface is rough and black, practically all will be absorbed. If the surface is light-colored, a large portion will be reflected. For visibility, some of the light must be reflected and the surface, therefore, will have brightness. It can be said that good visibility depends upon a high brightness contract of the critical detail to it background.

22(c) **Water Supply** - Source of water supply is two tube wells. Whether these two tube wells are protected or not, it was not seen, raw water, combined water of two tube wells was lifted to 8 number of steal barrels with each capacity of 1500L. The raw water is treated by R.O method. The filtered water is directly distributed to the plant for drinking and other consumption purposes.

There is no clear water storage and distributed to plant for drinking and other consumption purposes. There is no clear water storage and disinfection (i.e., ozone and UV rays) before entering the plant. However, the water in the supply pipes may be contaminated with soil

bacteria if there is leakage. Therefore, continuous supply rather than intermittent supply is adviser able. Amount of daily consumption water is not known because the water technician cannot answer.

Not less than 20 gallons per capita per working day will be required for drinking, working and etc. The consumption of drinking water alone, according to type of work and temperature will vary 2 quarts to 2 gallons, seemed to be much (2-5 liters are better).Temperature of drinking water should not be under 46 H F.

The common drinking cup is prohibited in favors of drinking fountains. The number of foundations required, will vary from (1-50) to (1-200) men depending upon the plant arrangement. The safe drinking fountain provides a diagonal jet with guards so placed that the mouth of users can not touch the orifice. The water outlet or orifice should be above the rim of the bowl so that stoppage will not submerge it and there by cause a cross connection or contaminate the orifice edge.

A possible danger is the use of unsafe supplies for fire protection or industrial purposes. Too often the auxiliary water is accessible for drinking if the two supplies are cross connected the supposedly safe supply may become polluted.

Exposed piping should be distinctly colored or and taps of faucets on unsafe supplies should be placarded or removed.

22(d) **Toilet facilities** - In all toilet rooms, the floor and side walls should be water tight and impervious to moisture to a height of 6 inches. The floors side walls and ceilings should be of a finish that can be cleaned easily. All toilets and washrooms should have window openings to the outside air or be provided with ventilation system which will change the air at least six times per hour. The proportion of glass window surface should not be less than one square foot each 10 square feet of floor area. If sufficient natural illumination is not available, artificial light should be provided sufficient in amount to encourage cleanliness and allow easy inspection.

Sanitary closet seats are of impervious material. If the wash room is not combined the toilet room, one or more washing faucets should be placed in the toilet room. American Standards Association recommended that up to 50-100 numbers of workers require 5 minimum numbers of facilities and for over 100 persons, 1 for each additional 30 persons is needed.

One washing faucet should be provided for 10 employees in large plant. The washing faucet is for more desirable than the individual wash basin as being less likely to spread infections among the user. Hot and cold water should run from the same faucet, the hot water is not more than 125 HF.

Shower baths, with an ample supply of hot and cold water from the same fixture, should be provided in the ratio of one for each 15 workers. The showers should discharge at an angel from the wall rather than from overhead. Hoods may be advisable to carry off vapors.

A well ventilated locker should be furnished to every employee. The room itself also requires good ventilation or the odors form used clothing will be noticeable. An alternative to lockers is the ceiling hook. Each workman is allotted two hooks and a wire basket for shoes.

Where 10 or more women are employed at any one time, at least one retiring room should be provided for their exclusive use. Space provided should be at least 60 square feet of floor area, with an increase employee above 10.Moreover, at least one couch or bed should be provided where 10 women are employed. The recommended minimum number of beds is one for 100 women or less, two beds for 100 to 250 and one additional for each additional 250 women employed. The covered receptacle is also required to receive all waste food, paper etc. at suitable places.

In this plant, 4 toilet seats for women and 4 plus 2 urinals for men are found. One said that 8 seats for women are in upper floor. For the time being toilet facilities are satisfactory for the present number of workers. But, numbers of facilities must be given more for women employees.

22(e) **Packing and store room** - In packing and store room in ground floor of the plant, it was found that there are some odor due to the decomposition of organic matters probably and plus with odor from bakery. There, odor masking should be done.

22(f) **Waste disposal-** Solid wastes of the plant are categorized into two types i.e., 'wet' and 'dry' refuse, There are two temporary storage tanks measuring each tank 18'x7'x3'. We refuse is disposed weekly by the plant and dry ones will be disposed by township municipality by contrast system. It is now under processing. Sharp and dangerous chemical wastes are not categorized. It seemed, no color coding system for the refuse and no use of garbage bags.

The unrefrigerated wastes should not be stored longer than 3 days. Open dumping of refuse may be breeding place of the flies. By these flies, diarrhea, dysentery, warm infections etc. may cause to the workers and to the public.

The liquid wastes are directly disposed into municipal rain drain by conduit sewer. One day, there may be change of slope of the drain. By then, it will cause stagnant water or pool which may be breeding place of mosquitoes. The mosquitoes, by bite, will cause dengue (from clear water), filariases (from sewage water), yellow fever etc. So, periodic maintenance of drain will be necessary.

23. **Recommendation** - Raw water quality test result shows that it is not bad. But, the output water quality after R.O system should also be tested to ensure the safety of drinking water. If water source, two tube wells are protected well, the water quality will not change. But, R.O system removes all particles including nutrient matters which are required and good for health and development of the consumers, and longtime use of this water as drinking water is considerable.

Some personnel drink bottle water but it is to be ensured that the bottle water is the quality product of licensed manufacturing factory because during storage, transport and handling, the water can be contaminated.

Regarding solid waste disposal, wet waste should be disposed once in 4 days to reduce the odor nuisance in the plant environment and dry waste (sharps & chemical) should be categorized and collected with garbage bags by color coding system.

Concerning with liquid waste, it is necessary to ensure the drain water is always running through regular checking and maintaining.

Present numbers of toilet facilities with that of employees are satisfactory. In future, not less than 6 seats per floor would be necessary for woman workers.

If possible, a Safety Engineer and a Physician should be on the staff. Safety engineer must measure temperature, humidity, air dusts etc. analyses, record and report. Physician will be responsible for routine periodic medical examination to the plant workers, keeps the record for individuals and gives necessary advice and reports to the authority. Seeing the warning placards, separate lunch room, first aid kid (if not only for the foreign employees) and clinic are good examples.

Hence, the plant is acceptable since the plant process is not dangerous one.

24. **Conclusion** - Though we have some limitation, via, not much time to observe, respondents cannot answer the questions well, HR manager herself has no authority to give the data, less manpower to measure some dimensions, etc. We tried our best as accurate as possible, using our knowledge, experience and intelligence.