MINGSHANG SPORTS MYANMAR COMPANY LIMITED

ENVIRONMENTAL MANAGEMENT PLAN

FOR

FOOTWEAR PRODUCTION FACTORY PROJECT, PLOT NO.(13+14), MYAY TAING BLOCK NO.(143/1), KYANSITTHAR YEIK MON INDUSTRIAL ZONE PART (2), DAGON MYOTHIT (SOUTH) TOWNSHIP, YANGON REGION

December 2021

National Engineering & Planning Services Co., Ltd, Myanmar

Contents

LIST OF FIGURES

LIST OF TABLES

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
EMP	Environmental Management Plan
EMO	Environmental Management Officer
ERT	Emergency Response Team

ERTL	Emergency Response Team Leader
ESO	Environmental Site Officer
ESIA	Environmental and Social Impact Assessment
GoM	Government of Myanmar
HSE	Health, Safety and Environment
IFC	International Finance Corporation
NEQEG	National Environmental Quality Emission Guideline
MONREC	Ministry of Natural Resources and Environmental Conservation
MOEE	Ministry of Electricity and Energy
O_3	Ozone
OH & S Code	Occupational Health and Safety Code
PCM	Public Consultation Meeting
pH	Measurement of Acidity and Alkalinity
PM_{10}	Particulate Matter < 10 µ m
$PM_{2.5}$	Particulate Matter < 2.5 µ m
RO	Reverse Osmosis
SO_2	Sulfur Dioxide
SIA	Social Impact Assessment
TSP	Total Suspended Particulate
TDS	Total Dissolved Solid

APPENDICES

Appendix A : Permit Order and Certificates
Appendix B : Photo Records of the Project Site
Appendix C : Impact Assessment Matrix of Footwear Production Factory Project
Appendix D : Project Documents of Footwear Production Factory Project: Project Layout Plan and Machinery List
Appendix E : Environmental Quality Monitoring Report: Ambient Air, Noise Level and Water Quality Analysis Result
Appendix F : Overview of Policy, Legal and Institutional Framework for Footwear Project
Appendix G : Report on Mingshang Footwear Factory Environmental Health Impact Assessment

ENVIRONMENTAL MANAGEMENT PLAN (EMP) REPORT ON FOOTWEAR PRODUCTION FACTORY PROJECT, KYANSITTHAR YEIK MON INDUSTRIAL ZONE PART (2), DAGON MYOTHIT (SOUTH) TOWNSHIP, YANGON REGION

1. EXECUTIVE SUMMARY

1.1 Summary of Project Description

The Project Proponent "Mingshang Sports Myanmar Company Limited" is situated at Latitude 16°52'48.84"N, Longitude 96°14'47.25"E which is located at Plot No. (13+14), Myay Taing Block No. 143/1, (Kyansitthar Yeik Mon Industrial Zone) Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region for manufacturing all kinds of footwear products on CMP (Cutting-Making-Packing) basis with client-ordered design.

Amount of foreign capital investment for Mingshang Footwear Manufacturing Factory Project is 4.700 Million USD (100% Foreign Investment Company Mingshang Sports Myanmar Company Limited). Land and buildings are leased by the project proponent with an initial fifty (50) years and extendable for two times for ten (10) years counting from the date of signing the Lease Agreement between Daw Kyi Thar Win Pyar (Lessor, F-One Myanmar Co., Ltd) and Mingshang Sports Myanmar Company Limited (Lessee).[1]

For manufacturing of varieties of shoes to be exported on CMP System, the factory infrastructures have already been constructed and its completion of construction phase is 100% now. Infrastructures constructed at project site which is an area of 5.667acres (22933 m^2) includes:

- Factory A (120m x 32m) three storey steel structure building;
- Factory B (120m x 32m) three storey steel structure building;
- Dormitory (39m x 14.9m) three storey RC building;
- Staff Messing hall (12.2m x 8.2m);

The machinery, spare parts, raw materials and other accessories are intended to be imported from foreign country to produce the finished products at this factory. These raw materials are certified to ensure safe transportation to the project site as non-hazardous materials. Moreover, total types of 23 machineries will be used for production of footwear.

At the project site, deep well water is being treated by Reverse Osmosis treatment plant and is supplied from purified water distribution to the entire project site. The required electrical power supply is from the National Grid Line with 11 kV/0.4 kV transformer and also 400 V two generators are being installed for emergency cases. Furthermore, the factory has health clinic

[1] *Appendix A: Project Document, the Yangon Region Investment Committee at its meeting (1/2020) held on 27th Jan 2020.*

for workers and for those who are sick, they are sent to Social Welfare Hospital for care.

The project has completed the construction phase of all infrastructures including warehouse, dormitory, factory and offices. Now it is in its operational phase. Emergency Response Procedures and Fire Fighting and Prevention Equipment are being supplied and carried out systematically.

1.2 Summary of Baseline Physical and Social Environment

Soil Quality: The soil types and the soil characteristics of representative soils in the project area are available in detail respectively. According to soil types and soil characteristics of Myanmar, Ministry of Agriculture and Irrigation, March 2004, the soil of the project area is meadow and meadow alluvial soils which are prominent. About 10 km range of the project area; lateritic 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. The area demarcated as Kyansitthar Yeik Mon Industrial Zone has meadow and meadow alluvial soil which occurs near the river plains with occasional tidal flood are non-carbonate and contain more plant nutrient than that of upper Myanmar.

Meteorology: Climate of the project area is subtropical climate with maximum temperature of 42°C and minimum temperature of 14°C. During the rainy season, the rainy days last consecutively for 97-129 days. Annual rainfall over the area averages 123.5 inches (171.90 mm) during the past four year. Most rainfall in Yangon results from tropical systems during the period of May and October. Annual wind speed at Dagon Myothit (South) generally ranges from maximum wind speed of 2.9 kmph and minimum wind speed of 1.8 kmph with mean annual relative humidity of 79% according to 2019.

Water Quality: Since the production process is a dry process, the water sample was collected from drinking water pipe for workers at the project site and it was tested in Pro Lab Analytical Laboratory in 15th November, 2021. Water quality assessment parameters are pH, acidity, alkalinity, electric conductivity, total dissolved solid, total suspended solids, calcium hardness, chloride, carbonate, magnesium hardness, manganese, phosphate, iron, salinity, sodium chloride, sulfate and turbidity. The analyzed parameters are compared with WHO Drinking Water Guidelines. According to the test result, all of the chemical and physical parameters are within the limit range of WHO Standards, 2018. Therefore, the water quality assessment indicated that the water is chemically fit for drinking purposes or industrial uses.

Air Quality[2]*:* Environmental quality monitoring, i.e., ambient air pollution and noise level tests at the project area was conducted by the Hexagonal Angle Consulting Team on 15th-16th November of 2021. The OCEANUS^{TM} AQM-09 was used for outdoor air measuring survey and the measurement station is located at the project area and monitoring point is located in the loading / uploading place between two production factories. During the assessment, the

[2] *Appendix E Environmental Quality Monitoring Report: Ambient Air Quality Analysis Results*

average temperature was 29.95°C and relative humidity was 67.19%. Measurements were recorded in the operation with duration of 24 hours between consecutive measurements and the results are compared with National Environmental Quality (Emission) Guideline and World Health Organization Guideline.

According to the result, the observed level of $PM_{2.5}$ and PM_{10} are above the guideline values and other parameters meet permissible limits of both Guidelines. According to the analyzed data, PM_{10} and $PM_{2.5}$ are obviously exceeding the guidelines between 5:00 AM and 6:00 AM and 6:00 PM and 7:00 PM, respectively. These exceeding results in the atmosphere are caused by vehicle movements. Therefore, it is needed to have a proper mitigation plan in the dust generating area of the factory in order to make the environment safe for the workers.

Noise Quality*:* Baseline noise quality was measured in the loading and uploading place between two production factories while running the operation, using BENTECH GM 1356 Digital Sound Level Meter. For industrial and commercial area, the maximum permissible sound level hourly by day and night is 70 dBA respectively. At present minimum sound level results is 54.9 dBA and maximum is 91.6 dBA with average noise level of 67.44 dBA during day time which is within the permissible limits as National Environmental Quality (Emission) Guideline for Industrial Area. Though the average noise result is not exceeding the guidelines, the maximum 91.6 dBA is above the guidelines. It would be caused by the vehicle movements and operation processes of the factory. There will need to check the vehicles and equipment of all operation works.

Sensitive Ecosystem: Except from National Races Village which is situated at about 9 km from the project site, there is no sensitive ecosystem including wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, tiger reserve, elephant reserve, and wetlands are present in this township. Dagon University and Yangon University of Economics at its northern part and University of Dental Medicine and National Races Village at its southwest which are within 10 km range of the project site.

Flora and Fauna: Since the project area is situated closed to urban area, there is no significant flora and fauna around the vicinity area. 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 and prominent vegetation pattern is bushy and continuous on both sides of the road.

Socioeconomic Data

Social Environment: The proposed site is located in Dagon Myothit (South) Township bordered by four townships namely: Dagon Myothit (Seikkan) Township to its east, Dagon Myothit (North / East) Township to its west, Tharketa and Thingangyun Townships to its south and Hlegu Township to its north. Since the project site situated on the Industrial Zone, most of

the surrounding areas are occupied by factories and there is human settlement inside and around the environment.

Socio-Economic Status[3]: According to 2019 social study, the total population of the study area is 325886 with total household of 59725. Male female ratio of the study area is 1:1.1 as of 2019. The ethnicity of more than 88% is Burma and others make less than 12% including foreigners. Out of the total population, the number of people who can work is 224739 and the unemployment rate is 4.7%. Main livelihoods are government services, industrial worker, merchant, livestock breeding, agriculture, casual labor and others.

This township is a developing township in economic status. The important sectors for the economic development of the vicinity area are industrial worker and merchant. Most of water supply is mainly from drinking water supply. The township has 20 waste trucks with 132 municipal workers. The project area can be accessed through railway and roads. There are 2 hospital, 75 clinics (private and government) and 11 rural healthcare centers, and 2 INGO and 5 NGO in this township. There are no historical and archeological structures with 10 km range of the project site.

Land use: Land use refers to the type of human activity that occurs on the land. On the other hand, land use changes are mostly from human developments such as agricultural operations, forestry, urbanization, industrialization and so on. The total land use area in Dagon Myothit (South) Township is 19549 acres. Almost 60% of its total area covers urban and built-up area, 27.3% of agriculture land, 1.2% of industrial area and 12.6% of barren. Forest area percentage in this township is deemed negligible.

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] *2019 Dagon Myothit (South) Township Data*

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	medium
SEC/6	Changes in local trade/commercial incomes/opportunities	medium
SEC/7	Changes in visual amenity	medium
SEC/8	Changes to public infrastructure/community resources	medium

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

The mitigation measures for the above identified impacts are based on the environmental practice for improving safety, health and working environment in the informal footwear sector[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;
- Ensure safe drinking water provision by testing the drinking water for its physical, chemical and also microbiological analysis at least twice a year;
- Ensure production workers' occupational health and safety by provision of mask and relevant personal protective equipment.

1.4 Summary of Key Informant Interview (KII)

The following notes are responses from the key informant interviews at the project site during November 2021:

Mingshang Sports Myanmar Company Limited: Mostly produces Ladies footwear (boots, shoes and summer footwear) with CMP (Cutting-Making-Packing) procedure according to its ordered-footwear designs.

Working Hours: Working time starts from 8:30 AM to 5:30 PM with 1 hour lunch-break in two shifts.

Staff: At present, we have 1100 workers (labors) and 14 Chinese employees (7 males and 7 females).

The production process: It is just cut, glue, and stitch; and produce the output product according to ordered footwear design.

Dormitory: The foreign employee and fourteen local employees whose homes are in the

[4] *ILO, "Improving safety, health and working environment in the informal footwear sector"*

others districts and regions are stayed in the Factory but other local labors attend work from home.

Staff Welfare: The factory staffs who lived outside the factory come to work by their own initiatives. We have separate messing hall for staff to eat our lunch during break-time at noon but we provided dining tables with chairs and clean surroundings. The staff brings their own lunch and the lunch time is separated in two shifts. All staffs abide by the COVID-19 prevention health guidelines from the Ministry of Health and Sports and wear masks during work. The factories buildings are provided with four big exhaust fans at each storey and we open the windows to let the fresh air enter and also operate the standing fans.

Solid Waste Management: Since our CMP process for production of footwear is a dry process, we have mostly solid waste generated from the cutting stage. These are all collected by local contractors and sent for recycling work. However, the domestic wastes are being collected by the local municipality regularly for its hygienic disposal to relevant landfill site.

Health Clinic: There is a health clinic inside the compound, with a certified nurse in-charge to take care of our staff's health.

Fire Fighting System: We have regular firefighting training administered to our staff.

Electrical Supply: We have 11 kV/ 0.4 kV transformer to run the factory. The electrical power source is from the national grid as our factory is located in Kyansitthar Yeik Mon Industrial Zone.

Water Resources: Water from two deep wells is pumped and stored to 4 Nos. x 2000 litre steel tanks at the rooftop of the dormitory building. Then it is treated with Reverse Osmosis water treatment plants and distributed to the entire factory by gravity flow.

Drainage: We have masonry drainage constructed around the compound, which drains out the effluent into Kyansitthar Yeik Mon Industrial Zone drainage system.

1.5 Summary of Environmental and Social Management Plan

The EMP organization or cell will be set up for the project proponent or 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]

[5] *Chapter 7.5.1 of this report: "EMO Roles and Responsibilities"*
[6] *Chapter 7.5.2 of this Report; "ESO Roles and Responsibilities"*

Environmental Management Plans for each identified impact[7]***:***

1. Water Quality Management and Ground Water Protection Plan;
2. Erosion, siltation and drainage Pattern 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.

Overall Annual Budget Estimate for implementation of the EMP and monitoring 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.

[7] *Chapter 8 of this Report: "Environmental Management, Monitoring and Budget Allocation"*

EXECUTIVE SUMMARY IN MYANMAR LANGUAGE

အကျဉ်းချုပ်အစီရင်ခံစာ

၁.၁။ နိဒါန်း

အဆိုပြုစီမံကိန်းကိုဆောင်ရွက်နေသည့် Minghsang Sports Myanmar Co., ltd သည် ရန်ကုန်တိုင်းဒေသကြီး၊ ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ် (ကျန်စစ်သားရိပ်မွန်စက်မှုဇုန်)၊ စက်မှုဇုန် အပိုင်း(၂)၊ မြေတိုင်းရပ်ကွက် အမှတ်(၁၄၃/၁)၊ မြေကွက်အမှတ်(၁၃+၁၄)တွင် အဓိကအားဖြင့် ဖိနပ်အမျိုးမျိုးကို ၎ယ်ယူသူဖက်မှ အပ်နှံထားသောဒီဇိုင်းအတိုင်း ဖြတ်/ချုပ်/ထုတ်ပိုးသည့် စနစ် (CMP system) ဖြင့် ချုပ်လုပ်သော ဖိနပ်ချုပ်စက်ရုံဖြစ်ပါသည်။

စီမံကိန်းအတွက် စုစုပေါင်းမတည်ငွေပမာဏမှာ အမေရိကန်ဒေါ်လာ ၄.၇၀၀ သန်း (ရာခိုင်နှုန်းပြည့် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု)ဖြစ်ပါသည်။ စီမံကိန်းမြေနေရာနှင့် အဆောက်အဦများကို ဒေါ်ကြည်သာဝင်းပြည့်ထံမှ မြေဧက ၅.၆၆၇ (၂၂၉၃၃ စတုရန်းမီတာ)ကို မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံရေးကော်မရှင်၏ခွင့်ပြုချက်နှင့်အညီ မြေပိုင်ရှင်နှင့် မြေငှား ရမ်းသူတို့၏ နှစ်ဦးနှစ်ဖက် သဘောတူစာချုပ်လတ်မှတ် ရေးထိုးသည့်ရက်မှစတင်၍ ပထမနှစ်(၅၀)စာ (၁၀)နှစ်တစ်ကြိမ် မြေငှားစာချုပ်သက်တမ်းအား နှစ်ကြိမ်တိုးခြင်း) ဖြင့် ငှားရမ်းထားခြင်းဖြစ်ပါသည်။

CMP system ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ပြီး ပြည်ပသို့တင်ပို့ရန်အတွက် စက်ရုံကို ဆောက်လုပ်ထားပြီးဖြစ်ပြီး ယခုအချိန်တွင် အခြားအဆောက်အဦများနှင့် စက်ပစ္စည်းတပ်ဆင်ခြင်းလုပ်ငန်းများပြီးစီးမှုမှာ ၁၀၀% ရှိပါသည်။ စီမံကိန်းတည်နေရာရှိအဆောက်အဦများမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။

- (အလျား ၁၂၀ မီတာ × အနံ ၃၂ မီတာ) သုံးထပ်ဆောင် အလုပ်ရုံ - ဇေ၊
- (အလျား ၁၂၀ မီတာ × အနံ ၃၂ မီတာ) သုံးထပ်ဆောင် အလုပ်ရုံ - ဘီ၊
- (အလျား ၃၉ မီတာ × အနံ ၁၄ ၉.မီတာ) သုံးထပ်ဆောင်
- (အလျား ၁၂.၂ မီတာ × အနံ ၈ ၂.မီတာ) စားဖိုဆောင်

ဖိနပ်အမျိုးမျိုးထုတ်လုပ်ရန်အတွက် အသုံးပြုသောစက်ယန္တရားများ၊ ကုန်ကြမ်းပစ္စည်းများနှင့် အခြားလိုအပ်သောပစ္စည်းများကို နိုင်ငံခြားမှ တင်သွင်းမည်ဖြစ်ပါသည်။ တင်သွင်းလာသော ကုန်ကြမ်းပစ္စည်းများသည် သက်ဆိုင်ရာမှ အန္တရာယ်ကင်းရှင်းမှုရှိကုန်ပစ္စည်းများဖြစ်ကြောင်း ထောက်ခံချက် ရရှိထားပြီးဖြစ်ပါသည်။ ထို့ပြင်၊ ဖိနပ်ထုတ်လုပ်ရန်အတွက် စက်ယန္တရားပေါင်း (၂၃)ခုကို အသုံးပြုမည်ဖြစ်ပါသည်။

စက်ရုံဇရိယာအတွင်းရှိ အဂိစိတွင်းမှ ရရှိသောရေများကို ရေသန့်စက် (RO treatment plant) ဖြင့်သန့်စင်ပြီး စက်ရုံတစ်ခုလုံး အသုံးပြုရန်အတွက် ဖြန့်ဝေထားပါသည်။ လုပ်ငန်းသုံးအတွက် လိုအပ်သော လျှပ်စစ်မာတ်အားကို 11 kV/ 0.4 kV ထရန်ဖော်မာဖြင့် မဟာမာတ်အားလိုင်းမှ ရရှိသည့်အပြင် အရေးပေါ်အခြေအနေများအတွက် 400 V ပြင်းအားရှိသည့် အရန်မီးစက်နှစ်လုံးကိုလည်း တပ်ဆင်လျက်ရှိပါသည်။ ထို့နောက်၊ စက်ရုံရှိ အလုပ်သမားများ၏ကျန်းမာရေးအတွက် ဆေးပေးခန်းထားရှိပြီး ဖျားနာသူများကို လူမှုဝန်ထမ်းဆေးရုံသို့ ပို့ဆောင်ပေးပါသည်။

ယခုအချိန်တွင် အဆောက်အအုံများ၊ သိုလှောင်ရုံ၊ ရုံးခန်း၊ အဆောင်နှင့် စက်တပ်ဆင်မှုများ ဆောက်လုပ်မှု ပြီးစီးပြီဖြစ်ပါသည်။ မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် အရေးပေါ်ကိစ္စများအတွက် ကြိုတင်ပြင်ဆင်မှုများ လည်း စနစ်တကျဆောင်ရွက်ပေးလျက်ရှိပါသည်။

၁.၂။ စီမံကိန်းအနီးပတ်ဝန်းကျင်နှင့် လူနေမှုအခြေအနေအကျဉ်းချုပ်

မြေအရည်အသွေး။ ။၂၀၁၄ခုနှစ်၊ မတ်လတွင် လယ်ယာစိုက်ပျိုးရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားသော "မြန်မာနိုင်ငံတွင် တွေ့ရှိရသောမြေအမျိုးအစားများနှင့် မြေအမျိုးအစားများ၏ လက္ခဏာများ" အရ စက်ရုံတည်ရှိသောနေရာ၏ မြေအမျိုးအစားမှာ နုန်းတင်မြေနုအမျိုးအစားဖြစ်ပြီး စီမံကိန်းဇရိယာ၏ (၁၀) ကီလိုမီတာဝန်းကျင်တွင်မူ ဂဝံမြေအမျိုးအစားတွေ့ရပြီး ထိုမြေအမျိုးအစားသည် သံအောက်ဆိုဒ်ကြွယ်ဝပြီး ပြင်းထန်စွာ ဓာတ်တိုးမှုနှင့် စိမ့်ထွက်မှုအခြေအနေများအောက်တွင် ရာသီဥတုဒဏ်နိုင်သော ကျောက်မျိုးစုံမှ ဆင်းသက်လာခြင်းဖြစ်ပါသည်။ စီမံကိန်းတည်ရှိသည့် ကျန်စစ်သားရိပ်မွန်စက်မှုဇုန်၏ မြေအမျိုးအစားသည် မြစ်လွင်ပြင်အနီးတွင် တွေ့ရတတ်သောမြေအမျိုးအစားဖြစ်ပြီး ကာဗွန်နိတ်မဟုတ်သောကြောင့် မြန်မာနိုင်ငံ အထက်ပိုင်းဒေသများထက် အပင်အာဟာရပိုမိုပါဝင်ပြီး စိုက်ပျိုးရေးအတွက် ကောင်းမွန်ကြောင်း တွေ့ရပါသည်။

ရာသီဥတု။ ။ စီမံကိန်းတည်နေရာသည် ပူအိုက်စိုစွတ်သောရာသီဥတုရှိပြီး အမြင့်ဆုံးအပူချိန်မှာ (၄၂) ဒီဂရီစင်တီဂရိတ် နှင့် အနိမ့်ဆုံးအပူချိန် (၁၄) ဒီဂရီစင်တီဂရိတ်ရှိပါသည်။ လွန်ခဲ့သော(၄)နှစ်အတွင်း မိုးရာသီတွင် မိုးရွာသောရက်များသည် (၉၇ - ၁၂၉) ရက်အထိ ဆက်တိုက်ကြာပြီး နှစ်စဉ်ပျမ်းမျှမိုးရေချိန် (၁၂၃.၅) မီလီမီတာ (၁၇၁. ၉၀ လက်မ) ထိ မိုးရွာသွန်းလေ့ရှိပါသည်။ ၂၀၁၉ ခုနှစ်၊ ဒေသဆိုင်ရာအချက်အလက်များအရ၊ နှစ်စဉ်လေတိုက်နှုန်း အမြင့်ဆုံးနှင့်အနိမ့်ဆုံးမှာ တစ်နာရီ (၂.၉) ကီလိုမီတာ နှင့် တစ်နာရီ (၁.၈) ကီလိုမီတာ အသီးသီးရှိပြီး ပျမ်းမျှစိုထိုင်းစ (၇၉) ရာခိုင်နှုန်းရှိပါသည်။

ရေအရည်အသွေး။ ။အဆိုပြုစီမံကိန်းသည် ဖိနပ်ချုပ်လုပ်သည့်လုပ်ငန်းဖြစ်သည့်အတွက် ရေအရည်အသွေး စမ်းသပ်ရန်အတွက်မူ စက်ရုံအတွင်းဖြန့်ဝေသော သောက်သုံးရေကို ၂၀၂၁ခုနှစ်၊ နိုဝင်ဘာလ (၁၅) ရက်နေ့တွင် Pro Lab Analytical Laboratory တွင် စမ်းသပ်မှုပြုလုပ်ခဲ့ပြီး တိုင်းတာမှုပြုလုပ်သော ပါရာမီတာများသည် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး(ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်နှင့် ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့မှ ထုတ်ပြန်ထားသော သောက်သုံးရေစံနှုန်းများနှင့် ကိုက်ညီမှုရှိပါသည်။ ထို့ကြောင့် စက်ရုံပတ်ဝန်းကျင်မှ ရရှိသောတွင်းရေသည် သောက်သုံးရေအတွက် အသုံးပြုနိုင်ကြောင်းတွေ့ရှိရသည်။

လေထုအရည်အသွေး။ ။ ၂၀၂၁ခုနှစ်၊ နိုဝင်ဘာလ (၁၄-၁၅)ရက်နေ့များတွင် စီမံကိန်းပတ်ဝန်းကျင်အတွင်းရှိ လေထုအရည်အသွေးနှင့် ဆူညံမှုတိုင်းတာရန်အတွက် Haxagonal Angle Consulting Team မှ OCEANUS™ AQM-09 နှင့် BENTECH GM 1356 စက်များဖြင့် အလုပ်ရုံနှစ်ရုံအကြားရှိ ရွေးချယ်ထားသော ကုန်ပစ္စည်းအတင်/အချ ပြုလုပ်သည့်နေရာတွင် တိုင်းတာမှုပြုလုပ်ခဲ့ပါသည်။ လေထုအတွင်းရှိ အမှုန်များနှင့် အဆိပ်သင့်နိုင်သော အငွေ့ များအား တိုင်းတာပြီး ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့နှင့် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး(ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များနှင့် နှိုင်းယှဉ်ထားပါသည်။ အဆိုပါတိုင်းတာမှု ပြုလုပ်နေချိန်တွင် စက်ရုံပတ်ဝန်းကျင်အပူချိန်မှာ ၂၉.၉၅ ဒီဂရီစင်တီဂရိတ် နှင့် ပျမ်းမျှစိုထိုင်းစ ၆၇.၁၉ ရာခိုင်နှုန်း ရှိပါသည်။ (၂၄)နာရီကြာချိန်အတွင်းရှိ ဆက်တိုက်တိုင်းတာမှုများကို မှတ်တမ်းတင်ခဲ့ပါသည်။

တိုင်းတာမှုရလဒ်အရ၊ (၂၄)နာရီအတွင်း စောင့်ကြည့်လေ့လာထားသော $PM_{2.5}$ နှင့် PM_{10} တို့သည် လမ်းညွှန်

ချက်တန်ဖိုးများထက် ကျော်လွန်နေပြီး အခြားတိုင်းတာမှုရလဒ်များသည် အထက်ဖော်ပြပါ လေထုအရည်အသွေးညွှန်းကိန်း လမ်းညွှန်ချက်များနှင့် ကိုက်ညီမှုရှိကြောင်း တွေ့ရှိရပါသည်။ ဆန်းစစ်လေ့လာမှုအရ $PM_{2.5}$ နှင့် PM_{10} တို့သည် နံနက် (၅-၆) နာရီကြားနှင့် ညနေ (၆-၇)နာရီကြားတို့တွင် ယာဉ်ရွှေ့လျားမှုများကြောင့် သတ်မှတ်သည်ထက် ကျော်လွန်နေသည်ကို တွေ့ရပါသည်။ ထို့ကြောင့် အလုပ်သမားများအတွက် ပတ်ဝန်းကျင်ဘေးကင်းစေရန်အတွက် သင့်တော်သော လျော့ပါးစေရေးအစီအစဉ်များထားရှိပေးရန် လိုအပ်ပါသည်။

ဆူညံမှုတိုင်းတာခြင်း။ ။ BENTECH GM 1356 စက်ကို အသုံးပြု၍ လုပ်ငန်းလည်ပတ်နေစဉ်အတွင်း ထုတ်လုပ်မှုပြုလုပ်သည့် စက်ရုံနှစ်ခုကြားရှိ ကုန်အတင်အချပြုလုပ်သည့်နေရာတွင် အခြေခံဆူညံသံအရည်အသွေးကို တိုင်းတာမှုပြုလုပ်ခဲ့ပါသည်။ စက်မှုလုပ်ငန်းနှင့် စီးပွားရေးနယ်ပယ်အတွက် နေ့အချိန်နှင့် ညအချိန်တွင် တစ်နာရီလျှင် အများဆုံးခွင့်ပြုနိုင်သောဆူညံမှုနှုန်းကို ၇၀ dBA သတ်မှတ်ထားပါသည်။ အဆိုပါ တိုင်းတာမှုရလဒ်အရ၊ လက်ရှိစက်ရုံအတွင်း နေ့အချိန် အသံဆူညံမှုနှုန်း အနိမ့်ဆုံးနှင့်အမြင့်ဆုံးမှာ ၅၄.၉ dBA နှင့် ၉၁.၆ dBA အသီးသီးရှိပြီး၊ ပျမ်းမျှအားဖြင့် အသံဆူညံမှုနှုန်း ၆၇.၄၄ dBA ရှိပြီး အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး(ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်၏ သတ်မှတ်တန်ဖိုးဖြစ်သော ၇၀ dBA အောက်ရှိသောကြောင့် တိုင်းတာမှုရလဒ်ကောင်းမွန်ကြောင်း တွေ့ရှိရသည်။ ပျမ်းမျှဆူညံမှုနှုန်းရလဒ်သည် လမ်းညွှန်ချက်များထက် မကျော်လွန်သော်လည်း အမြင့်ဆုံးဖြစ်သော ၉၁.၆ dBA သည် စက်ရုံ၏ မော်တော်ယာဉ်ရွှေ့လျားမှုနှင့် လုပ်ငန်းလည်ပတ်မှုများကြောင့် သတ်မှတ်ချက်ထက် ကျော်လွန်နိုင်သောကြောင့် လုပ်ငန်းဆောင်ရွက်မှုအားလုံး၏ ယာဉ်များနှင့်စက်ပစ္စည်းများကို ကောင်းမွန်စွာ လည်ပတ်မှုရှိမရှိ စစ်ဆေးရန် လိုအပ်မည်ဖြစ်ပါသည်။

ထိခိုက်ပျက်စီးလွယ်သည့် ဂေဟစနစ်။ ။ အနီးပတ်ဝန်းကျင်(၁၀)ကီလိုမီတာပတ်လည်တွင် စီမံကိန်းတည်နေရာမှ (၉)ကီလိုမီတာခန့်တွင် တည်ရှိသော တိုင်းရင်းသားကျေးရွာမှအပ အခြားထိခိုက်ပျက်စီးလွယ်သော ဂေဟစနစ်များ မရှိကြောင်းတွေ့ရှိရပါသည်။ စီမံကိန်း၏မြောက်ဘက်ခြမ်းတွင် ဒဂုံတက္ကသိုလ်နှင့် ရန်ကုန်စီးပွားရေးတက္ကသိုလ်၊ အနောက်တောင်ဖက်ခြမ်းတွင် သွားဖက်ဆိုင်ရာဆေးတက္ကသိုလ်နှင့် တိုင်းရင်းသားကျေးရွာ မှအပ အခြားထိခိုက်ပျက်စီးလွယ်သည့်ဂေဟစနစ်များ မရှိကြောင်းတွေ့ရှိရသည်။

သဘာဝပေါက်ပင်နှင့်တိရစ္ဆာန်များ။ ။ အဆိုပြုစီမံကိန်းဖြစ်သည့်ဖိနပ်စက်ရုံသည် မြို့ပြနှင့်စက်မှုဇုန်အနီးတစ်ဝိုက်တွင် တည်ဆောက်ထားခြင်းဖြစ်သောကြောင့် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် သိသာထင်ရှားသော အပင်နှင့်သားရဲတိရစ္ဆာန်များမရှိကြောင်း တွေ့ရှိရသည်။ လက်ရှိအချိန်တွင် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် မြို့ပြဖွံ့ဖြိုးတိုးတက်မှုကြောင့် လမ်းမတစ်လျှောက် စိုက်ပျိုးထားသော သစ်ပင်များနှင့် အခြားအပင်ငယ်များသာ ရှိပါသည်။

လူမှုပတ်ဝန်းကျင်အခြေအနေ။ ။အဆိုပြုစီမံကိန်းဖြစ်သည့်ဖိနပ်စက်ရုံသည် ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ်အတွင်းတွင် တည်ရှိပြီး အရှေ့ဘက်တွင် ဒဂုံမြို့သစ်(ဆိပ်ကမ်း)မြို့နယ်၊ အနောက်ဘက်တွင် ဒဂုံမြို့သစ်(အရှေ့ပိုင်းနှင့်မြောက်ပိုင်း)မြို့နယ်၊ တောင်ဘက်တွင် သာကေတမြို့နယ်နှင့်သင်္ကန်းကျွန်းမြို့နယ်၊ မြောက်ဘက်တွင် လှည်းကူးမြို့နယ်တို့နှင့်ထိစပ်လျက်ရှိပါသည်။ အဆိုပြုစီမံကိန်းသည် စက်မှုဇုန်နယ်မြေအတွင်း တည်ရှိသောကြောင့် အနီးပတ်ဝန်းကျင်သည် လူများအခြေချနေထိုင်မှုနည်းပြီး စက်မှုကဏ္ဍဖွံ့ဖြိုး တိုးတက်သောနေရာ ဖြစ်ပါသည်။

လူမှုစီးပွားရေးအခြေအနေ။ ။ ၂၀၁၉ ခုနှစ်၊ စက်တင်ဘာလဒေသဆိုင်ရာအချက်အလက်များအရ မြို့နယ် အတွင်းရှိ လူဦးရေမှာ (၃၂၅၈၈၆) ဦး နှင့် အိမ်ထောင်စုပေါင်း (၅၉၇၂၅) ရှိပါသည်။ မြို့နယ်အတွင်းရှိ

ကျား/မ ဦးရေအချိုးမှာ (၁း၁.၁) ဖြစ်ပါသည်။ အများစုနေထိုင်သူမှာ ဗမာလူမျိုး (၈၈%) နှင့် နိုင်ငံခြားသား အပါအဝင် အခြားလူမျိုးနေထိုင်မှု (၁၂%)ခန့် ရှိပါသည်။ စုစုပေါင်းနေထိုင်သူများအနက် အလုပ်လုပ်နိုင်သော လူဦးရေ (၂၂၄၇၃၉)ဦး ရှိပြီး အလုပ်လက်မဲ့ရာခိုင်နှုန်း (၄.၇) ရှိပါသည်။ ဒေသခံနေထိုင်သူများ၏ အဓိက အသက်မွေးဝမ်းကြောင်းလုပ်ငန်းများမှာ အစိုးရဝန်ထမ်း၊ စက်ရုံအလုပ်သမား၊ ကုန်သည်၊ မွေးမြူရေး လုပ်ငန်း၊ စိုက်ပျိုးရေးနှင့် ကျပန်းအလုပ်သမားစသည်တို့ဖြစ်ပါသည်။

ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ်သည် စီပွားရေးကဏ္ဍများတွင် ဖွံ့ဖြိုးတိုးတက်လျက်ရှိသော မြို့နယ်ဖြစ်ပါသည်။ မြို့နယ် အနီးတစ်ဝိုက်တွင် စီးပွားဖွံ့ဖြိုးတိုးတက်မှု၏အရေးကြီးဆုံးကဏ္ဍမှာ စက်ရုံအလုပ်သမားနှင့် ကုန်သည်တို့ဖြစ်ပါသည်။ ရေပေးဝေမှုအများစုသည် အဓိကအားဖြင့် သောက်သုံးရေရရှိရေးစီမံကိန်းများမှ ဖြစ်ပါသည်။ မြို့နယ်အတွင်း အမှိုက်ယာဉ်(၂၀)စီးနှင့် သန့်ရှင်းရေးအလုပ်သမား (၁၃၂)ဦး ရှိပါသည်။ စီမံကိန်းတည်နေရာသည် လမ်းပမ်းဆက်သွယ်ရေးကောင်းမွန်ပြီး မော်တော်ယာဉ်၊ မီးရထားတို့ဖြင့် သွားလာနိုင်သည့်နေရာတွင် တည်ရှိပါသည်။ ကျန်းမာရေးကဏ္ဍအနေဖြင့် ဆေးရုံ(၂) ရုံ၊ ဆေးပေးခန်း(၇၅)ခန်း (ပုဂ္ဂလိကနှင့် အစိုးရပိုင်) နှင့် ကျေးလက်ကျန်းမာရေးဌာန (၁၁)ခု၊ INGOနှင့်NGO (၅)ခု ရှိပါသည်။ စီမံကိန်းတည်နေရာ၏ (၁၀) ကီလို မီတာပတ်လည်တွင် သမိုင်းဝင်ထင်ရှားသည့်အဆောက်အဦများနှင့် ရှေးဟောင်းအမွေအနှစ် အဆောက်အဦများမရှိကြောင်း တွေ့ရှိရပါသည်။

<u>မြေအသုံးချမှု။</u> ။ ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ်၏ စုစုပေါင်းမြေဧကပေါင်း (၁၉၅၄၉)တွင် မြို့ပြနှင့်တည် ဆောက်ရေးအတွက် ၆၀%ကျော်၊ စိုက်ပျိုးမြေ ၂၇.၃% ခန့်၊ စက်မှုဇုန်ဧရိယာ ၁.၂%၊ နှင့် မြေလွတ်ဧရိယာ ၁၂.၆ % ရှိပြီး၊ သစ်တောဖုံးလွှမ်းဧရိယာနည်းပါးကြောင်း တွေ့ရှိရပါသည်။

၁.၃။ လုပ်ငန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုများနှင့် ထိခိုက်မှုလျော့ချရေးနည်းလမ်းများ

ထိခိုက်မှုများကိုဆန်းစစ်လေ့လာရာတွင် တိုက်ရိုက်သက်ရောက်နိုင်သည့်ဇရိယာ၊ သွယ်ဝိုက်သက်ရောက်နိုင်သည့်ဇရိယာများအတွက် အဓိကအချက်များအနေဖြင့် ရုပ်ဇီဝနှင့် ဓာတုဗေဒဆိုင်ရာထိခိုက်မှုများနှင့် လူမှုစီးပွားရေးနှင့် ယဉ်ကျေးမှုဆိုင်ရာထိခိုက်မှုများစသည့်ဖြင့် အမျိုးအစားလေးမျိုးခွဲ၍ အမှတ်ပေးစနစ်ဖြင့် ခွဲခြားသတ်မှတ်ပြီး အကဲဖြတ်တိုင်းတာရရှိပါသည်။ ပတ်ဝန်းကျင်အပေါ် ထိခိုက်သက်ရောက်မှုများအား အကဲဖြတ်ရရှိမှုများကို အောက်ပါဇယားတွင် ဖော်ပြထားပါသည်။

ရမှတ်	ထိခိုက်နိုင်သည့် အတိုင်းအတာ	အချိန်ကာလ	ပမာဏ	ဖြစ်နိုင်စွမ်း
၁	တိုက်ရိုက်ထိခိုက်မည့်ဇုံ (လုပ်ငန်းခွင်အတွင်း သို့မဟုတ် လုပ်ငန်းခွင်အနီး ပတ်ဝန်းကျင်)	ကာလတို - ထိခိုက်မည့်အချိန်ကာလ (၀- ၁၂ လ ကြား)	နိမ့် - လူမှုစီးပွားရေးအပေါ် ပြောင်းလဲမှုမရှိခြင်း (သို့မဟုတ်) မသိသာသော ပြောင်းလဲမှုဖြစ်ပေါ်ခြင်း	နိမ့်

၂	ထိခိုက်မည့်အနီးဆုံးနေရာ (လုပ်ငန်းအနီးတစ်ဝိုက် သိသာသောနေရာနှင့် လုပ်ငန်းခွင် အနီး ပတ်ဝန်းကျင်)	ထိခိုက်မည့်အချိန်ကာလ (၁ -၂ နှစ် ကြား)	အလယ်အလတ် - သဘာဝဂေဟစနစ်များ ပြောင်းလဲမှုဖြစ်ပြီး 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 အောက်ပါအတိုင်း ဖော်ပြနိုင်ပါသည်။

အဆင့်သတ်မှတ်ချက် = (ထိခိုက်နိုင်သည့်အတိုင်းအတာ + အချိန်ကာလ + ဖြစ်နိုင်စွမ်း) x ပမာဏ

စီမံကိန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သောထိခိုက်မှုများကို လေ့လာဆန်းစစ်ရာတွင် ရုပ်ဇီဝနှင့်ဓာတုဗေဒဆိုင်ရာထိခိုက်ခြင်း၊ ဂေဟစနစ်နှင့် လူမှုစီးပွားရေး၊ ယဉ်ကျေးမှုနှင့်ဆိုင် သောအချက်များ စသည်တို့အပေါ်တွင် သိသာထင်ရှားသည့်သက်ရောက်မှုများ အကဲဖြတ်ခြင်းကို အောက်ပါဇယားတွင် အကျဉ်းချုပ်ဖော်ပြထားပါသည်။

စီမံကိန်းလည်ပတ်သည့်ကာလ		
စဉ်	စီစစ်သည့် အဓိကအချက်များ	အဆင့်သတ်မှတ်ချက်
ရုပ်ဇီဝနှင့် 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	ကုန်းနေသတ္တဂါ 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	အလယ်အလတ်
၆	ဒေသအတွင်း ကုန်သွယ်စီးပွား ဝင်ငွေ /အခွင့်အလမ်းများပြောင်းလဲခြင်း	အလယ်အလတ်
၇	မျက်စိပသာဒနရှိမှုများ ပြောင်းလဲခြင်း	အလယ်အလတ်
၈	လူနေအဆောက်အဦ/ ဆက်သွယ်ရေးအရင်းအမြစ်များ ပြောင်းလဲခြင်း	အလယ်အလတ်

မှတ်ချက် ။ ဇယားတွင်ဖော်ပြထားသောထိခိုက်မှုဇယားတွင် အစိမ်းရောင်အကွက်ခြယ်ထားသော သင့်လျော်ကောင်းမွန်သော သက်ရောက်ထိခိုက်မှုများမှအပ ကျန်ရှိသောထိခိုက်မှုများသည် စီမံကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သော အဓိကထိခိုက်မှုများဖြစ်ပါသည်။

အထက်တွင်ဖော်ပြထားသော ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများသည် ဖိနပ်ထုတ်လုပ်ခြင်းလုပ်ငန်းအတွက် ကျန်းမာရေးနှင့်ညီညွတ်၍ လုံခြုံစိတ်ချရသော လုပ်ငန်းခွင်ဖြစ်စေရေးအတွက် ပတ်ဝန်းကျင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများကို အခြေခံထားပါသည်။

စီမံကိန်းလည်ပတ်သည့်ကာလအတွင်း ထိခိုက်မှုများလျော့ချရေးနည်းလမ်းများမှာ -

- စွန့်ပစ်သည့်နေရာ/သိုလှောင်သည့်နေရာအနီးရှိ ရေနူတ်မြောင်းများကို ပုံမှန်ရှင်းလင်းပေးရန်။
- စက်ရုံအတွင်း/အပြင် သန့်ရှင်းသပ်ရပ်မှုရှိစေရန်နှင့် ဖုန်/အမှိုက်များ မရှိစေရန်။
- စက်ရုံအတွင်း ကျန်းမာရေးနှင့် လုံခြုံရေးအတွက် လုပ်ရိုးလုပ်စဉ်များ ထားရှိပေးရန်။
- အလုပ်သမားများ၏ ကျန်းမာရေးအတွက် လေကောင်းလေသန့်နှင့် အလင်းရောင်ရရှိမှု ကောင်းမွန်သောအလုပ်ခွင်နေရာ၊ သန့်ရှင်းသောသောက်သုံးရေ၊ သန့်ရှင်းသပ်ရပ်သော ကျန်းမာရေးနှင့်ပတ်သက်သည့် အခြားဝန်ဆောင်မှုများထောက်ပံ့ပေးရန်။

- ပတ်ဝန်းကျင်နှင့်ပတ်သက်၍ ပြည်သူများအားအသိပေးနှိုးဆော်ခြင်းများ တိုးမြှင့်လုပ်ဆောင်ပေးရန်။
- အများပြည်သူဘေးကင်းလုံခြုံရေးအတွက် စောင့်ကြပ်ကြည့်ရှုမှုများဆောင်ရွက်ရန်။
- သိုလှောင်ရုံများနှင့်သက်ဆိုင်သော အဆောက်အဦများကို ပုံမှန်စစ်ဆေးခြင်းများ ပြုလုပ်ပေးရန်။
- စီမံကိန်းနေရာသည် အများပြည်သူ/ပုဂ္ဂလိကပိုင်ဆိုင်မှုများနှင့် သက်ဆိုင်မှုမရှိစေရန် စစ်ဆေးဆောင်ရွက်ရန်။
- အရေးပေါ်ကယ်ဆယ်ရေးအစီအစဉ်များ ထားရှိရန်။
- ကုန်တင်/ကုန်ချလုပ်ငန်းများကို နေ့အချိန်တွင် ဦးစားပေးဆောင်ရွက်ရန်။
- မော်တော်ယာဉ်/စက်များ ကောင်းမွန်စွာလည်ပတ်မှုရှိစေရန်။
- ဖိနပ်စက်ရုံမှထုတ်လာသော စွန့်ပစ်ပစ္စည်းများအတွက် ပိုမိုကောင်းမွန်သောစီမံခန့်ခွဲမှုထားရှိရန်
  - ကာကွယ်ခြင်း၊ လျော့နည်းစေခြင်း/လျော့ချခြင်း၊ ပြန်လည်အသုံးပြုခြင်း၊ စွမ်းအင်ခွဲခြားခြင်းနှင့် ကောင်းမွန်စွာ စွန့်ပစ်ခြင်း။
- စက်ရုံအလုပ်သမားများအတွက် သန့်ရှင်းသော သောက်သုံးရေရရှိနိုင်ရေးအတွက် တစ်နှစ် နှစ်ကြိမ် ရေအရည်အသွေးစစ်ဆေးခြင်းများ ပြုလုပ်ရန်။
  အလုပ်သမားများ၏ ကျန်းမာရေးနှင့်လုံခြုံရေးအတွက် နာခေါင်းစည်းများနှင့် အခြားလိုအပ်သည့် ကာကွယ်ရေးပစ္စည်းများ လုံလောက်အောင် ထောက်ပံ့ပေးရန်။

၁.၄။ စီမံကိန်းနှင့်ပတ်သက်သည့် ပုဂ္ဂိုလ်များနှင့်တွေ့ဆုံမေးမြန်းမှု အကျဉ်းချုပ်

အောက်ပါအချက်များသည် ၂၀၂၁ ခုနှစ် နိဝင်ဘာလအတွင်း အဆိုပြုစီမံကိန်းဖြစ်သည့် စက်ရုံရှိ ပုဂ္ဂိုလ်များနှင့် တွေ့ဆုံမေးမြန်းမှုမှ တုံ့ပြန်မှုများဖြစ်ပါသည်။

Mingshang Sports Myanmar Company Limited သည် အဓိကအားဖြင့် အမျိုးသမီးစီး ဖိနပ်အမျိုးမျိုးကို CPM စနစ်ဖြင့် ဝယ်ယူသူဖက်မှာအပ်နှံသည့် ဒီဇိုင်းအတိုင်း ချုပ်လုပ်ပါသည်။

အလုပ်ချိန် - စက်ရုံအလုပ်ချိန်သည် မနက် (၈း၃၀)နာရီမှစတင်၍ (၂)ဆိုင်းခွဲသော နေ့လည်တစ်နာရီနားချိန် အပါအဝင် ညနေ (၅း၃၀)နာရီ အထိ လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။

လက်ရှိတွင် အလုပ်သမား (၁၁၀၀)ဦးနှင့် တရုတ် (၁၄)ဦး [ကျား (၇)ဦး၊ မ(၇)ဦး]တို့ဖြင့် လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။

လက်ရှိစက်ရုံသည် အော်ဒါမှာသောဒီဇိုင်းအတိုင်း ပုံစံဖြတ်ခြင်း၊ ကော်ကပ်ခြင်း၊ စက်ချုပ်ခြင်းဖြင့် ဖိနပ်ထုတ်လုပ်ခြင်းဖြစ်ပါသည်။

နိုင်ငံခြားသားဝန်ထမ်း(၁၄)ဦးအပြင် အခြားခရိုင်နှင့်တိုင်းဒေသကြီးများမှ လာရောက်လုပ်ကိုင်သည့် ပြည်တွင်းအလုပ်သမား (၁၄)ဦးတို့သည် အဆောင်တွင် နေထိုင်လျက်ရှိပါသည်။

စက်ရုံပြင်ပတွင် နေထိုင်ကြသော အလုပ်သမားများအတွက် အလုပ်ခွင်သွားလာရေးကားများ စီစဉ်ထားခြင်းမရှိပါ။ အားလပ်ချိန်တွင် နေ့လည်စာစားရန် သီးခြားစားဖိုဆောင်တွင် ထမင်းစားစားပွဲနှင့်ထိုင်ခုံများဖြင့် သန့်ရှင်းသပ်ရပ်သော ပတ်ဝန်းကျင်ကို ထားရှိပေးပါသည်။ ဝန်ထမ်းများကို နေ့လည်စာစားချိန် နှစ်ဆိုင်းခွဲပေးထားပါသည်။ ဝန်ထမ်းများအားလုံး ကျန်းမားရေးနှင့်အားကစားဝန်ကြီးဌာန၏ ကိုဗစ် (၁၉)ရောဂါ ကာကွယ်

တားဆီးရေးလမ်းညွှန်ချက်များကို လိုက်နာကြပြီး လုပ်ငန်းခွင်အတွင်း နာခေါင်းစည်းများ ဝတ်ဆင်စေပါသည်။ စက်ရုံအလုပ်ရုံအဆောက်အအုံများတွင် အထပ်တစ်ထပ်စီတွင် အိတ်ဇောပန်ကာကြီး (၄)လုံး တပ်ဆင်ထားပြီး လေကောင်းလေသန့် ရရှိစေရန် မတ်တက်ပန်ကာများကိုလည်း ထားရှိပေးပါသည်။

ဖိနပ်ထုတ်လုပ်ခြင်းဖြစ်သည့် CMP လုပ်ငန်းစဉ်သည် ခြောက်သွေ့သောလုပ်ငန်းဖြစ်သည့်အတွက် ထုတ်လုပ်မှုအဆင့်မှ ထွက်လာသောအမှိုက်များကို ကွန်ထရိတ်တာများနှင့်ချိတ်ဆက်၍ စွန့်ပစ်ပစ္စည်းများ ပြန်လည်အသုံးချနိုင်သည့်နေရာများသို့ စွန့်ပစ်ထားပါသည်။ စက်ရုံအတွင်းရှိ စွန့်ထုတ်ပစ္စည်းများကိုမူ ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီနှင့်ချိတ်ဆက်လျက် စွန့်ပစ်ပါသည်။

စက်ရုံဆေးပေးခန်းတွင် အလုပ်ချိန်တစ်လျှောက် ဝန်ထမ်းများနှင့်အလုပ်သမားများ၏ ကျန်းမာရေးစောင့်ရှောက်ရန် သူနာပြုဆရာမတစ်ဦးထားရှိပါသည်။

မီးဘေးအန္တရာယ်ကာကွယ်ရန်အတွက် ဝန်ထမ်းများအား မီးငြိမ်းသတ်လေ့ကျင့်မှုများရှိပါသည်။

စက်ရုံလုပ်ငန်းအတွက် 11 kVA/ 0.4kV ထရန်ဖောမာဖြင့် လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။ စက်ရုံသည် ကျန်စစ်သားရိပ်မွန်စက်မှုဇုန်ဇရိယာအတွင်း တည်ရှိသောကြောင့် လျှပ်စစ်မတ်အားအရင်းအမြစ်သည် အမျိုးသားလျှပ်စစ်မတ်အားလိုင်းမှ ဖြစ်ပါသည်။

အဂိစိတွင်း (၂)တွင်းမှ တူးဖော်ရရှိသောတွင်းရေများကို (Reverse Osmosis System) ရေသန့်စက်ဖြင့် သန့်စင်စေပြီး လီတာ(၂၀၀၀)ဆံ့ သံတိုင်ကီ(၄)လုံးဖြင့် အဆောက်အဦခေါင်မိုးပေါ်တွင်သိုလှောင်ပြီး စက်ရုံတစ်ဝန်းတွင် လိုအပ်သလို အသုံးပြုနိုင်ရန် မြေဆွဲအားစီးဆင်းမှုဖြင့် ဖြန့်ဝေပေးပါသည်။

စက်ရုံမှထွက်လာသောရေဆိုးများကို ကျန်စစ်သားရိပ်မွန်စက်မှုဇုန် ရေနုတ်မြောင်းစနစ်ထဲသို့ စွန့်ထုတ်ပေးသည့် အုတ်ရေနုတ်မြောင်းများကို စက်ရုံခြံဝန်းတစ်ဝိုက်တွင် ဖောက်လုပ်ထားပါသည်။

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၍ ၄င်းမှ စီမံခန့်ခွဲပေးရန်ဖြစ်ပါသည်။
- သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာလုပ်ငန်းခွင်အရာရှိ (ESO) ထားရှိ၍ ၄င်းမှ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲသည့်အရာရှိ (EMO) အား ကူညီဆောင်ရွက်ပေးမည် ဖြစ်ပါသည်။

လေ့လာတွေ့ရှိရသော ပတ်ဝန်းကျင်ထိခိုက်မှုများအတွက် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်များမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

၁။ ရေအရည်အသွေးစီမံခန့်ခွဲမှု၊ မြေအောက်ရေထိန်းသိမ်းမှုနှင့် သန့်ရှင်းသောသောက်သုံးရေ ရရှိရေး

အစီအစဉ်

၂။ ရေနူတ်မြောင်းပုံစံ 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 အောက်တွင်ဖော်ပြထားသည့်ကဏ္ဍအလိုက် ဤအစီရင်ခံစာ၏ အခန်း (၈) တွင် ထည့်သွင်းဖော်ပြထားပါသည်။

- 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 "Mingshang Sports Myanmar Company Limited" has leased the land at Plot No. 13+14, Myay Taing Block No. 143/1 (Kyansitthar Industrial Zone), Industrial Zone part (2), Dagon Myothit (South) Township, Yangon Region to produce various kinds of footwear on CMP (Cutting-Making-Packing) basis with manufacturing by client-ordered design.

Infrastructures already constructed at project site (100% completed):

- Factory A (120m x 32m) three storey steel structure building;
- Factory B (120m x 32m) three storey steel structure building;
- Dormitory (39m x 14.9m) three storey RC building;
- Staff Messing hall (12.2m x 8.2m);

The Factory infrastructure has already been constructed for manufacturing of varieties of shoes to be exported on (CMP) System. The area of the project area is 5.667 acres (22933m^2).

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

Sr. No.	Description	Unit	Quantity
	Machine with Complete Set		
1.	Industrial Sewing Machine	Set	480
2.	Industrial Sewing Machine	Set	80
3.	Hammering Machine	Set	16
4.	Clinder Sewing Machine	Set	8
5.	Clindder and Zigzag Sewing Machine	Set	8
6.	Button Machine	Set	5
7.	Heel Setting Machine	Set	16
8.	Director-Driver, Interlock Stitch Sewing Machine	Set	5
9.	Simple Button Machine	Set	4
10.	Cup-Feed Overseam Sewing Machine	Set	8
11.	Shoe Upper Gathering (fullness) Sewing Machine	Set	5
12.	High Speed Overlock Stitch Sewing Machine	Set	2
13.	Computer Flanging Machine	Set	2
14.	Spray Glue Machine (Water based Glue)	Set	32
	Machine with Cmplete Set and Accessories- Spray Glue Machine (Water based Glue) (U=Set), Brand Name:		2

	Dong Guan Shi Liang Machine CoLtd, Model: L J110N		
15.	Hammer Flat Machine	Set	5
16.	Spary Glue Machine	Set	32
17.	Punchine Machine	Set	16
18.	Skiving Machine	Set	8
19.	Overlock Stitching Sewing Machine	Set	4
20.	Zigzag Sewing Machine	Set	16
21.	Director-Driver, Procedural Floriation Sewing Machine	Set	10
22.	Director-Driver, Procedural Floriation Sewing Machine	Set	10
23.	Director-Driver, Procedural Floriation Sewing Machine	Set	6

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.

2.1.1 Project Details

Project Detail

Project Site: Plot No. 13+14, Myay Taing Block No. 143/1 (Kyansitthar Industrial Zone), Industrial Zone part (2), Dagon Myothit (South) Township, Yangon Region. (Latitude 16°52'48.84"N, Longitude 96°14'47.25"E)

Project Proponent: Mingshang Sports Myanmar Company Limited

Description of Project: Footwear Production Factory Project

Project Site Area: 5.667 acres (22933 m^2)

Project Investment: 4.700 Million USD (Wholly Foreign Owned)

Land Acquisition: Lease land and building from Daw Kyi Thar Win Pyae (Lessor, F-One Myanmar Co., Ltd.) at initial thirty (50) years + 10 years (extendable two times) for USD 41280.372 USD per annum for the total area of the land measuring of 5.667 acres (22933 m^2).[8]

Project Completion: Completion of Construction Phase is 100% { Factory A (120m x 32m) three storey, Factory B (120m x 32m) three storey, Dormitory (39m x 14.9m) three storey building and staff messing hall (12.2m x 8.2m).

Project Water Supply: Two deep well water, treated by RO treatment Plant and aerated for domestic water consumption.[9]

Electrical Power Supply: National Grid (11 kV/ 0.4kV Transformer + 400V x 2 Generators)

Solid Waste Disposal: Solid Waste generated by production process (from cutting) is collected by local contractors and sent for recycling work. Domestic wastes are being collected systematically by local

[8] *YRIC-1/E-326/2020 (1542) Yangon Region Investment Committee Letter dated 27 Jan 2020:*
[9] *Appendix E of this Report: Water Quality Test Result*

municipality.

Health care: Provide clinic at the factory for workers in-charged by a certified nurse and for those who are sick, they will be sent to Social Welfare Hospital for care.

2.2 Project Implementation Program

The project has completed the construction phase of all infrastructures including warehouse, dormitory, factory and offices. Now it is in its operational phase. Emergency Response Procedures 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 infrastructures at the project site are conducted by the proponent with local construction company.

2.2.2. Proponent Information

The project proponent " Mingshang Sports Myanmar Company Limited" has signed a Building and Land Lease Agreement with Daw Kyi Thar Win Pyar for 5.667 acres (22933 m^2) at 50 years + 10 years (extendable two times) for USD 41280.372 per annum.

Director of Mingshang Sports Myanmar Company Limited **:** Mr. Li Quaosheng
Manager (Production Process) **:** Mr. Li Fu Juan
Manager (Human Resources) **:** Daw Pann Ei Phyu
Address **:** Plot No. (13+14), Myay Taing Block No.143/1, (Kyansitthar Yeik Mon Industrial Zone) Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region.
Mobile **:** +95 9980344145
Email **:** -

2.2.3 Investment Plan and Economic Feasibility

Project investment is 4.700 Million USD (by 100% Foreign Investment Company).

2.3 Identification of EMP Experts from third party NEPS

Table 1: EMP Report Preparers

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

Member of the team (except the team leader)				
Name (Sur name, Given name)	Registration / License No. by ECD (if registered)	Organization	Contact Detail	Area of expertise
Dr. Khin Maung Swe	035	NEPS	01 8562407	Biodiversity Expert: Head of Flora and Fauna Survey Team
U Kyaw Win	035	NEPS	01 8562407	Health Assessment Expert, Waste Management, Risk Analysis along supply chains
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
Daw Myat Mon Swe	0035	NEPS	01 8562407	Hazard identification Expert, Pollution Control, Public Consultation Meeting,
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
Daw Esther Ro Hniang	0035	NEPS	01 8562407	Water Resources Engineer, Ecology and Biosecurity, Risk Assessment and Hazard Management
U Akkar	0035	NEPS	01 8562407	Soil and water quality survey, Noise and air pollution analysis, socio economic analysis.
U Kyaw Zin Tun	0035	NEPS	01 8562407	Socio economic survey, Stakeholders Meeting

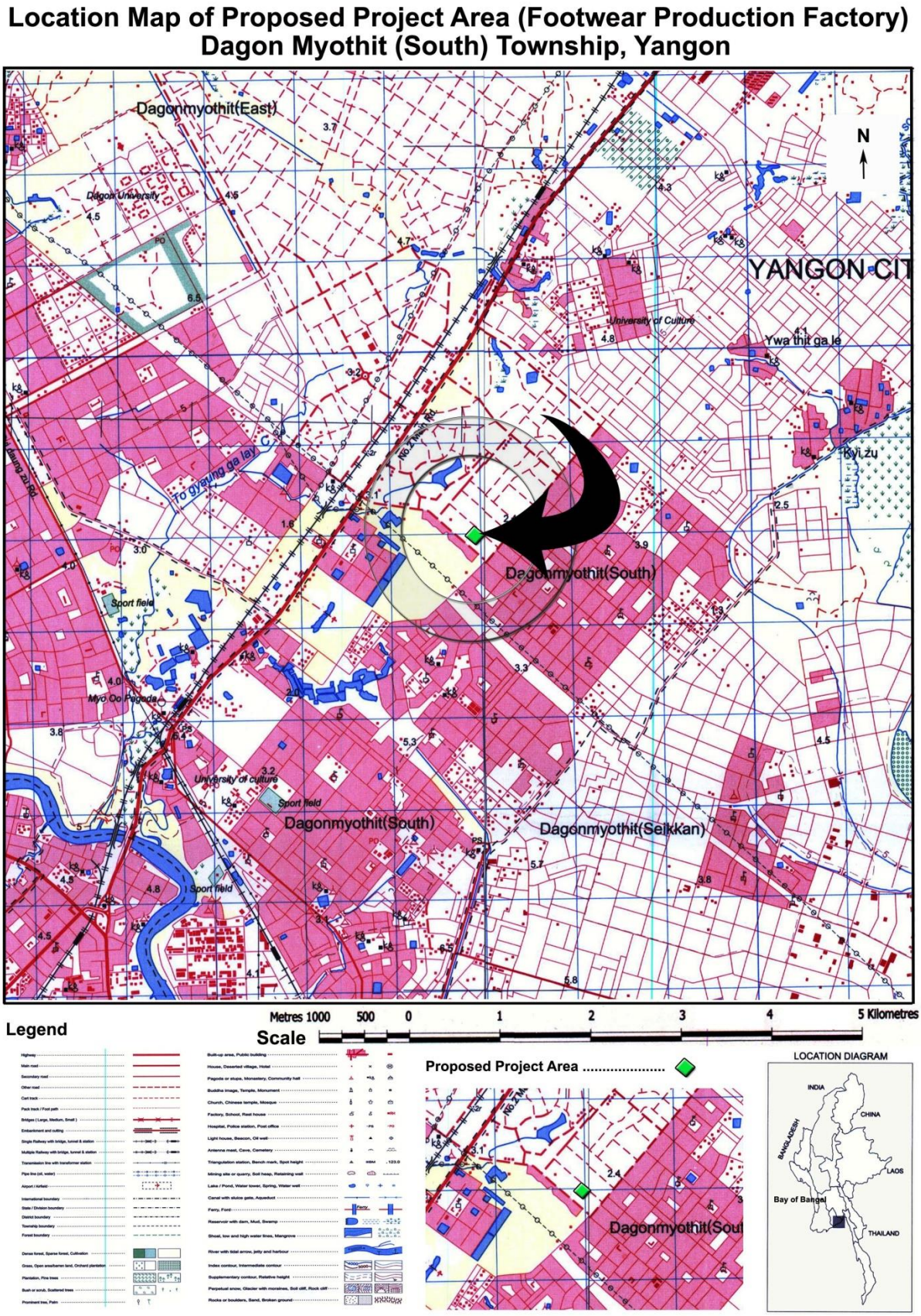


Figure 1: Project Site Location and Land Acquisition

Figure 2: Satellite Image of Project Site and its surroundings

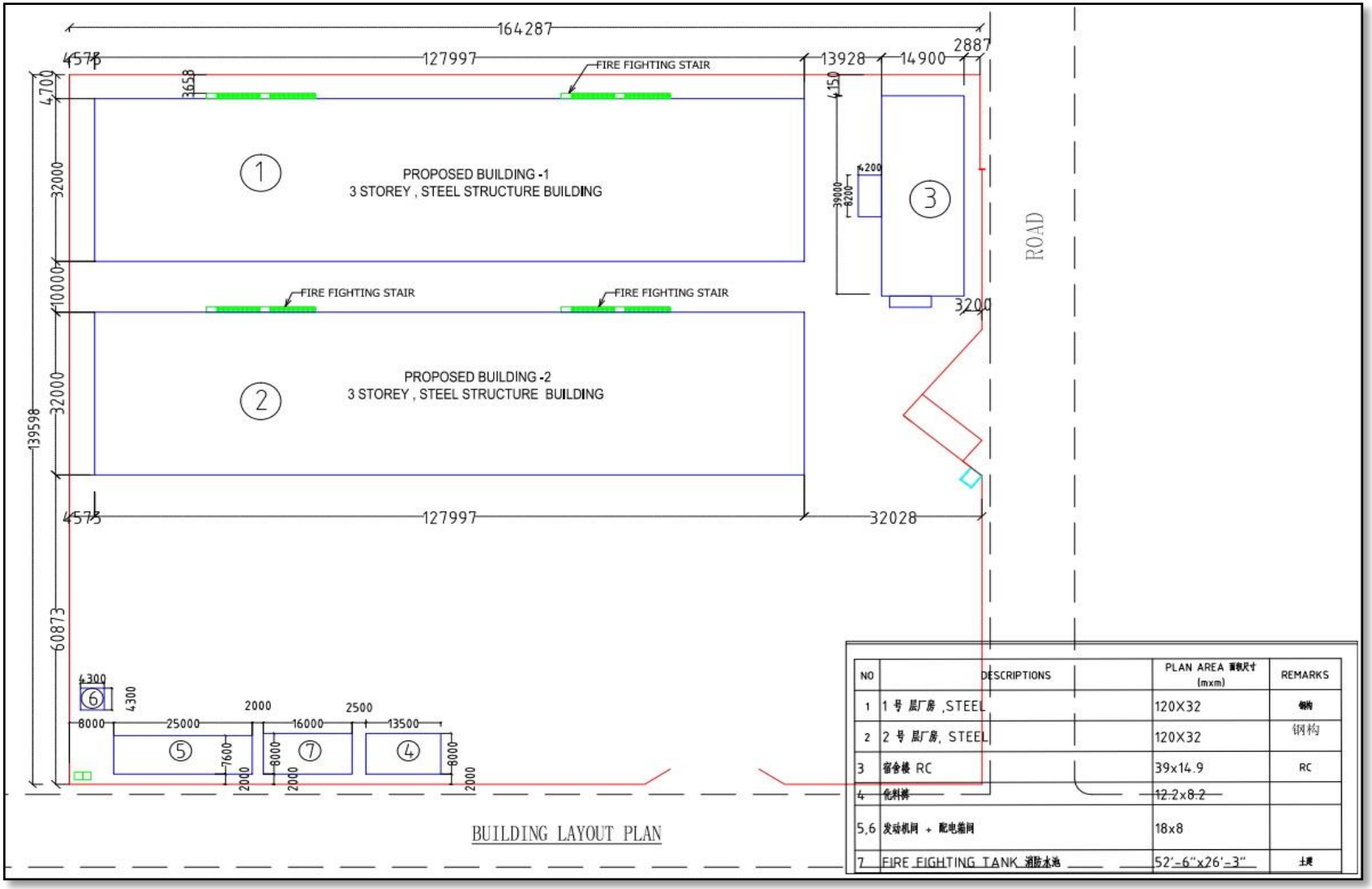


Figure 3: Project Layout Plan

Figure 4: Water Supply with Reverse Osmosis Water Treatment System

Figure 5: Fire Protection Equipment

Figure 6: Masonry Drainage at Project Site

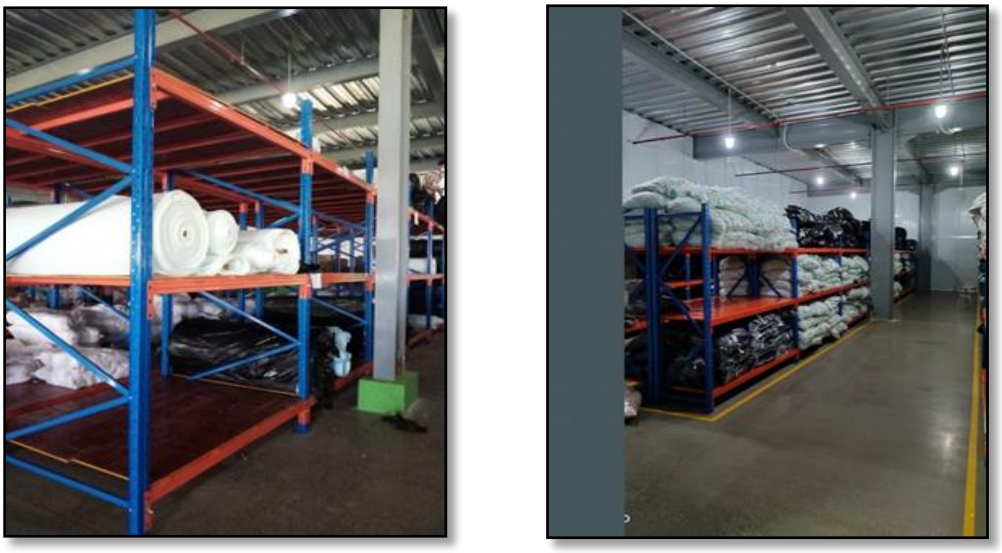


Figure 7: Project Store for Raw Materials

Figure 8: Store Shelves

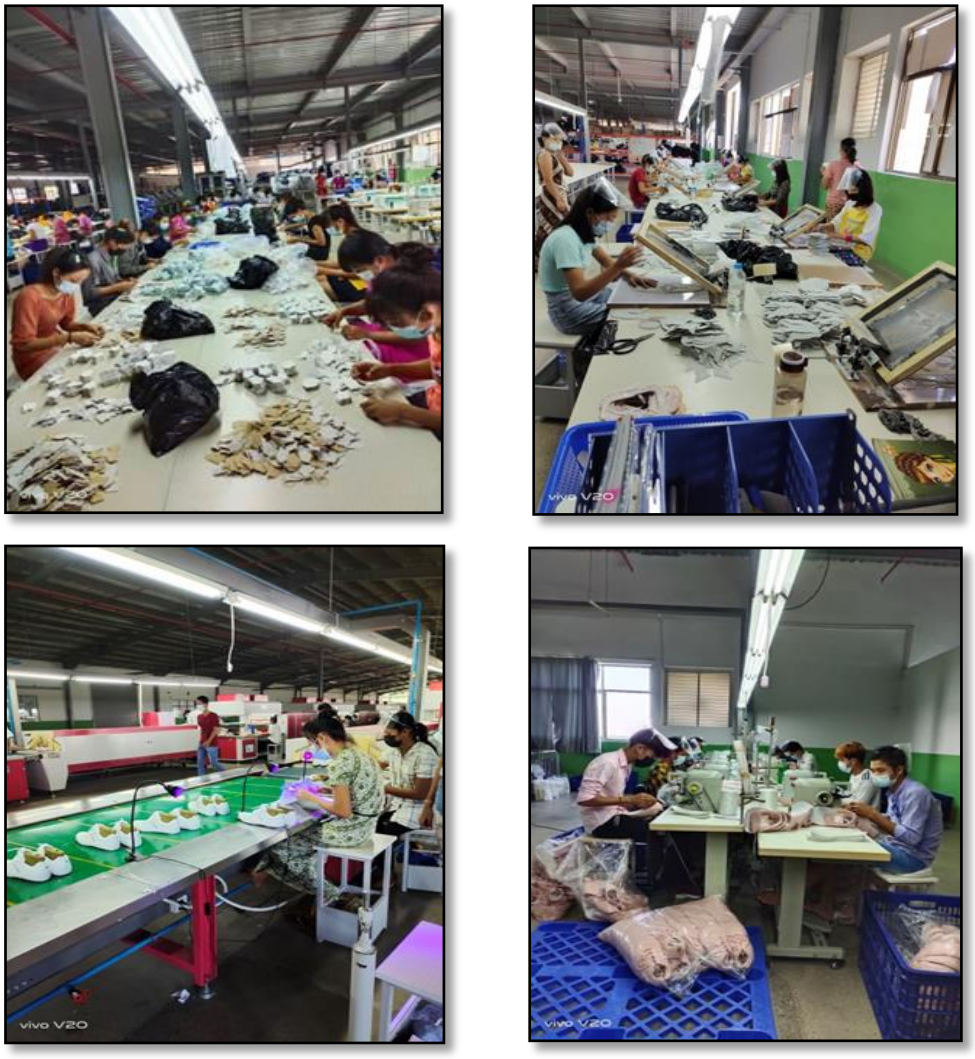


Figure 9: Staff Working

Figure 10: Finished Product Sample and Packet

Figure 11: Worship Area

Figure 12: Clinic

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 protection and prevention measures are declaration of project proponent in regard with ensuring of mitigating environmental and social adverse impacts and enhancing beneficial impacts:

A. *Protection of Environment*

We, Mingshang Sports Myanmar 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 to be environmentally friendly. The project ground will have suitable shady side walks, flowering plants and trees and ever green arbors.

B. *Fire Hazard Prevention*

With regard to the matter – Mingshang Sports Myanmar Co., Ltd will be undertaking the project works under the normal basic guide lines and for the purpose we have applied for approval of Myanmar Investment Commission.

Regarding Fire Hazard Prevention, Mingshang Sports Myanmar Co., Ltd follows the National standard and we have fire-fighting equipment and prevention initiatives in place at project site.

C. *CSR Fund*

We, Mingshang Sports Myanmar Co., Ltd shall use 2% of annual net profit to be appointed as CSR fund from the commencing year of our business. It should be funded at around 10 lakh kyats. The amount should be contributed in factors tentatively as an example like; 350,000kyats per year in education, 300,000 kyats

per year in health care and 350,000 kyats per year in protection of environment.

The project is being implemented with authorization from the relevant Government Departments[10].

Myanmar has developed a Goals and Policies to uplift the country's economy in all aspects. The relevant policies are described below and the Project Proponent commits to support and 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 be taken as guideline. The Laws, regulations relevance to the EMP of the Project are summarized below:

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)
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)

[10] *Appendix A of this Report*

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 Program 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 labour conventions. The key international conventions of relevance to the Project and commitment to adhere with Project Compliance are described below:

Table 2: International Convention of Relevance to the Project

Legislation	Relevance	Ratification Status (in Myanmar)	Project Compliance
Environmental			
Vienna Convention for the Protection of the Ozone Layer 1988 and Montreal Protocol on Substances that Deplete the Ozone Layer 1989	Not relevant to the Project as the Project will not use any ozone depleting substances.	Accession 16th Sep 1998 (Vienna) & Accession 24th Nov 1993 (Montreal)	The Project commits not to utilize ozone depleting substances.
Convention on Biological Diversity 1992	The Project will be undertaken in habitats for biodiversity.	Ratified 25th Nov 1994	The Project commits to comply as per Myanmar's
Basel Convention on	The Project	Entered into force 6th	The Project

Legislation	Relevance	Ratification Status (in Myanmar)	Project Compliance
the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal	may generate hazardous wastes.	April 2015	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 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.

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 Physical Environment

4.1.1 Climate and Hydrology

The project area is located at Dagon Myothit (South) Township of Yangon Region; having subtropical climate with recorded maximum temperature of 42°C and Recorded minimum temperature of 14°C.

Dagon Myothit (South) climate and hydrological data were collected from Department of Hydrology and Meteorology for the environmental management plan assessment of footwear production project. The data was analyzed based on the available rainfall, temperature, relative humidity, and wind speed in the study area.

4.1.2 Rainfall and Temperature

Table 3: Mean Yearly Rainfall and Temperature

Sr.No	Year	Rainfall		Temperature	
		Rainy Days	Total Rainfall (inches)	Summer	Winter
				Highest (°C)	Lowest (°C)
1	2016	97	108.14	41	14
2	2017	101	109.20	42	15
3	2018	129	171.9	42	15
4	2019	121	104.71	42	19

Table 4: Mean Monthly Rainfall in mm at Dagon Myothit (South) (1967-2018 Average)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	6	2	9	26	280	498	562	555	342	168	54	5	2507

Table 5: Monthly Rainfall in millimeter at Dagon Myothit (South)

(Mean Year, Wet Year, Dry Year)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Year	5	3	12	28	266	494	597	551	341	174	56	4	2531
Wet Year	12	1	9	22	405	554	598	625	427	188	77	2	2920
Dry Year	6	1	2	22	199	456	415	498	258	128	22	11	2017

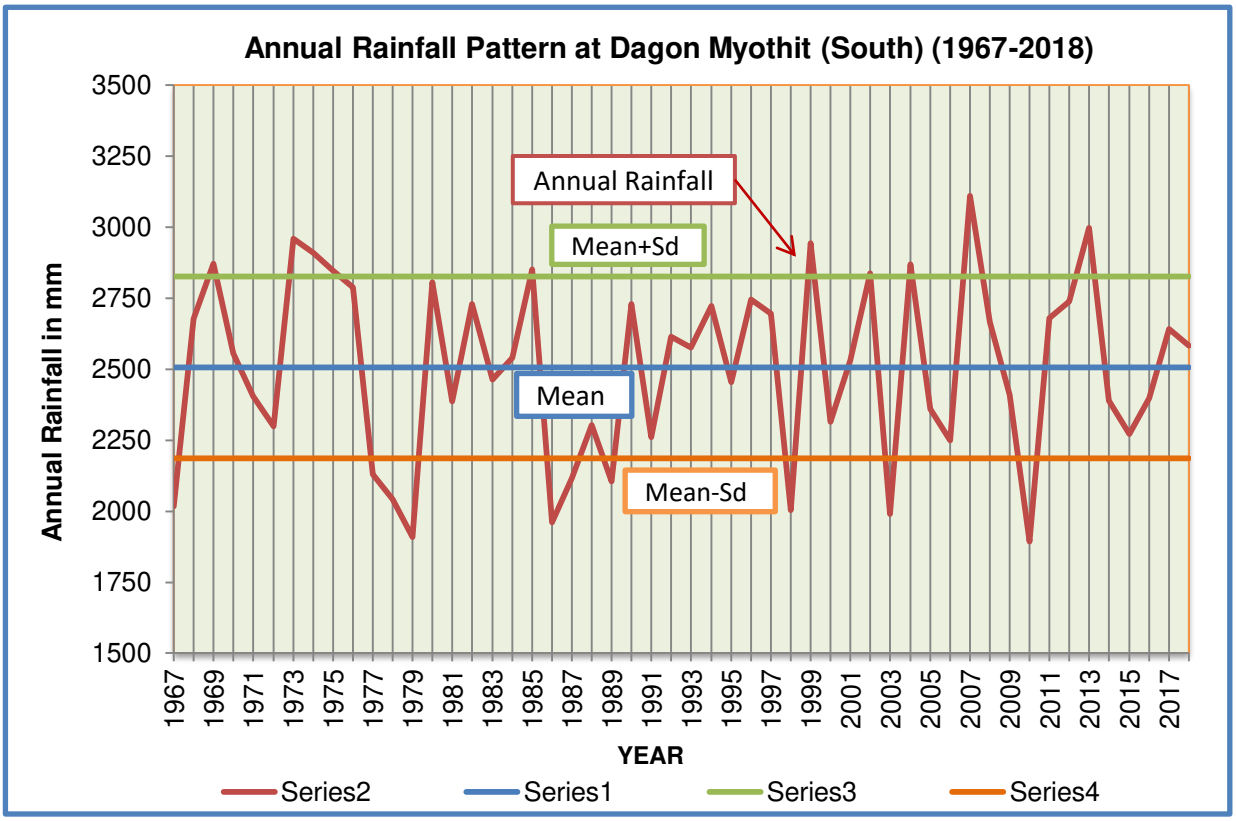


Figure 13: Annual Rainfall Pattern at Dagon Myothit (South) (1967-2018)

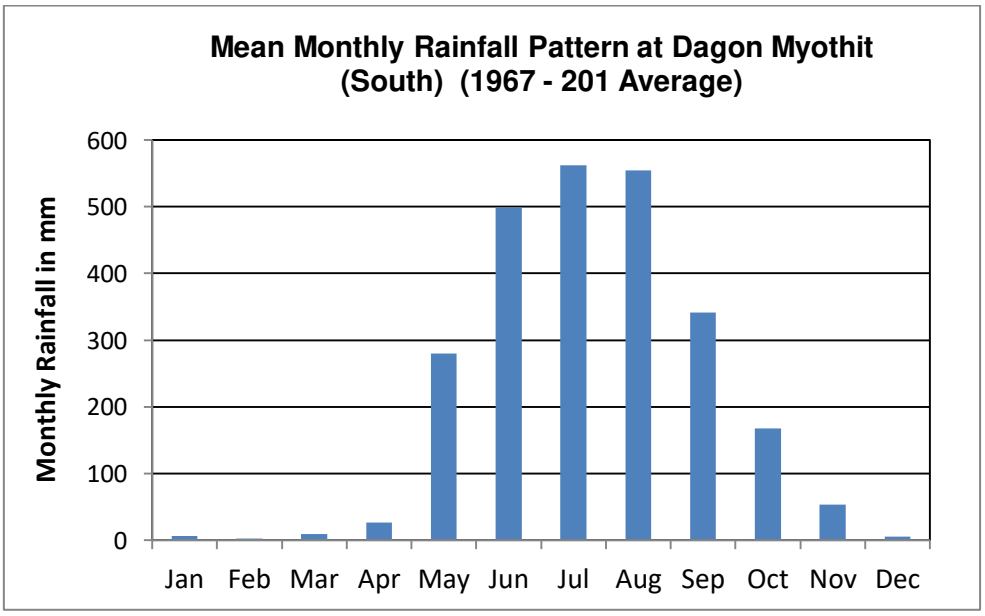


Figure 14: Mean Monthly Rainfall Pattern at Dagon Myothit (South) (1967-2018)

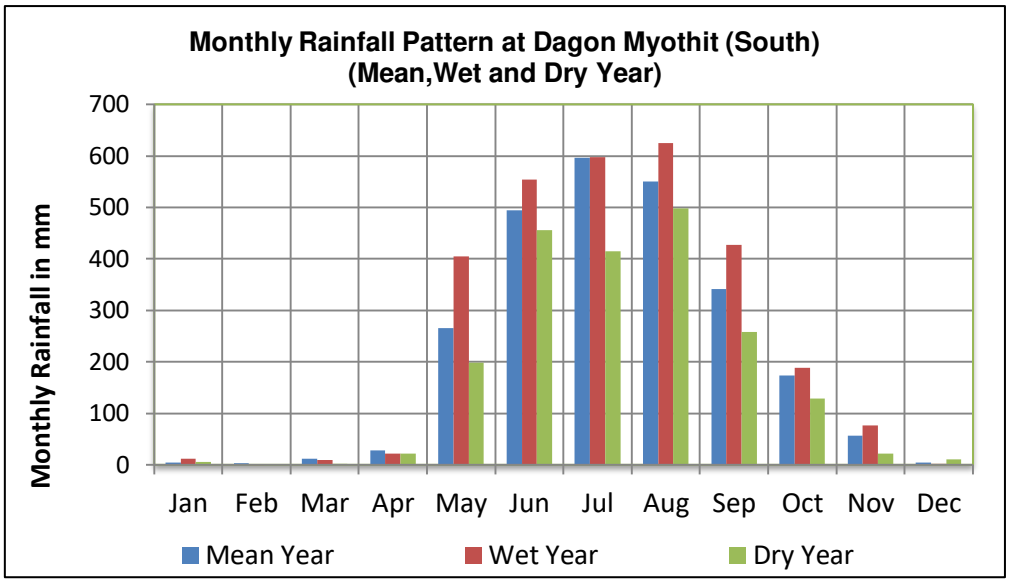


Figure 15: Monthly Rainfall Pattern at Dagon Myothit (South) (Mean, Wet and Dry Year)

Table 6: Monthly Mean, Maximum and Minimum Temperature at Dagon Myothit (South) in °C

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	24.7	26.1	29.1	30.5	28.7	27.9	27.4	27.3	27.8	28.4	27.6	24.9	27.5
Maximum	32.9	35.0	37.3	37.6	33.2	31.3	30.4	30.5	31.1	32.8	34.2	33.0	33.3
Minimum	16.5	17.2	20.9	23.4	24.2	24.5	24.5	24.2	24.4	23.9	20.9	16.8	21.8

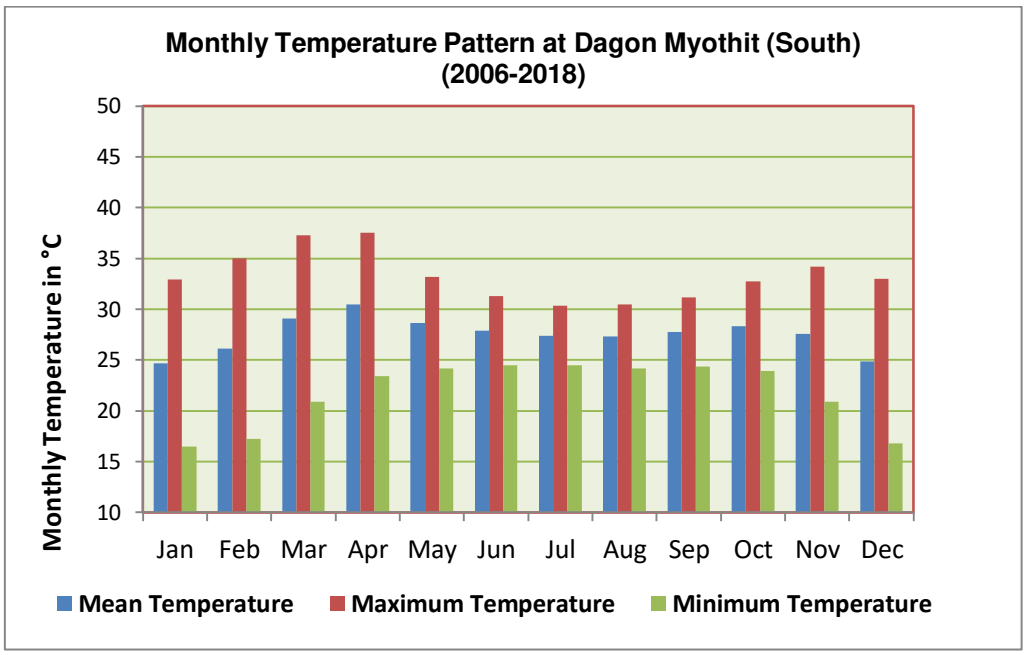


Figure 16: Monthly Mean, Maximum and Minimum Temperature Pattern

Table 7: Monthly Mean Relative Humidity at Dagon Myothit (South) in % (2006-2016)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	69	70	74	69	79	88	91	91	88	83	74	70	79

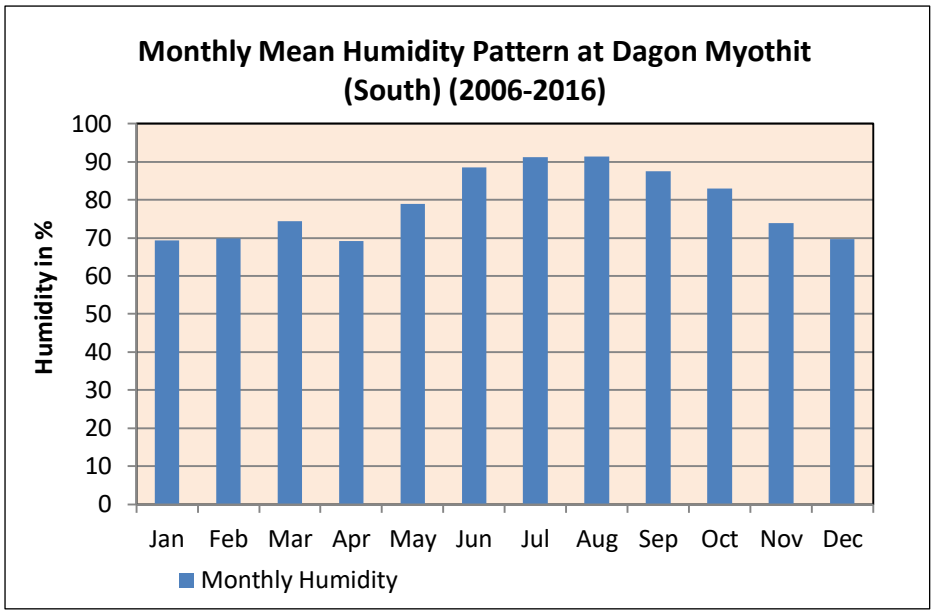


Figure 17: Monthly Humidity Pattern at Dagon Myothit (South) (2006-2016)

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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	1.8	1.8	2.2	2.8	2.9	2.9	2.8	2.7	2.4	2.1	1.8	1.7
Direction	NE	SW	SE	SW	SW	SW	SW	SW	SW	SE	NE	NW

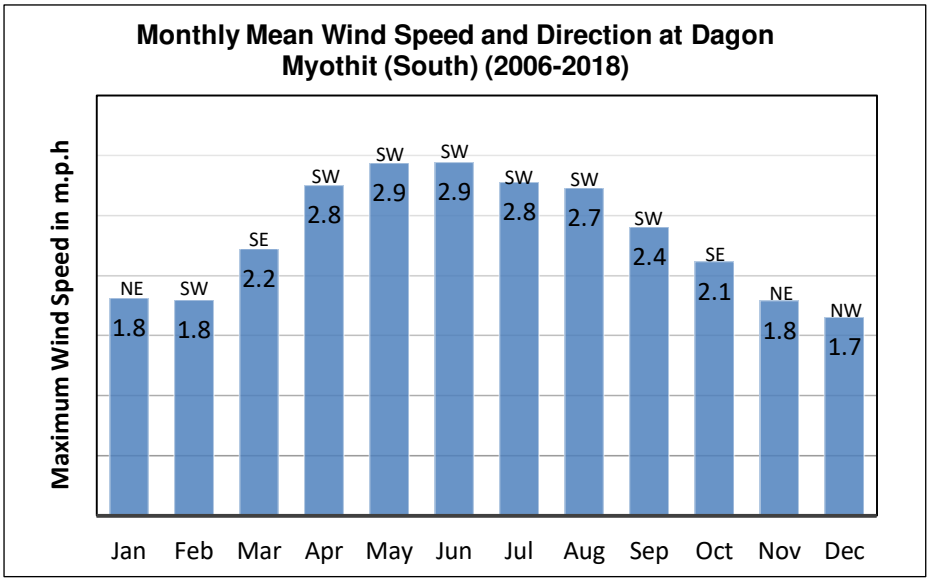


Figure 18: Monthly Mean Wind Speed and Direction Pattern at Dagon Myothit (South) (2006-2018)

Source: Meteorological and Hydrological Department

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 November 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 500m, 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.	**Physical Environment**			
A	Road connectivity	The site is well connected by roads.	No (2) Main Road is running along its northwest part.	Thudhamma road is running along its northwest part.
B	Rail connectivity	The site is well connected by roads.	Railway line is running along the western part of the site from west to north direction.	Railway line is running along the western part of the site from west to north direction.
C	Defense Installation	None	None	None
D	Densely Populated Area/ Industrial Area	None	None	Dagon Myothit (Seikkan), Tharketa, Thingankyin, Dagon Myothit (East and North),
E	Topography	Mainly flat with ground elevation ranging around 14.4 feet above mean sea level.		
F	Seismicity	Low magnitude	Low magnitude	Low magnitude
G	Surface Water Resources (Rivers)	None	None	About 8 km from the project site, Pazundaung creek and Bago River are flowing west and east direction respectively.

H	Groundwater	The groundwater resources found below the natural ground surface.		
I	Soil and Land Used [11]	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 soil Land use in 10 km of site is under agriculture, settlement, water bodies and rest of the land is under other uses.
2.	**Ecological/ Biological Environment**			
J	Presence of Wildlife Sanctuary / National Park /	None	None	National Races Village
K	Reserved /Protected Forests	None	None	None
L	Wetland of state and national interest	None	None	None
M	Migratory route for wild animals	None	None	None
N	Migratory routes for birds	None	None	None
O	Presence of Terrestrial Fauna	None	None	None
P	Presence of Aquatic Fauna	None	None	None
Q	Tree cover	Yes: General road side plantation	Yes: General road side plantation	Yes: General sparse vegetation and road side plantation.
3.	**Social Environment**			
R	Physical Setting	Industrial /Urban	Industrial / Urban	Urban / Rural / Industrial Settings
S	Physical Sensitive Receptors	None	Yes (Temples, Schools, College, Hospital)	Yes (Temples, Schools, College, Hospital)
T	Archaeological Monuments	None	None	None

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

5.1.1 Physical Environment

5.1.1.1 Land

(a) 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 soil of the project area is meadow and meadow alluvial soils which are prominent. About 10 km range of the project area; lateritic 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. The area demarcated as Kyansitthar Yeik Mon Industrial Zone has meadow and meadow alluvial soil which occurs near the river plains with occasional tidal flood are non-carbonate and contain more plant nutrient than that of upper Myanmar.

5.1.1.2 Water

***(a) Meteorology*:** Climate of the project area is subtropical climate with maximum temperature of 42°C and minimum temperature of 14°C. During the rainy season, the rainy days last consecutively for 97-129 days. Annual rainfall over the area averages 123.5 inches (171.90 mm) during the past four year. Most rainfall in Yangon results from tropical systems during the period of May and October. Annual wind speed at Dagon Myothit (South) generally ranges from maximum wind speed of 2.9 kmph and minimum wind speed of 1.8 kmph with mean annual relative humidity of 79% according to 2019.

(b) *Water Quality*: Since the production process does not have wastewater, the water sample was collected from drinking water pipe for workers at the project site (Factory A) and it was tested in Pro Lab Analytical Laboratory in 15th November, 2021. Water quality assessment parameters are pH, acidity, alkalinity, electric conductivity, total dissolved solid, total suspended solids, calcium hardness, chloride, carbonate, magnesium hardness, manganese, phosphate, iron, salinity, sodium chloride, sulphate and turbidity. The analyzed parameters are compared with WHO Drinking Water Guidelines. According to the test result, all of the chemical and physical parameters are within the limit range of WHO Standards, 2018. Therefore, the water quality assessment indicated that the water is suitable for drinking purposes or industrial uses.

5.1.1.3 Air and Noise[12]

(a) Air Quality: Environmental quality monitoring, i.e., ambient air pollution and noise level tests at the project area was conducted by the Hexagonal Angle Consulting Team on 15th-16th November, 2021. The OCEANUS^{TM} AQM-09 was used for outdoor air measuring survey and the measurement station is located at the project area and monitoring point is located in the loading/ uploading place between two production factories. During the assessment, the average temperature was 29.95°C and relative humidity was 67.19%. The measured parameters are dust particles such as total suspended particulate (TSP), particulate matter

[12] *Environmental Quality Monitoring Report, Appendix E of this Report*

(PM_{10}, $PM_{2.5}$) and the gaseous pollutants (NO_2, SO_2, CO and O_3), relative humidity, air pressure and temperature etc., for outdoor air quality. Measurements were recorded in the operation with duration of 24 hours between consecutive measurements and the results are compared with National Environmental Quality (Emission) Guideline and World Health Organization Guideline.

According to the result, the observed level of $PM_{2.5}$ and PM_{10} are above the guideline values and other parameters meet permissible limits of both Guidelines. According to the analyzed data, PM_{10} and $PM_{2.5}$ are obviously exceeding the guidelines between 5:00 AM and 6:00 AM and 6:00 PM and 7:00 PM, respectively. These exceeding results in the atmosphere are caused by vehicle movements. Therefore, it is needed to have a proper mitigation plan in the dust generating area of the factory in order to make the environment safe for the workers.

***(b) Noise Quality*:** Baseline noise quality was measured in the loading and uploading place between two production factories while running the operation, using BENTECH GM 1356 Digital Sound Level Meter. For industrial and commercial area, the maximum permissible sound level hourly by day and night is 70 dBA respectively. At present minimum sound level results is 54.9 dBA and maximum is 91.6 dBA with average noise level of 67.44 dBA during day time which is within the permissible limits as National Environmental Quality (Emission) Guideline for Industrial Area. Though the average noise result is not exceeding the guidelines, the maximum dBA (91.6) is above the guidelines. It would be caused by the vehicle movements and operation processes of the factory. There will need to check the vehicles and equipment of all operation works.

5.1.2 Ecological/ Biological Environment

5.1.2.1 Sensitive Ecosystem

Except from National Races Village which is situated at about 9 km from the project site, there is no sensitive ecosystem including wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, tiger reserve, elephant reserve, and wetlands are present in this township. Dagon University and Yangon University of Economics at its northern part and University of Dental Medicine and National Races Village at its southwest which are within 10 km range of the project site.

5.1.2.2 Flora and Fauna

The current environment situation of the township is covered with 35% of forest. As the township is an environmental conservation area, they planted 5000 shade trees, vines/ ornamental plants annually along markets, basic education schools and main roads as the form of group activity.

Since the project area is situated closed to urban area, there is no significant flora and fauna around the vicinity area. The native plants of Dagon Myothit (South) township are bamboo and shaded trees such as vandapin, kha-ya and ong-hne. 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 and prominent vegetation pattern is bushy and continuous on both sides of the road.

5.1.3 Socioeconomic Data

5.1.3.2 Social Environment

The proposed site is located in Dagon Myothit (South) Township, Yangon Region, Myanmar and the site is bordered by four townships namely: Dagon Myothit (Seikkan) Township to its east, Dagon Myothit (North / East) Township to its west, Tharketa and Thingangyun Townships to its south and Hlegu Township to its north. Since the project site situated on the Industrial Zone, most of the surrounding areas are occupied by factories and there is human settlement inside and around the environment.

5.1.3.2 Socio-Economic Status

According to 2019 social study, the total population of the study area is 325886 with total household of 59725. Male female ratio of the study area is 1:1.1 as of 2019. The ethnicity of more than 88% is Burma and others make less than 12% including foreigners. Out of the total population, the number of people who can work is 224739 and the unemployment rate is 4.7%. Main livelihoods are government services, industrial worker, merchant, livestock breeding, agriculture, casual labor and others.

This township is a developing township in economic status. The important sectors for the economic development of the vicinity area are industrial worker and merchant. Most of water supply for the township is mainly from drinking water supply. The township has 20 waste trucks with 132 municipal workers. The project area has good transportation and can be accessed through railway and roads. There are 2 hospital, 75 clinics (private and government) and 11 rural healthcare centers, and 2 INGO and 5 NGO in this township. Three well-known pagodas and one monastery are in this township; however, there are no main historical and archeological structures with 10 km range of the project site.

5.1.3.3 Land Use

Land use refers to the type of human activity that occurs on the land. On the other hand, land use changes are mostly from human developments such as agricultural operations, forestry, urbanization, industrialization and so on. The total land use area in Dagon Myothit (South) Township is 19549 acres. Almost 60% of its total area covers urban and built-up area, 27.3% of agriculture land, 1.2% of industrial area and 12.6% of barren. Forest area percentage in this township is deemed negligible.

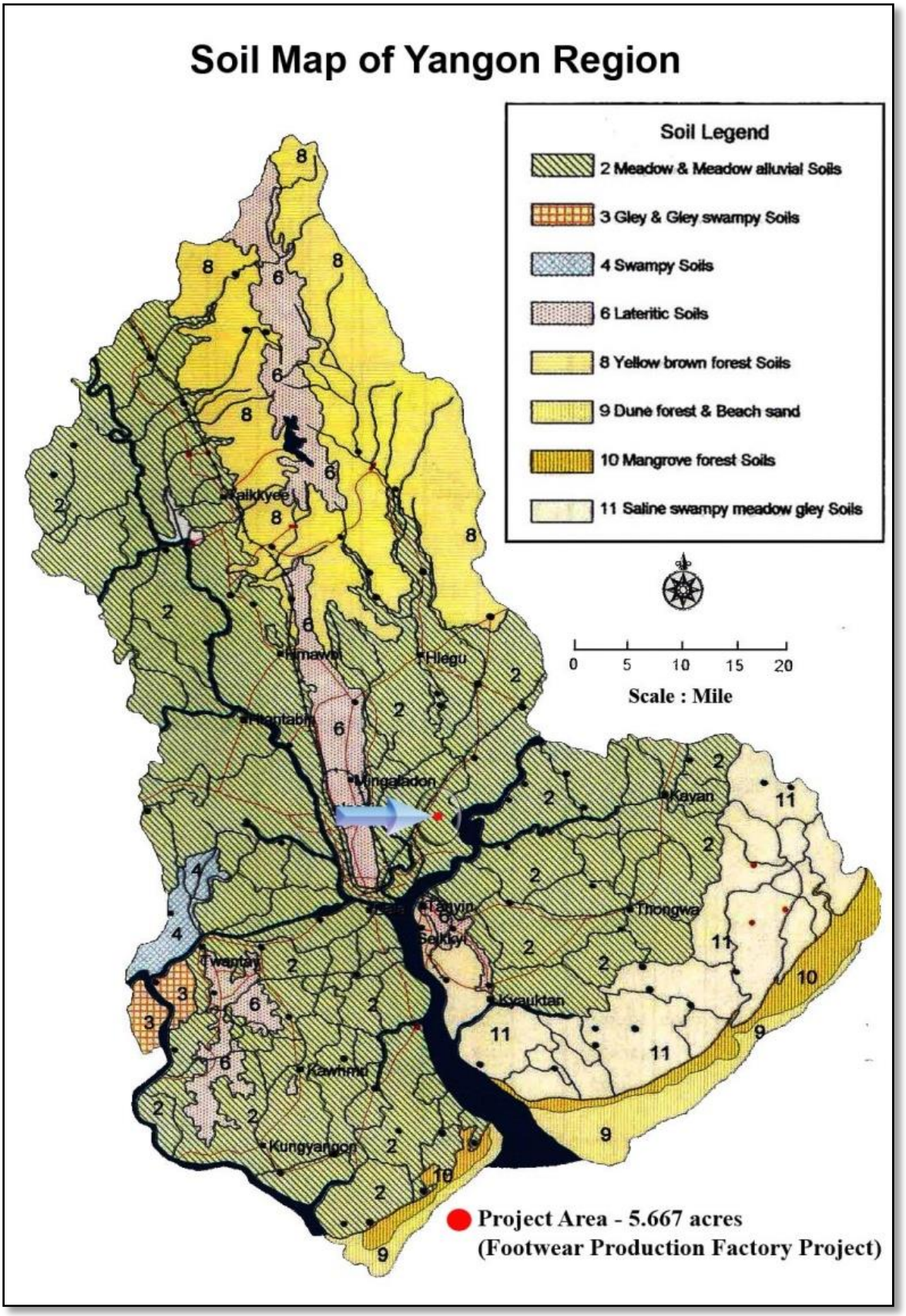


Figure 19: Soil Map of the Project Area

6. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

6.1 Summary of Potential Impacts

6.1.1 Impact Identification[13]

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 Table Key

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
BPC/5	Changes to air quality	medium
BPC/6	Changes to ambient noise levels	low
BPC/7	Changes to aquatic biota	low

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

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

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

Table 12: Operational Phase Impact Assessment of Proposed Project

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Mingshang Footwear Production Project, Dagon Myothit (South) Township

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

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 groundwater 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/5	2	3	2	2	Medium

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

Possibility of Increased income and livelihood opportunities due to the project

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/6	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/7	2	3	2	2	Medium

SEC/8 Changes to public infrastructure/community resources

Expected infrastructure development

Ref.	Extent	Duration	Magnitude/ Intensity	Probability	Significance
SEC/8	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 impacts and 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 to period mitigate impacts

The EMP enables environmental mitigation measures to be effectively integrated into project implementation. As compliance with provisions of the EMP it is ultimately the responsibility of the proponent of the project company 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[14]

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.

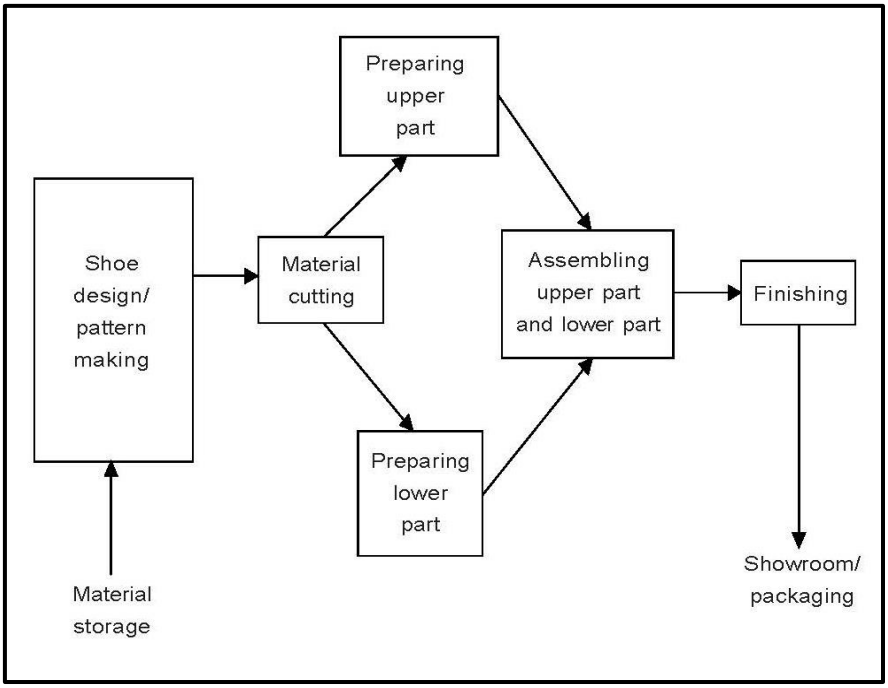


Figure 20: Footwear Production Flowchart

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.

A. Physical Environment

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

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[15]: i) Keep feet far enough apart to give a balanced distribution of weight; ii) The knees and hips should be bent, the back kept as straight as possible; iii) The arms should be held as near to the body as possible. This helps sustain the load by allowing friction between the load and clothing; iv) Lift should be made smoothly, no jerks or snatches should occur.

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

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

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

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

Mitigation measure: Provide good seats for everybody:

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

[15] *ILO-WISE Manual*

- 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 toile facilities also save working time. Sufficient, clean and well-maintained toiles 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 had 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 t 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 are 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;
- Tea 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[16]:

- Members of an OSH committee are nominated by the workers or community members;

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

- 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 sic person before taking the victim to the hospital for medical treatment.

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

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

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

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

- 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 Environmental Health Impact Assessment and Management of Occupational Health Hazards (EHIA)[17]

Assessment and Findings

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

1. Medical Service:
   - Physical examination

[17] Appendix G: EHIA Report on Mingshang Sports Myanmar Co., Ltd by U Kyaw Win, Public Health Engineer

- Supervision over working conditions

2. Engineering and safety services:
3. Government 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 occupational 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 humidity
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 and mitigation of hazards:

Prevention from these hazards are discussed based on the following mitigation measures as necessary. Some general rules for the protection of workers and public are outlined detail in the Appendix G 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. Infection ;
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 is hard water. But, the output water quality after RO, 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.

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 (9 seats for women and 9 seats for men at each floor) for employees are satisfactory.
If possible, a Safety Engineer and a Physician should be on the staff. Safety engineer must measure temperature, humidity, air dusts etc., analyze, record and report.
Physician will 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:

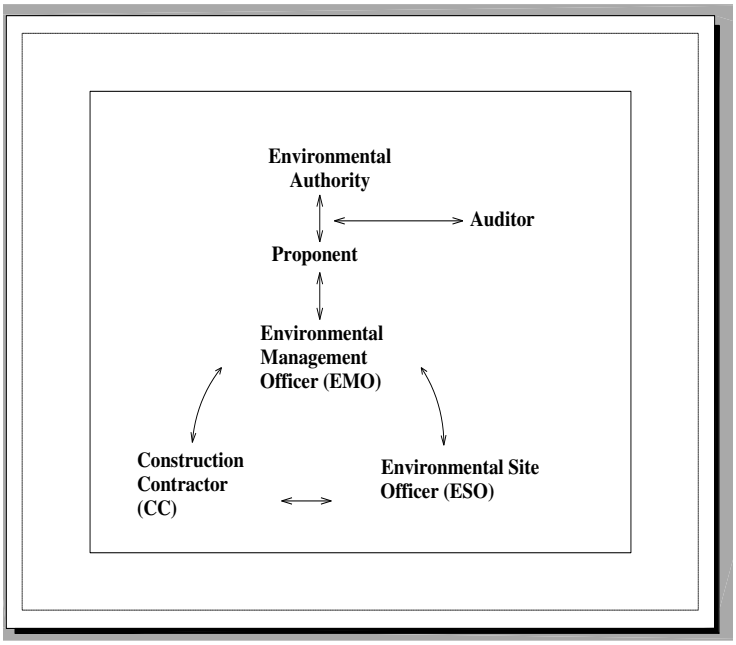


Figure 21: EMP Organization

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; ▪ 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.
Monitoring Plan	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 yearly basis and results of the monitoring program will be recorded and reported annually. If adverse conditions are found in a particular area or process, adaptive management policies will be implemented.
Parameters	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.

	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
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 weekly 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 Annual 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

<table>
<tr><td>Objective</td><td>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.</td></tr>
<tr><td>Legal Requirements</td><td>Natural Disaster Management Law (2013), National Fire Protection Agency (NFPA 58) standard</td></tr>
<tr><td>Implementation Schedule</td><td>During Operation Phase</td></tr>
<tr><td>Management Action</td><td>Emergency Contacts

EMO — Head
External Emergency Response Team (EERT) — Member
ESO (1 No.) — Member

<table>
<tr><th>Entity</th><th>Responsibilities</th></tr>
<tr><td>EMP Team (ERT)</td><td>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</td></tr>
<tr><td>External Emergency Response Team (EERT)</td><td>Solves the emergency / incident</td></tr>
<tr><td>Resources</td><td>Provide and sustain the people, equipment, tools & funds necessary to ensure Project’s quick response to emergency situations.</td></tr>
</table>
</td></tr>
</table>

	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. It is basically suggested to be funded at around 10 lakh kyats. The amount should be contributed in factors tentatively as an example like; 350,000 kyats per year in education, 300,000 kyats per year in health care and 350,000 kyats per year in protection of environment.

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 Bi-Annual reporting		EMP Organization or Third Party
3. Surface Water, Drinking water	Two samples (wastewater and drinking water) are measured to cover the whole Project Area	Twice per year	▪ Turbidity, EC, Total hardness, Total dissolved Solids, Chloride, Sulfate, Calcium, Magnesium, BOD, COD, pH, Temperature, Ammonia for waste water; ▪ Physico-Chemical parameters (e.g. Turbidity, EC, Total hardness, Total dissolved Solids, pH, Temperature, Iron (as Fe), SO_4, Nitrates (as NO_3), Fluoride (F), etc. and Microbiological parameters (E-coli and total coliforms) for drinking water.	EMP Organization or Third Party
4. Drainage Management	Project Area (Direct Affected Area)	Daily	▪ Good housekeeping and professional landscape and drainage design	EMP Organization or Third Party
5. Air	One sample is measured to cover the whole Project Area	Yearly	▪ Nitrogen dioxide (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	Yearly	NEQEG Noise Level Parameters	EMP Organization

<table>
<tr><td></td><td>cover the whole Project Area</td><td></td><td><table><tr><td rowspan="2">Receptor</td><td colspan="2">One hour LAeq (dBA)[a]</td></tr><tr><td>Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)</td><td>Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)</td></tr><tr><td>Residential, institutional, educational</td><td>55</td><td>45</td></tr><tr><td>Industrial, commercial</td><td>70</td><td>70</td></tr></table>an Equivalent continuous sound level in decibels</td><td>or Third Party</td></tr>
<tr><td>7. Waste Management</td><td>the whole Project Area</td><td>Weekly</td><td colspan="2">Waste generated at the Project is monitored on a monthly basis through waste disposal receipts</td><td>EMP Organization or Third Party</td></tr>
<tr><td>8. Traffic Management</td><td>Transportation Route</td><td>Daily</td><td colspan="2"></td><td>EMP Organization or Third Party</td></tr>
<tr><td>9. Community Engagement</td><td>Direct Effected Area and In-directed Affected Area</td><td>Regularly Monitoring and Quarterly Reporting</td><td colspan="2"></td><td>EMP Organization or Third Party</td></tr>
<tr><td>10. Occupational Health and Safety</td><td>Direct Effected Area</td><td>Regularly Monitoring and Quarterly Reporting</td><td colspan="2"></td><td>EMP Organization or Third Party</td></tr>
<tr><td>11. Emergency and Rescue Plan</td><td>Direct Effected Area</td><td>Regularly Monitoring and Quarterly Reporting</td><td colspan="2"></td><td>EMP Organization or Third Party</td></tr>
</table>

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)

Section	Description of Monitoring Cost	Unit Cost (Kyats)	Unit	Amount (Kyats)	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
810	Restoration and Replantation Programme	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), 12-13 November 2021

Item	Name of Key Informant / Stakeholder	Designation / Organization	Summary Notes
1	Daw Pann Ei Phyu	Manager, Human Resources	***Mingshang Sports Myanmar Limited*** specifically produces Sports shoes with CMP (Cutting-Making-Packing) procedure according to its ordered-footwear designs. ▪ Generally, we have four buildings in our compound: ***Factory A***: 3 storey steel structure (120m x 32m), ***Factory B***: 3 storey steel structure (120m x 32 m), ***Dormitory***: RC Building 3 storey (39 m x 14.9m) and ***Staff Messing Hall*** (12.2 m x 8.2 m). ▪ ***Working Hours***: Working time starts from 8:30 am to 5:30 pm with 1 hour lunch-break in two shifts (11:30-12:30 hrs. & 12:30-13:30 hrs.) ▪ ***Staff***: At present, we have 1100 workers (labors) and 14 Chinese employees (7 male & 7 female) ▪ ***The production process***: is just cut, glue, and stitch; and produce the output product according to ordered footwear design. ▪ ***Dormitory***: The foreign employees stay in the Factory, but the local labors attend work from home, except for fourteen local employees, whose homes are in the other faraway districts and regions of Myanmar. ▪ ***Water Supply***: There are two deep wells in our factory compound. The raw water from these wells are hard water. However, they are pumped into steel tanks (2000lts x 4 nos.) at the third storey of the dormitory building and then passes through the Reverse Osmosis water treatment plant, after which is stored in steel tanks (2000lts x 4 nos.) at the roof top of the dormitory building to be distributed by gravity to the entire factory buildings and compound. ▪ ***The treated water*** is being tested for its physical-chemical and microbiological parameters for its drinkability. ***Staff Welfare***: The factory staff who live outside the factory come to work by their own initiatives. We have separate lunch / messing hall provided for

			them with good water supply, dining tables with chairs and clean surroundings. They bring their own lunch and the lunch time is arranged in two separate shifts (11:30-12:30 hrs. & 12:30-13:30 hrs.) All staffs abide by the COVID-19 prevention health guidelines from the Ministry of Health and Sports and wear masks during work. The factories buildings are provided with four big exhaust fans at each storey and we open the windows to let the fresh air enter and also operate the standing fans.
2	Mr. Li Fu Juan	Manager, Production Process	The quality of each step of the CMP process is controlled in each stage of the process. Process of CMP for footwear production: ▪ ***Raw Material Store***: The fabric, cloth, leather are stored in the ground floor warehouse store of this Factory building B with temperature-control and fungus prevention; ▪ ***Cutting Section***: a) The material for footwear production are cut / folded / thinned according to design measurements with different tools / machines; ▪ ***Sewing Section***: Then the components are stitched and sewed to form a rough footwear nature. Then it is glued to its sole and heel. ▪ ***Shaping Section***: The artificial foot (mould) is inserted into the rough shoe and heated, dried, pressed in successive conveyor-machines. Then the mould is dis-engaged from the shoe. Tissue / paper is inserted inside the shoe and then the finished shoe is stamped, fungus-prevent treated and boxed to be sent to the Packing Section. ▪ ***Glue Warehouse***: The glue containers are stored in the Glue warehouse inside the compound. Safety instructions are posted for safe-handling and occupational health in the warehouse. The raw materials such as leather, fabric, cloth, glue (white/yellow/green) and relevant machinery/ equipment are imported from abroad. ***Solid Waste Management***: Since our CMP process for production of footwear is a dry process, we have mostly solid waste generated from the cutting stage. These are all collected by our local contractors and

			sent for recycling work. However, the domestic waste are being collected by the local municipality for hygienic disposal.
3	Daw Cho Cho	Translator / Production Assistant	▪ ***Factory A***: We have cutting section at the ground floor of Factory A. The sewing section is in the second floor and the gluing and shaping of the outsole is at the third floor of Factory A. ▪ ***Factory B***: The raw materials are stored at the ground floor of Factory B. There is an inter-pass from Factory A to B at the second floor of both buildings so that there is interconnection of work and conveying of the products to and from each factory building. At the second floor of Factory B, we have Packing section of the Finished Product. At the third floor of the Factory B is the store for finished products which is equipped with temperature control machines to prevent fungus and keep the finished product dry and in good condition. ▪ ***Health Clinic***: There is a health clinic inside the compound, with a certified nurse in-charge to take care of our staff's health. ▪ ***Fire Fighting System***: We have regular fire-fighting training administered to our staff. ▪ **Electrical Supply**: We have 11 KV / 0.4 KV transformer to run the factory. The electrical power source is from the national grid as our factory is located in the Kyan Sitt Thar Yeik Mon Industrial Part II area. We have two generators (400 V each) installed for emergency black outs. ***Drainage:*** We have masonry drainage constructed around the compound, which drains out its effluent into the Kyan Sitt Thar Yeik Mon Industrial Zone drainage system.
4	Daw Hnin Yu Yu Khaing	Nurse, Mingshang Footwear Factory Clinic	▪ I work as a nurse at Mingshang footwear factory. I take care of the staff to ensure that they are healthy and have no occupational health problem. The patients from the factory come to me when they have head-ache or indigestion. Others are generally healthy and fit. ▪ I work according to factory hours, from 8;30 am – 5:30 pm with one hour lunch break at noon.

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 lies in the Industrial Zone Part (2) of Dagon Myothit (South) Township and has already settled all issues of land acquisition for implementation of the footwear production work by CMP process. The site visit was carried out in the environs of the project site during November, 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.

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

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 November 2020. And therefore, there is no sensitive or conservation worthy habitats in surrounding environ of the project area.

The project proponent is desirous to conserve the environment. The affirmation of project proponent regarding environment impact is that; we, the Mingshang Sports Myanmar Company Limited shall be responsible for the protection as well as preservation of environment in and around the area of the project site. We shall be able to protect pollution of air, water and land and not to cause environment degradation. Our company takes necessary measures in order to fulfill environmental protection to keep the project site environment friendly by inclusion of replanting of trees program as describe in Chapter 8 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.

Waste generated from the CMP process is mainly from the cutting section and is being collected by the local contractors for recycling of waste products. For the domestic waste, the local municipality collects for hygiene disposal. However, the waste dumping site within the project premises should be monitored to preserve 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:

1. Anil Kumar De and Arnab Kumar De, "Environment and Ecology"
2. Dr. Suresh K. Dhameja (2009), "Environmental Science"
3. Dagon Myothit (South) Township Admin. Office, "Annual Report on Regional Social and Economic Status", 2019
4. https://arsutoriamagazine.com/sustainability-focus/, "Sustainability and Environmental Management in Footwear Manufacturing'"
5. https://www.ijemr.net/ojs "Waste Management & Quality Assessment of Footwear Manufacturing Industry in Bangladesh: An Innovative Approach"
6. IFC / World Bank Group, "Environmental, Health and Safety (EHS) General Guidelines"
7. IFC / World Bank Group, "Guideline Notes on Tools for Pollution Management: Environmental Management Systems"
8. IFC / World Bank Group, "Occupational Health and Safety Guidelines"
9. International Labor Office, "Improving Safety and Health and the Working Environment in the Informal Footwear Sector"
10. IUCN (International Union for Conservation of Nature), "A Guiding Toolkit for Increasing Climate Change Resilience"
11. IUCN Red List Categories and Criteria, (www.iucnredlist.org/documents/redlist_cats)

12. JICA (Japan International Cooperation Agency), “Guidelines for Environmental and Social Considerations”, translation of Japanese Version
13. Khopkar, S. M. (2007), “Environmental Pollution Monitoring and Control”
14. M/s Liberty Shoes Limited, “Pre-Feasibility Report Manufacturing of sole with direct injection at Village: Raipur, District: Haridwar, State: Uttrakhand”
15. Ministry of Agriculture and Irrigation (2004), “Soil Types and Characteristics of Myanmar”
16. MOAI, 2004, “Soil Types and Characteristics of Myanmar”
17. MOECAF (Ministry of Environmental Conservation and Forestry, Myanmar), “EIA Procedure Guidelines”, Dec 2015
18. MOECAF (Ministry of Environmental Conservation and Forestry, Myanmar), “Environmental Rules and Notifications”, June 2014
19. MOECAF (Ministry of Environmental Conservation and Forestry, Myanmar), “National Environmental Guidelines on Emission Standards”, 2015
20. National Institute of Standards and Technology, US Department of Commerce, “A Guide to United States Footwear Compliance Requirements”
21. P.K.GOEL, “Water Pollution, Causes, Effects, and Control”
22. Peter Gutter (August 2001), “Environment and Law in Burma” Sources: (web assess on ....) Environment and Law in Burma: August 2001
23. THE BURMA CODE, The Payment of Wages Act (Page 221), The Workmen’s Compensation Act (Page 232), Lumuphu lone ye act upeday (Social Act) {Page 431}
24. The Union of Myanmar, “Environmental Conservation Law of Myanmar”, 2012
25. The World Bank Group, Washington, D. C. (1998) “Pollution Prevention and Abatement Handbook”

APPENDICES

APPENDIX - A

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

MINGSHANG SPORTS MYANMAR COMPANY LIMITED
Company Registration No. 122052249

မြန်မာနိုင်ငံကုမ္ပဏီများဥပဒေ၂၀၁၇ အရ
MINGSHANG SPORTS MYANMAR COMPANY LIMITED
အား ၂၀၁၉ ခုနှစ် စက်တင်ဘာလ ၆ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့်ပြုလိုက်သည်။

This is to certify that
MINGSHANG SPORTS MYANMAR COMPANY LIMITED
was incorporated under the Myanmar Companies Law 2017 on 6 September 2019 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration

Myanmar Companies Online Registry - Company Extract

Company Name (English)
MINGSHANG SPORTS MYANMAR COMPANY LIMITED

Company Name (Myanmar)
-

Name of Company: MINGZHI SPORTS EQUIPMENT (CHINA) CO.,LTD
Registration Number: 91350582768555185H Jurisdiction of Incorporation: China

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	12,800	1,280,000.00	0.00

Mortgages and Charges

Form / Filing Type	Effective Date

No records available

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

Filing History

Form / Filing Type	Effective Date
I-2C | Notice from the Registrar of requested rectification	06/11/2019
AR | Annual Return	05/11/2019
I-2A | Notice from Registrar of proposed rectification of register	08/10/2019
I-1A | Application for rectification of register	08/10/2019
A-1 | Application for incorporation as a private company limited by shares	06/09/2019

044524

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) MINGSHANG SPORTS MYANMAR COMPANY LIMITED.

2. Registration No: 122052249 (17-02-20)

3. Registration Term: FIVE YEAR

4. Start Date : 17-02-2020

5. End Date : 16-02-2025

6. Address : (မြန်မာ/အင်္ဂလိပ်) Plot No.(13+14), Myay Taing Block No.(143/1),Kyansitthar Yeik Mon Sethmyu Zone Part (2), Dagon Myothit (South) Township, Yangon Region,Myanmar

7. Business Registration No : 122052249

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) သင်းဖွဲ့မှတ်ပုံတင်ပါလုပ်ငန်း( )မျိုး ဆောင်ရွက်ခွင့်ရှိသည်။

9. Type of Service : ◉ New ○ Extension

10. Contact No :

Telephone No.	Fax No.	e-mail
09-5505447		arthur.lee@mingzhi.com.mm

11. Remarks :
YRIC Endorsement No.YGN-326/2020 Date (27-1-2020)

12. Terms and Conditions : စည်းကမ်းချက်များ
I hereby register the above mentioned enterprise as Exporter/Importer subject to the following terms and conditions: (အောက်ဖော်ပြပါစည်းကမ်းချက်များဖြင့် ပို့ကုန်သွင်းကုန် လုပ်ငန်းရှင်အဖြစ် မှတ်ပုံတင်ခွင့်ပြုသည်)

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

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

Stamp 17-2-2020

17-2-2020

For Director General
(ဒုတိယဦးစီးအရာရှိ)
Aye
17.2.20

EIREG022019EIREGEX12130612

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်

ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ

အတည်ပြုမိန့်

အတည်ပြုမိန့်အမှတ် ရကတ-၃၂၆/၂၀၂၀ ၂၀၂၀ ပြည့်နှစ် ဇန်နဝါရီလ ၂၇ ရက်

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

(၁) ရင်းနှီးမြှုပ်နှံသူ/ကမကထပြုသူအမည် MR. LI, QIAOSHENG

(၂) နိုင်ငံသား CHINESE

(၃) နေရပ်လိပ်စာ NO. 331, XINDIAN INDUSTRIAL ZONE, CHIDIAN TOWN, JINJIANG CITY, FUJIAN PROVINCE , THE PEOPLE'S REPUBLIC OF CHINA

(၄) ပင်မအဖွဲ့အစည်းအမည်နှင့်လိပ်စာ MINGZHI SPORTS EQUIPMENT (CHINA) CO., LTD. NO. 331, XINDIAN INDUSTRIAL ZONE, CHIDIAN TOWN, JINJIANG CITY, FUJIAN PROVINCE , THE PEOPLE'S REPUBLIC OF CHINA

(၅) ဖွဲ့စည်းရာအရပ် THE PEOPLE'S REPUBLIC OF CHINA

(၆) ရင်းနှီးမြှုပ်နှံသည့်လုပ်ငန်းအမျိုးအစား CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုး ချုပ်လုပ်ခြင်းလုပ်ငန်း

(၇) ရင်းနှီးမြှုပ်နှံသည့်အရပ်ဒေသ(များ)မြေကွက်အမှတ် (၁၃+၁၄) ၊ မြေတိုင်း ရပ်ကွက်အမှတ် - ၁၄၃/၁ (ကျန်စစ်သား စက်မှုဇုန်)၊ စက်မှုဇုန် အပိုင်း(၂) ၊ ဒဂုံမြို့သစ် (တောင်ပိုင်း)မြို့နယ်၊ ရန်ကုန်တိုင်း ဒေသကြီး

(၈) နိုင်ငံခြားမတည်ငွေရင်း ပမာဏ အမေရိကန်ဒေါ်လာ ၄.၇၀၀ သန်း

(၉) နိုင်ငံခြားမတည်ငွေရင်းယူဆောင်လာရမည့်ကာလ အတည်ပြုမိန့် ရရှိသည့် နေ့မှ ၁ နှစ်အတွင်း

(၁၀) စုစုပေါင်း မတည်ငွေရင်းပမာဏ(ကျပ်) အမေရိကန်ဒေါ်လာ ၄.၇၀၀ သန်း နှင့် ညီမျှသော မြန်မာကျပ်ငွေ

(၁၁) တည်ဆောက်မှုကာလ ၁ နှစ်

(၁၂) ရင်းနှီးမြှုပ်နှံမှုခွင့်ပြုသည့်သက်တမ်း ၅၀ နှစ်

(၁၃) ရင်းနှီးမြှုပ်နှံမှုပုံစံ ရာခိုင်နှုန်းပြည့်နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု

(၁၄) မြန်မာနိုင်ငံတွင်ဖွဲ့စည်းမည့်ကုမ္ပဏီအမည် MINGSHANG SPORTS MYANMAR COMPANY LIMITED.

YRIC 3262020

(ဖြိုးမင်းသိန်း)

ဥက္ကဋ္ဌ

လုပ်ငန်းရည်ရွယ်ချက်များမှာ

စီအမ်ဝီစနစ်ဖြင့် ဖိနပ်အမျိုးမျိုး ချုပ်လုပ်ခြင်းလုပ်ငန်း

Form (5-B)

THE REPUBLIC OF THE UNION OF MYANMAR

Yangon Region Investment Committee

ENDORSEMENT

Endorsement No. YGN –326/2020 Date 27 January 2020

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

(1) Name of Investor MR. LI, QIAOSHENG

(2) Citizenship CHINESE

(3) Residence Address NO. 331, XINDIAN INDUSTRIAL ZONE, CHIDIAN TOWN, JINJIANG CITY, FUJIAN PROVINCE , THE PEOPLE'S REPUBLIC OF CHINA

(4) Name and Address of Principal Organization MINGZHI SPORTS EQUIPMENT (CHINA) CO., LTD. NO. 331, XINDIAN INDUSTRIAL ZONE, CHIDIAN TOWN, JINJIANG CITY, FUJIAN PROVINCE , THE PEOPLE'S REPUBLIC OF CHINA

(5) Place of Incorporation THE PEOPLE'S REPUBLIC OF CHINA

(6) Type of business MANUFACTURING OF VARIOUS KINDS OF FOOTWEAR ON CMP BASIS

(7) Place(s) of investment Project PLOT NO.13 + 14, MYAY TAING BLOCK NO.143/1 (KYANSITTHAR INDUSTRIAL ZONE), INDUSTRIAL ZONE PART (2), DAGON MYOTHIT (SOUTH) TOWNSHIP, YANGON REGION

(8) Foreign Capital Amount US$ 4.700 MILLION

(9) Period for Foreign Capital to be brought in WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF ENDORSEMENT

(10) Total Amount of Capital (Kyat) EQUIVALENT IN KYAT OF US$ 4.700 MILLION

(11) Construction/ Preparation Period 1 YEAR

(12) Validity of Endorsement 50 YEARS

(13) Form of Investment WHOLLY FOREIGN OWNED

(14) Name of Company Incorporated in Myanmar MINGSHANG SPORTS MYANMAR COMPANY LIMITED.

YRIC 3262020

24/1/2020

(Phyo Min Thein)

Chairman

THE REPUBLIC OF THE UNION OF MYANMAR
YANGON REGION INVESTMENT COMMITTEE
Plot No. 49, Seinlae May Street,
Kabar Aye Pagoda Road, Yankin Township, Yangon
Tel : 01- 658263
Fax: 01- 658264

Republic of the Union of Myanmar ★ Yangon Region Investment Committee ★
No. 1542
Date. 27.1.2020

Our ref : YRIC -1 /E-326/2020(1542)

Date : 27 January 2020

Subject: **Decision of the Yangon Region Investment Committee regarding an Endorsement for manufacturing of various kinds of punch on CMP basis under the name of Mingshang Sports Myanmar Company Limited.**

Reference: Mingshang Sports Myanmar Company Limited's letter dated 2/12/2019

1. The Yangon Region Investment Committee, at its (1/2020) meeting held on 22/1/2020, approved the Endorsement for investment for Manufacturing of Varieties of Footwear on CMP Basis under the name of Mingshang Sports Myanmar Company Limited submitted by Mingzhi Sports Equipment(China) Co., Ltd. (100%) from The People's Republic of China as a wholly foreign owned investment in accordance with the Myanmar Investment Law and Rules.

2. The terms and conditions of the Endorsement are as follows:

   (a) The term of an Endorsed project shall be an initial fifty (50) years commencing from the date of the issuance of the Endorsement by the Yangon Region Investment Committee, and shall be extendable for a period of ten (10) years, and a further consecutive period of ten (10) years subject to the approval of the Yangon Region Investment Committee.

   (b) The term of the land and building Lease Agreement shall be an initial fifty (50) years commencing from the date of the

agreement between Daw Kyi Thar Win Pyae(F-One Myanmar Co., Ltd.) (Lessor) and Mingshang Sports Myanmar Company Limited (Lessee) and shall be extendable for a period of ten (10) years, and a further consecutive period of ten (10) years by mutual agreement between the Lessor and the Lessee subject to the approval of the Yangon Region Investment Committee.

(c) The annual rent for land and building shall be USD 41280.372 (United State Dollar forty-one thousand, two hundred and eighty and three hundred and seventy-two cent only) for the total area of the land measuring 5.667 acres.

(d) Mingshang Sports Myanmar Company Limited may submit an application form for the right to use land under Chapter XII and exemptions and reliefs under Sections 75, 77 and 78 of the Chapter XVIII of Myanmar Investment Law.

(e) Mingshang Sports Myanmar Company Limited shall use its best efforts to achieve a timely realization of the work stated in the Endorsement application.

(f) Mingshang Sports Myanmar Company Limited shall obey and respect the responsibilities of investors under Section 65 of Myanmar Investment Law and Chapter XX of Myanmar Investment Rules.

(g) Mingshang Sports Myanmar Company Limited shall carry out of prevention, mitigation and monitoring of significant environmental impacts according to the type of investment activities in accordance with the relevant laws, rules, regulations and procedures.

(h) Mingshang Sports Myanmar Company Limited shall abide by the Fire Services Department's rules, regulations, directives and instructions. Moreover, Mingshang Sports Myanmar Company Limited shall undertake fire prevention measure such as the appropriate placement of water storage tank, fire hooks, sand bags, and fire extinguishers , and training will be provided to all employees regarding the use of fire fighting equipment. Mingshang Sports Myanmar Company Limited shall also appoint a specific individual who shall be called the Fire Safety Officer (FSO) who shall be designated responsible for on-site safety and coordination within the organization.

(i) Mingshang Sports Myanmar Company Limited shall submit to the Myanmar Investment Commission any sublease, mortgage, transfer of shares or transfer of the business to any person during the investment period in accordance with Section 72 of Myanmar Investment Law and Rule 191 of Myanmar Investment Rules.

(j) Mingshang Sports Myanmar Company Limited shall submit an annual report in the prescribed form to the Myanmar Investment Commission within three months of the end of the financial year in accordance with Rule 196 of Myanmar Investment Rules and shall disclose a summary of the report on its website or the Myanmar Investment Commission's website.

(k) Mingshang Sports Myanmar Company Limited must, during the operation period under the Endorsement of the Yangon Region Investment Committee, submit its operating report quarterly in

the prescribed form in accordance with Rule 197 of Myanmar Investment Rules.

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

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

(Phyo Min Thein)

Chairman

Mingshang Sports Myanmar Company Limited

cc: 1. The Office of the Union Government

2. Ministry of Home Affairs

3. Ministry of Office of the Union Government

4. Ministry of Natural Resources and Environmental Conservation

5. Ministry of Labour, Immigration and Population

6. Ministry of Commerce

7. Ministry of Planning , Finance and Industry

8. Ministry of Investment and Foreign Economic Relations

9. Central Bank of Myanmar

10. Office of the Myanmar Investment Commission

11. Chairman, CMP Enterprises Supervision Committee

12. Director General, Department of Environmental Conservation

တိုင်းဒေသကြီးညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး
ရန်ကုန်မြို့
အမှတ် ၁၀ (ဂျွန်)၊ ၅၅ လမ်း(ကုန်သည်လမ်း နှင့် ကမ်းနားလမ်းကြား)၊ ဗိုလ်တထောင်မြို့နယ်၊ Post Code-11161
ဖုန်း - ၀၁ ၈၂၀၃၈၃၈၊ ဖက်စ် - ၀၁ ၈၂၀၃၈၃၉၊ အီးမေးလ် - ygnecd.moecaf@gmail.com

စာအမှတ်၊ ရက/ EIA/ ၂ (၅) (၁၇၀၆ /၂၀၂၁)
ရက်စွဲ၊ ၂၀၂၁ ခုနှစ်၊ စက်တင်ဘာလ ၂၈ ရက်

သို့

√ဒါရိုက်တာ
Mingshang Sports Myanmar Company Limited
မြေကွက်အမှတ် (၁၃+၁၄)၊ မြေတိုင်းရပ်ကွက် အမှတ် (၁၄၃/၁) (ကျန်စစ်သားစက်မှုဇုန်)၊
စက်မှုဇုန်အပိုင်း (၂)၊ ဒဂုံမြို့သစ် (တောင်ပိုင်း) မြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး

အကြောင်းအရာ။ **Mingshang Sports Myanmar Company Limited ၏ CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ ပတ်ဝန်းကျင်ဆိုင်ရာ သဘောထားမှတ်ချက် ပြန်ကြားခြင်း**

ရည်ညွှန်းချက်။ (၁) Mingshang Sports Myanmar Company Limited ၏ ၁၃-၉-၂၀၂၁ ရက်စွဲပါစာအမှတ် MSE-Adm-01/21

(၂) ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ၂၀-၁၂-၂၀၁၉ ရက်စွဲပါစာအမှတ်၊ ရက-၁/၃/၄ (အီးအိုင်အေ) (၂၈၄/၂၀၁၉)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ Mingshang Sports Myanmar Company Limited မှ ရန်ကုန်တိုင်းဒေသကြီး၊ ဒဂုံမြို့သစ် (တောင်ပိုင်း) မြို့နယ်၊ စက်မှုဇုန်အပိုင်း (၂)၊ မြေတိုင်းရပ်ကွက် အမှတ် (၁၄၃/၁) (ကျန်စစ်သားစက်မှုဇုန်)၊ မြေကွက်အမှတ် (၁၃+၁၄) တွင် အကောင်အထည်ဖော်ဆောင်ရွက်လျက်ရှိသည့် CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ ပတ်ဝန်းကျင်ဆိုင်ရာ သဘောထားမှတ်ချက် ပြန်ကြားပေးနိုင်ပါရန်၊ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ ရည်ညွှန်း (၁) ပါစာဖြင့် တင်ပြတောင်းခံလာပါသည်။

၂။ အဆိုပါစီမံကိန်းနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီမှ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ ပတ်ဝန်းကျင်ဆိုင်ရာ သဘောထားမှတ်ချက်တောင်းခံခဲ့ပြီး ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ စီမံကိန်းအဆိုပြုသူအနေဖြင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan – EMP) အစီရင်ခံစာ ရေးဆွဲတင်ပြရန် ရည်ညွှန်း (၂) ပါစာဖြင့် သဘောထားမှတ်ချက်ပြန်ကြားထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။

၃။ သို့ဖြစ်ပါ၍ ရန်ကုန်တိုင်းဒေသကြီး၊ ဒဂုံမြို့သစ် (တောင်ပိုင်း) မြို့နယ်၊ စက်မှုဇုန်အပိုင်း (၂)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၁၄၃/၁) (ကျန်စစ်သားစက်မှုဇုန်)၊ မြေကွက်အမှတ် (၁၃+၁၄) တွင် အကောင်အထည်ဖော် ဆောင်ရွက်လျက်ရှိသည့် Mingshang Sports Myanmar Company Limited ၏ CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ ပတ်ဝန်းကျင်ဆိုင်ရာ သဘောထားမှတ်ချက်အား ရည်ညွှန်း (၂) ပါ ပတ်ဝန်းကျင်ဆိုင်ရာ သဘောထားမှတ်ချက်နှင့်အညီ အောက်ပါအတိုင်း သဘောထားမှတ်ချက် ပြန်ကြားအပ်ပါသည်-

(က) အဆိုပြုလုပ်ငန်းကြောင့် ပတ်ဝန်းကျင်နှင့်လူမှုရေး ထိခိုက်မှုမရှိစေရေး (သို့မဟုတ်) ထိခိုက်မှုအနည်းဆုံး ဖြစ်စေရေးအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan – EMP) အစီရင်ခံစာအား ရေးဆွဲဆောင်ရွက်ရန်၊

(ခ) ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်(EMP) အစီရင်ခံစာပြုစုခြင်းကို စီမံကိန်းအဆိုပြုသူ (လုပ်ငန်းရှင်) ကိုယ်တိုင် (သို့မဟုတ်) တတိယပုဂ္ဂိုလ် (သို့မဟုတ်) အဖွဲ့အစည်းကို ခန့်အပ်ဆောင်ရွက်နိုင်ရန်၊

(ဂ) တတိယပုဂ္ဂိုလ် (သို့မဟုတ်) အဖွဲ့အစည်းအား ခန့်အပ်၍ ဆောင်ရွက်မည်ဆိုပါက ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနတွင် လုပ်ငန်းလိုင်စင် ရယူထားသောပုဂ္ဂိုလ် (သို့မဟုတ်) အဖွဲ့အစည်းစာရင်းအား www.ecd.gov.mm/?q:third-party တွင် ဝင်ရောက်ကြည့်ရှုခန့်အပ်ဆောင်ရွက်နိုင်ရန်၊

(ဃ) စီမံကိန်းနှင့်ပတ်သက်သည့် ပိုင်ရှင်ပြောင်းလဲခြင်း၊ အစီရင်ခံစာတွင် ဖော်ပြပါရှိသည့် ထုတ်လုပ်မှုပမာဏထက် ပိုမိုထုတ်လုပ်ခြင်း၊ လုပ်ငန်းလည်ပတ်မှု ဒီဇိုင်းများ ပြောင်းလဲခြင်း၊ လုပ်ငန်းတည်နေရာပြောင်းလဲခြင်း၊ လုပ်ငန်းရပ်ဆိုင်းခြင်း(သို့မဟုတ်) ပိတ်သိမ်းခြင်းများ ပြုလုပ်မည်ဆိုပါက မပြုလုပ်မီ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ တင်ပြသွားရန်၊

(င) စီမံကိန်းလုပ်ငန်းဆောင်ရွက်မည့် နေရာဒေသတွင် နေထိုင်သော ဒေသခံပြည်သူများ၏ ဆန္ဒနှင့်သဘောထားများကို ရယူဆောင်ရွက်ရန်။

ခင်သီတာတင်
၂၀၂၄/၂/၁၁
(ခင်သီတာတင်)
ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး

မိတ္တူကို
ရုံးလက်ခံ၊ မျှောစာတွဲ၊ အမှုတွဲချုပ်

MINGSHANG SPORTS MYANMAR COMPANY LIMITED

PLOT NO.(13+14), MYAY TAING BLOCK NO.(143/1), KYANSITTHAR YEIK MON SETHMYU ZONE PART (2), DAGON MYOTHIT(SOUTH)

TOWNSHIP, YANGON REGION, MYANMAR

သို့

ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး
ရန်ကုန်မြို့

စာအမှတ်။ ။MSE-Adm-01/21
ရက်စွဲ။ ။၂၀၂၁ ခုနှစ်၊စက်တင်ဘာလ(၁၃)ရက်။

အကြောင်းအရာ။ ။သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး စီမံချက်ရေးဆွဲနိုင်ရန်အတွက် တင်ပြခြင်းကိစ္စ။

ရည်ညွှန်းချက် ။ ။သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၏၂၀၁၈ ခုနှစ် ဇန်နဝါရီလ(၁၀)ရက် နေ့စွဲပါ အမိန့်ကြော်ငြာစာအမှတ် ၀၃/၂၀၁၈ အရ။

အထက်ပါအကြောင်းအရာပါကိစ္စနှင့်ပါတ်သက်၍ ကျွန်တော်များ MINGSHANG SPORTS MYANMAR CO.,LTD သည် မြေကွက်အမှတ်(၁၃+၁၄)၊မြေတိုင်းရပ်ကွက် အမှတ်(၁၄၃/၁)(ကျန်စစ်သားစက်မှုဇုန်)၊စက်မှုဇုန် အပိုင်း(၂)၊ ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ်၊ရန်ကုန်တိုင်း ဒေသကြီးတွင် အားကစားဖိနပ်အမျိုးမျိုးကို CMP စနစ်ဖြင့်ထုတ်လုပ် ဆောင်ရွက်နေသောကုမ္ပဏီတစ်ခုဖြစ်ပါသည်။

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၏ညွှန်ကြားချက်အရ ကျွန်တော်များကုမ္ပဏီအနေဖြင့် EMP ရေးဆွဲတင်ပြနိုင်ရေးအတွက် လမ်းညွှန်မှုနှင့် အတည်ပြုပေးနိုင်ပါရန် လျှောက်ထားအပ်ပါသည်။

လေးစားစွာဖြင့်

Mr. Li Qiaosheng
Director
Mingshang Sport Myanmar Co., Ltd

တိုင်းဒေသကြီးညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး
ရန်ကုန်မြို့

မိုင်တိုင်အမှတ် (၁၃ / ဝ)၊ (၁၄ဝ) မှတ်တိုင်အနီး၊ အမှတ် (၂) လမ်းမကြီး၊ ရွာသာကြီး၊ ဒဂုံမြို့သစ်(တောင်ပိုင်း) မြို့နယ်
ဖုန်း - ဝ၁ - ၃၅၈၄၄၆၊ ဝ၉-၄ဝ၅၄၄၂၅ဂဂ၊ ဝ၉-၇၇၅၆၅၂၆၄၃၊ အီးမေးလ် - ygnecd.moecaf@gmail.com

စာအမှတ်၊ ရက-၁/၃/၄(အီးအိုင်အေ)(၂၈၄၈ / ၂ဝ၁၉)
ရက်စွဲ၊ ၂ဝ၁၉ ခုနှစ်၊ ဒီဇင်ဘာလ ၂၈ ရက်

သို့

အတွင်းရေးမှူး
ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှုကော်မတီ

အကြောင်းအရာ။ **Mingshang Sports Myanmar Company Limited ၏ CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်းလုပ်ငန်းနှင့်ပတ်သက်၍ ဆောင်ရွက်ရန် လိုအပ်သည့် သဘာဝပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းအမျိုးအစား စိစစ်ပြန်ကြားခြင်း**

ရည်ညွှန်းချက်။ ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှုကော်မတီ၏ ၆-၁၂-၂ဝ၁၉ ရက်စွဲပါစာအမှတ်၊ ရကတ/ ရနမ - ၂ / ၂ဝ၁၉ (၁၃၂၁)

၁။ ရာခိုင်နှုန်းပြည့် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှုဖြင့် Mingshang Sports Myanmar Company Limited မှ ရန်ကုန်တိုင်းဒေသကြီး၊ ဒဂုံမြို့သစ် (တောင်ပိုင်း) မြို့နယ်၊ စက်မှုဇုန်အပိုင်း (၂)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၁၄၃/၁)၊ အမှတ် (၁၃+၁၄) တွင် CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်းလုပ်ငန်း ဆောင်ရွက်လိုကြောင်း ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှုကော်မတီထံ တင်ပြခဲ့မှုအပေါ် အဆိုပါ စီမံကိန်းလုပ်ငန်းနှင့်ပတ်သက်၍ တင်သွင်းမည့်စက်ပစ္စည်းနှင့် ကုန်ကြမ်းများသည် လုပ်ငန်းသဘာဝနှင့် ကိုက်ညီခြင်း ရှိ/ မရှိ၊ ထုတ်လုပ်မည့် ကုန်ချောနှင့် တင်သွင်းမည့် ကုန်ကြမ်းအရေအတွက် ဆီလျော်မှု ရှိ/ မရှိ၊ မည်သည့် သဘာဝပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက် ဆောင်ရွက်ရမည်ကို စိစစ်၍ သဘောထားမှတ်ချက် ပြန်ကြားပေးနိုင်ပါရန် ရည်ညွှန်းပါစာဖြင့် အကြောင်းကြားလာပါသည်။

၂။ ရည်ညွှန်းပါစာဖြင့် အကြောင်းကြားလာသည့် စိစစ်ပြန်ကြားရန် သဘောထားမှတ်ချက်များအနက် မည်သည့် သဘာဝပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက် ဆောင်ရွက်ရမည်ကို စိစစ်ရာတွင် Mingshang Sports Myanmar Company Limited ၏ CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုး ချုပ်လုပ်ခြင်းလုပ်ငန်း ဆောင်ရွက်ခြင်းကြောင့် အောက်ဖော်ပြပါ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာထိခိုက်မှုများဖြစ်ပေါ်လာနိုင်ကြောင်း ယေဘုယျအားဖြင့် သုံးသပ်တွေ့ရှိရပါသည်-

(က) စက်ရုံ၏ လေဝင်၊ လေထွက်ကောင်းမွန်မှု မရှိခြင်းနှင့် ဝန်ထမ်းများအား နှာခေါင်းစည်း၊ လက်အိတ်အစရှိသည့် အကာအကွယ်ပစ္စည်းများ ဝတ်ဆင်အသုံးပြုခြင်း မရှိပါက အသက်ရှူလမ်းကြောင်းဆိုင်ရာ ရောဂါများဖြစ်ပွားစေနိုင်ခြင်း၊

(ခ) တည်ဆောက်ပြုပြင်ရေးကာလအတွင်း လုပ်ငန်းဆောင်ရွက်ခြင်းနှင့်စပ်လျဉ်း၍ မြေသားများ ပြုပြင်ဖော်ထုတ်ခြင်းကြောင့် ထွက်ရှိလာသည့် အမှုန်အမွှားများ၊ ဖုန်မှုန့်များကြောင့် လေထုညစ်ညမ်းမှု ဖြစ်ပေါ်နိုင်ခြင်း၊ လုပ်ငန်းသုံးစက်၊ ယာဉ်ယန္တရားများ၏ ဆူညံသံကြောင့် အသံညစ်ညမ်းမှု ဖြစ်ပေါ်နိုင်ခြင်း၊ စွန့်ပစ်ပစ္စည်းများကြောင့် ရေ၊ မြေ၊ လေ ညစ်ညမ်းမှုများ ဖြစ်ပေါ်စေနိုင်ခြင်း၊

(ဂ) အသုံးပြုမည့် ကုန်ကြမ်းပစ္စည်းများသည် ဆွေးမြေ့ပျက်စီးရန် အချိန်ကြာမြင့်ပြီး မြေဆီလွှာ ထိခိုက်ပျက်စီးခြင်းနှင့် ပုံစံဖြတ်ခြင်း၊ ပိတ်စည့်ပ်ခြင်း လုပ်ငန်းအဆင့်ဆင့်မှ ထွက်ရှိလာမည့် ဖြတ်စ၊ ညှပ်စ၊ အမှုန်အမွှားများနှင့် စွန့်ပစ်ရေများကြောင့် လေထု၊ မြေထုနှင့် ရေထုညစ်ညမ်းမှုများဖြစ်ပေါ်စေနိုင်ခြင်း၊

(ဃ) လုပ်ငန်းလည်ပတ်ရာတွင် ဘွိုင်လာအသုံးပြုဆောင်ရွက်ပါက အသုံးပြုမည့်လောင်စာများ လောင်ကျွမ်းရာမှ ထွက်ရှိလာသော ဓာတ်ငွေ့များနှင့် အခိုးအငွေ့များကို စနစ်တကျ သန့်စင်ခြင်း မရှိဘဲ လေထုထဲသို့ စွန့်ထုတ်ပါက ပတ်ဝန်းကျင်ရှိလေထုကို ညစ်ညမ်းမှုများ ဖြစ်ပေါ် စေနိုင်ခြင်း၊

(င) ကုန်ချောပစ္စည်းများသည် မီးလောင်လွယ်သောပစ္စည်းများ ဖြစ်သည့်အတွက် မီးဘေးကာကွယ်ရေးပစ္စည်းများ စနစ်တကျ တပ်ဆင်ထားခြင်းမရှိပါက မီးဘေးအန္တရာယ် ဖြစ်စေနိုင်ခြင်း၊

(စ) လုပ်ငန်းသုံးစက်ပစ္စည်းများတွင် အသုံးပြုမည့် လောင်စာ၊ စက်သုံးဆီများအား စနစ်တကျ သိုလှောင်ခြင်း မရှိပါက မီးဘေးအန္တရာယ်များဖြစ်စေနိုင်ခြင်း၊

(ဆ) လုပ်ငန်းလည်ပတ်ခြင်းမှ ထွက်ရှိလာသည့် ဆူညံသံများကြောင့် အသံညစ်ညမ်းမှုများနှင့် လေထုညစ်ညမ်းမှုများ ဖြစ်ပေါ်နိုင်ပြီး စက်ရုံအတွင်းရှိ ဝန်ထမ်းများနှင့် စီမံကိန်းစက်ရုံ ဧရိယာအနီးတဝိုက်ရှိ ပြည်သူများ၏ ကျန်းမာရေးအား ထိခိုက်မှုဖြစ်စေနိုင်ခြင်း။

၃။ သို့ဖြစ်ပါ၍ Mingshang Sports Myanmar Company Limited ၏ CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ခြင်း လုပ်ငန်းနှင့်ပတ်သက်၍ ဆောင်ရွက်ရန် လိုအပ်သည့် သဘာဝပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အမျိုးအစားအား အောက်ပါအတိုင်း ပြန်ကြားအပ်ပါသည်-

(က) အဆိုပြုလုပ်ငန်းဆောင်ရွက်ခြင်းကြောင့် ပတ်ဝန်းကျင်နှင့် လူမှုရေးထိခိုက်မှု မရှိစေရေး (သို့မဟုတ်) ထိခိုက်မှု အနည်းဆုံးဖြစ်စေရေးအတွက် **ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan – EMP)** အစီရင်ခံစာအား ရေးဆွဲပြုစု၍ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ တင်ပြသွားရန်၊

(ခ) ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အစီရင်ခံစာပြုစုခြင်းကို စီမံကိန်းအဆိုပြုသူ (လုပ်ငန်းရှင်) ကိုယ်တိုင် (သို့မဟုတ်) တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်းကို ခန့်အပ် ဆောင်ရွက်ရန်၊

(ဂ) တတိယပုဂ္ဂိုလ် (သို့မဟုတ်) အဖွဲ့အစည်းအား ခန့်အပ်၍ ဆောင်ရွက်မည်ဆိုပါက ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနတွင် ကြားကာလအကြံပေးလုပ်ကိုင်သူ မှတ်ပုံတင် ခြင်း အထောက်အထားလက်မှတ် ရယူထားသော ပုဂ္ဂိုလ် (သို့မဟုတ်) အဖွဲ့အစည်း စာရင်းအား www.ecd.gov.mm/?q=third-party တွင် ဝင်ရောက်ကြည့်ရှု ခန့်အပ် ဆောင်ရွက်နိုင်ရန်၊

(ဃ) စီမံကိန်းနှင့်ပတ်သက်သည့် ပိုင်ရှင်ပြောင်းလဲခြင်း၊ အစီရင်ခံစာတွင် ဖော်ပြပါရှိသည့် ထုတ်လုပ်မှုပမာဏထက် ပိုမိုထုတ်လုပ်ခြင်း၊ လုပ်ငန်းလည်ပတ်မှုဒီဇိုင်းများ ပြောင်းလဲ ခြင်း၊ လုပ်ငန်းတည်နေရာ ပြောင်းလဲခြင်း၊ လုပ်ငန်းရပ်ဆိုင်းခြင်း (သို့မဟုတ်) ပိတ်သိမ်း ခြင်းများ ပြုလုပ်မည်ဆိုပါက မပြုလုပ်မီ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်း ရေးဦးစီးဌာနသို့ တင်ပြသွားရန်၊

(င) ရန်ကုန်တိုင်းဒေသကြီးအစိုးရအဖွဲ့၏ ကြီးကြပ်ကွပ်ကဲမှုဖြင့် စီမံကိန်းလုပ်ငန်းဆောင်ရွက် မည့်နေရာဒေသတွင် နေထိုင်သော ဒေသခံပြည်သူများ၏ ဆန္ဒနှင့် သဘောထားများကို ရယူဆောင်ရွက်ရန်။

(ခင်သီတာတင်)
ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ရန်ကုန်တိုင်းဒေသကြီး

မိတ္တူကို

ရုံးလက်ခံ၊ မျှောစာတွဲ၊ အမှုတွဲချုပ်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်

ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ

မြေကွက်အမှတ် ၄၉၊ စိမ်းလဲ့မေ လမ်းသွယ်၊

ကမ္ဘာအေးဘုရားလမ်း၊ ရန်ကင်းမြို့နယ်၊ ရန်ကုန်မြို့

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးရုံး
ရန်ကုန်တိုင်းဒေသကြီး
လက်ခံရရှိသည့်နေ့ ၂၀.၁၂.၁၉
စာအမှတ် ၃၉၃/၁၉

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ
စာအမှတ်---------
ရက်စွဲ---------

☎ ၀၁-၆၅၈၂၆၄

🖷 ၀၁-၆၅၈၂၆၄

စာအမှတ်၊ရကတ/ရနမ- ၂ /၂၀၁၉ (၁၃၂၁)

ရက်စွဲ ၊ ၂၀၁၉ ခုနှစ်၊ ဒီဇင်ဘာလ ၆ ရက်

သို့

ညွှန်ကြားရေးမှူးချုပ်

ကုန်သွယ်ရေးဦးစီးဌာန

စီးပွားရေးနှင့်ကူးသန်းရောင်းဝယ်ရေးဝန်ကြီးဌာန

အဖွဲ့ခေါင်းဆောင်

ရင်းနှီးမြှုပ်နှံမှု ဌာနဆိုင်ရာပူးပေါင်း လုပ်ငန်းအဖွဲ့

(စက်မှုဝန်ကြီးဌာန)

ညွှန်ကြားရေးမှူး

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန

ရန်ကုန်တိုင်းဒေသကြီး

အကြောင်းအရာ။ ရင်းနှီးမြှုပ်နှံမှုလုပ်ငန်းအပေါ် သဘောထား ပြန်ကြားပေးပါရန်ကိစ္စ

ရည်ညွှန်းချက် ။ Mingshang Sports Myanmar Company Limited ၏ ၂-၁၂-၂၀၁၉ ရက်စွဲပါ စာ

၁။ ရခိုင်နှုန်းပြည့် ရင်းနှီးမြှုပ်နှံမှုဖြင့် Mingshang Sports Myanmar Company Limited မှ မြေကွက် အမှတ် (၁၃+၁၄) ၊ မြေတိုင်းရပ်ကွက်အမှတ် - ၁၄၃/၁၊ စက်မှုဇုန် အပိုင်း(၂) ၊ ဒဂုံမြို့သစ်(တောင်ပိုင်း)မြို့နယ်၊ ရန်ကုန်တိုင်း ဒေသကြီးတွင် CMP စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုး ချုပ်လုပ်ခြင်းလုပ်ငန်း ဆောင်ရွက်လိုကြောင်း ရည်ညွှန်းပါစာဖြင့် တင်ပြလာပါ သည်။

၂။ Mingshang Sports Myanmar Company Limited သည် လုပ်ငန်း ဆောင်ရွက်ရန်အတွက် ပြည်ပမှ Machinery equipment တန်ဖိုး အမေရိကန်ဒေါ်လာ ၁.၅၇၅ သန်း၊ Building Materials တန်ဖိုး အမေရိကန်ဒေါ်လာ ၁.၁၂၅ သန်း နှင့် နှစ်အလိုက် လိုအပ်သော ကုန်ကြမ်းများအား ပြည်ပ မှ တင်သွင်းမည်ဖြစ်ပါသည်။

၃။ မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု နည်းဥပဒေ ၆၁ အရ ကော်မရှင်သည် အဆိုပြုချက်ကို စိစစ်ရာတွင် လိုအပ်ပါက အစိုးရဌာန၊ အဖွဲ့အစည်းများနှင့်ဆွေးနွေးတိုင်ပင်နိုင်ခြင်း၊ သက်ဆိုင်ရာ တိုင်းဒေသကြီး သို့မဟုတ် ပြည်နယ်အစိုးရများထံသို့ သဘောထားတောင်းခံခြင်းများကို ဆောင်ရွက်နိုင်ပြီး မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု နည်းဥပဒေ -၇၁ အရ အတည်ပြုလွှာအား လက်ခံခြင်း၊ ငြင်းပယ်ခြင်းကို အလုပ်လုပ်ရက် ၁၅ ရက်အတွင်း ရင်းနှီးမြှုပ်နှံသူ ထံသို့ ပြန်ကြားရန်နှင့် မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု နည်းဥပဒေ - ၇၂(ခ)အရ အတည်ပြုလွှာအား လက်ခံသည့် နေ့ရက်မှ ရက်ပေါင်း ၃၀ အတွင်း အတည်ပြုမိန့် ထုတ်ပေးရန်ဖြစ်ပါသည်။

၄။ Mingshang Sports Myanmar Company Limited မှ တင်သွင်းမည့် စက်ပစ္စည်း နှင့် ကုန်ကြမ်း များသည် လုပ်ငန်းသဘာဝ နှင့် ကိုက်ညီခြင်း ရှိ/မရှိ၊ ထုတ်လုပ်မည့် ကုန်ချော နှင့် တင်သွင်းမည့် ကုန်ကြမ်း အရေအတွက် ဆီလျော်မှု ရှိ/မရှိ၊ မည်သည့် သဘာဝပတ်ဝန်းကျင် ထိခိုက်မှု ဆန်းစစ်ချက် ဆောင်ရွက် ရမည်ကို စိစစ်၍ သဘောထားမှတ်ချက်အား ဆောလျင်စွာ ပြန်ကြားပေးနိုင်ပါရန် အကြောင်းကြား အပ်ပါသည်။

၅။ Mingshang Sports Myanmar Company Limited နှင့် စပ်လျဉ်း၍ ဆက်သွယ် ဆောင်ရွက်ရမည့် ပုဂ္ဂိုလ်မှာ ဒေါ်စုရည်လင်း (ဖုန်းနံပါတ် -၀၉-၂၅၆၄၂၀၇၅၇) ဖြစ်ပါသည်။

ပူးတွဲ-အတည်ပြုလျှောက်ထားလွှာ (၁) စုံ

မျိုးခိုင်ဦး၊ အတွင်းရေးမှူး

မိတ္တူကို

Mingshang Sports Myanmar Company Limited

ရုံးလက်ခံ/မျှောစာတွဲ

APPENDIX – B

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 1: Site Visit and Key Format Interview

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region




Figure 2: Factory Interior

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 3: Footwears Production

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 4: Footwears Production

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 5 : Packing Section

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 6: Fire Safety Equipments

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 7: Water Supply (Deep Well) with R.O Water Treatment System

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 8: Machine Control

Figure 9: Factory Ventilation System

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

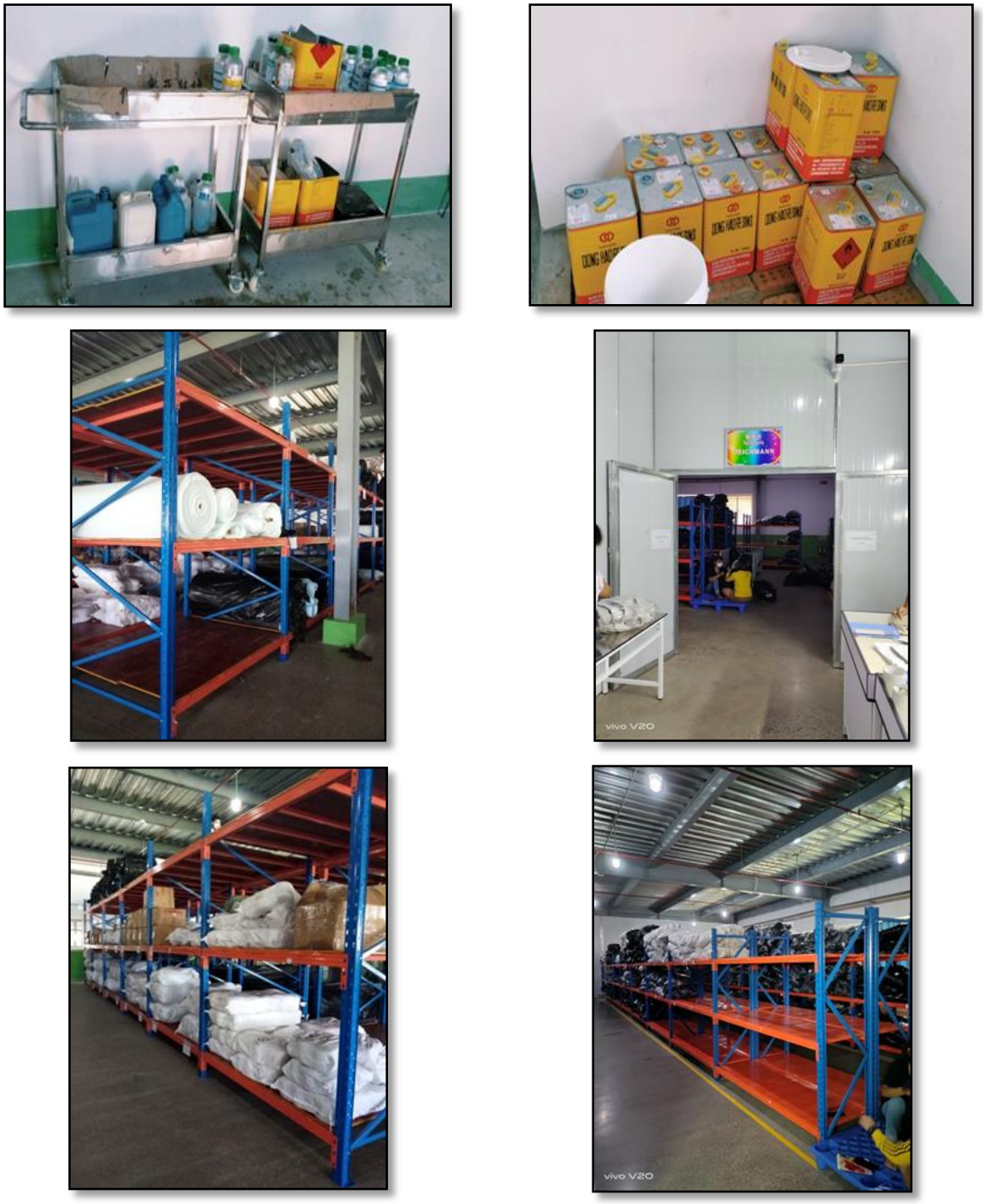


Figure 10: Ware House

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

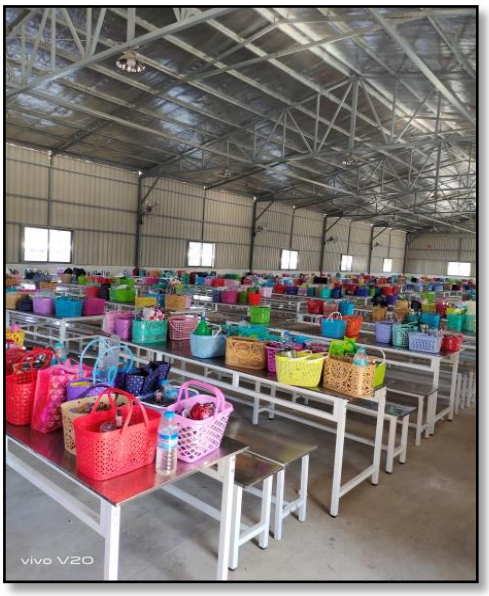


Figure 11: Worship Area and Dinning Room for Labour

Figure 12: Factory Clinic

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

Figure 13: Waste Management System

Photo Records of Footwear Production Factory Project, Kyansitthar Yeik Mon Industrial Zone Part (2), Dagon Myothit (South) Township, Yangon Region

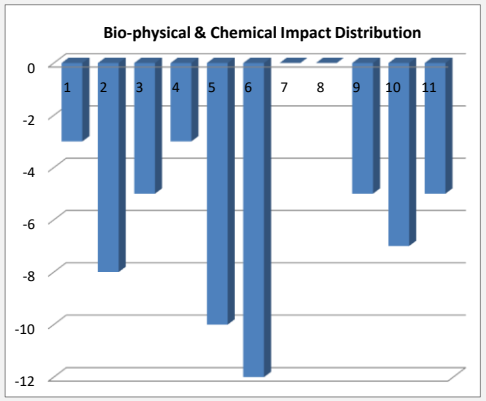
Figure 14: Drainage System

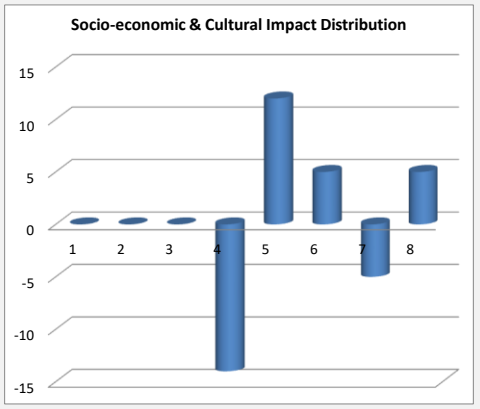
APPENDIX – C

Impact Assessment Matrix for Footwear Production Factory Project CMP

INSTALLATION PHASE IMPACTS for Environmental and Social Impact Assessment of Mingshang Footwear Production Project, Dagon Myothit (South) Township

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3		
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**	Cumulative Score (default negative)
Bio-Physical & Chemical								
BPC/1	Changes in surface water quality	Installation of machines and electrical equipment for footwear production affects the surface water quality	1	1	1	1	**low**	-3
BPC/2	Changes in groundwater quality	Risk of disturbance to underground water resources due to installation of machines	1	1	2	2	**low**	-8
BPC/3	Changes to drainage patterns	Alteration of the natural drainage system due to installation of machines	1	2	1	2	**low**	-5
BPC/4	Changes in rates of erosion and siltation	Significant erosion and siltation due to installation of machinery (nearby channels)	1	1	1	1	**low**	-3
BPC/5	Changes to air quality	Air quaility will be changed because of dust, particulate matter during installation works	1	2	2	2	**medium**	-10
BPC/6	Changes to ambient noise levels	Noise levels will be significant during installation disturbing the biota in the environment	2	2	2	2	**medium**	-12
BPC/7	Changes to aquatic biota	No Change in aquatic biota due to installation works	0	0	0	0	**low**	0
BPC/8	Changes to terrestrial biota	No Significant changes expected in terrestrial biota and habitation due to installation of machines for project	0	0	0	0	**low**	0
BPC/9	Changes to disease vector populations	Health risk to labours during installation period (dust / noise)	1	2	1	2	**low**	-5
BPC/10	Changes to land cover	No significant changes in land cover due to installation works	2	3	1	2	**low**	-7
BPC/11	Changes to areas of natural habitat	Due to the changes in vegetation in land and water, natural habitat may change to a certain extent	1	2	1	2	**low**	-5
Socio-Economic & Cultural								
SEC/1	Changes involving loss of private assets	No significant private asset disburbed due to installation works	0	0	0	0	**low**	0
SEC/2	Changes involving loss of cultural heritage	No significant cultural heritage at proposed project area	0	0	0	0	**low**	0
SEC/3	Changes involving displacement of people	No displacement of inhabitants.	0	0	0	0	**low**	0
SEC/4	Changes to local traffic patterns	Installation of machines for manufacturing of electrical equipment may change traffic pattern to a certain extent.	2	3	2	2	**medium**	-14
SEC/5	Changes in local wage labour incomes/livelihood opportunities	Labours are employed.	2	2	2	2	**medium**	12
SEC/6	Changes in local trade/commercial incomes/opportunities	No significant local trade / commercial incomes during construction phase.	1	2	1	2	**low**	5
SEC/7	Changes in visual amenity	No significant amenity to vision during installation period; garbage appears instead of natural beauty of landscape.	1	2	1	2	**low**	-5
SEC/8	Changes to public infrastructure/community resources	Change in infrastructure due to installation works	1	2	1	2	**low**	5

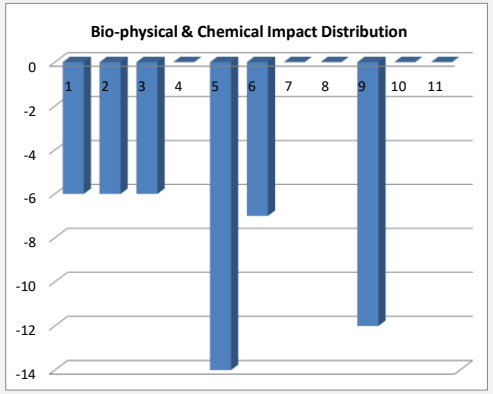


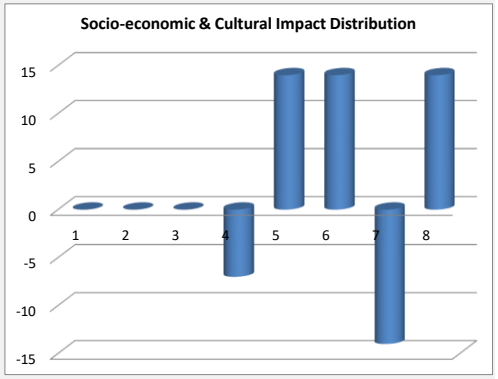


Impact Assessment Matrix for Footwear Production Factory Project CMP

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Mingshang Footwear Production Project, Dagon Myothit (South) Township

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3		
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**	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 (nearby channels)	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	2	**medium**	14
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





Impact Assessment Matrix for Footwear Production Factory Project CMP

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.	

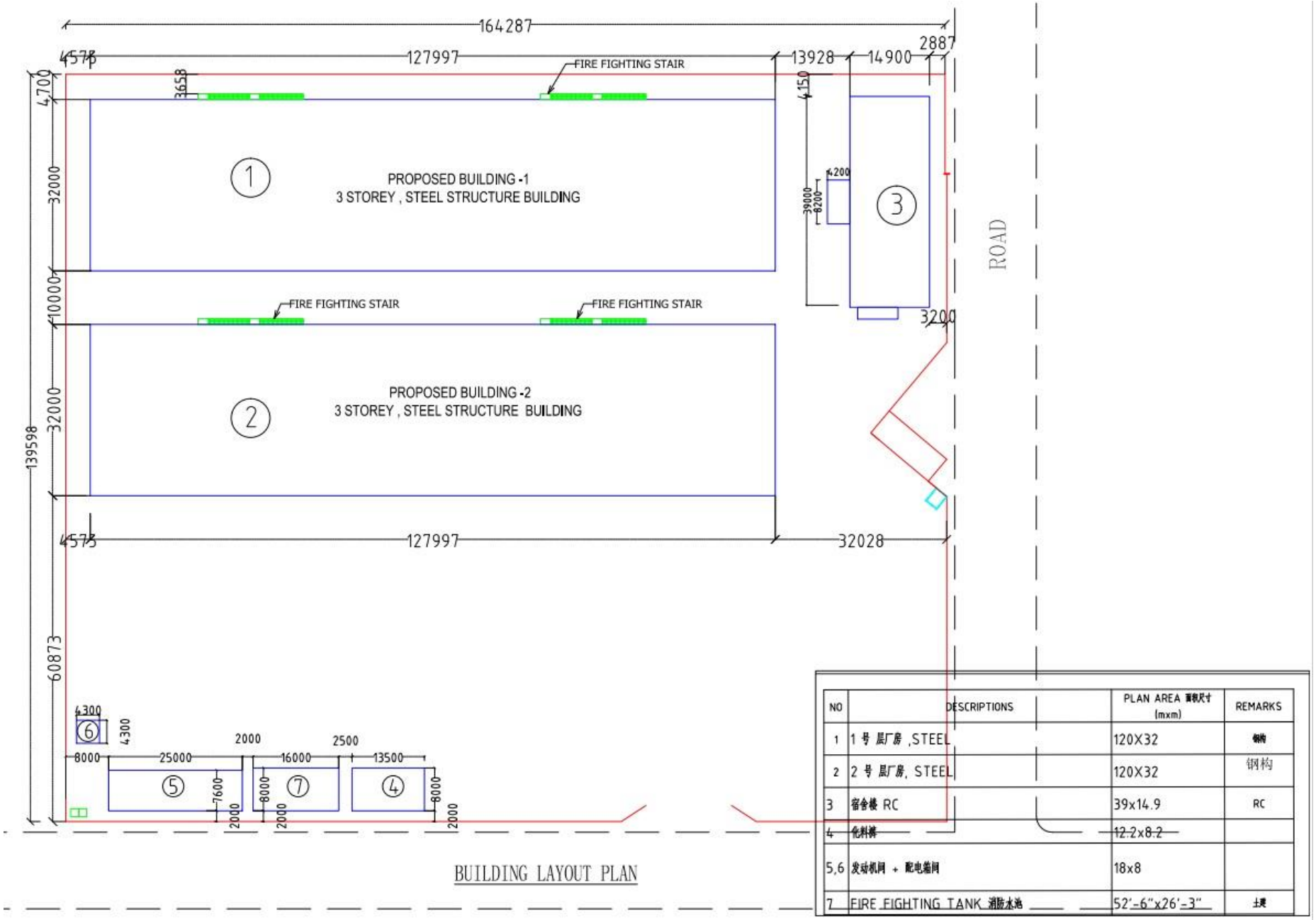
APPENDIX: D

Project Layout Plan

Machinery List

Mingshang Sports Myanmar စက်ပစ္စည်းအဝင်စာရင်းနှင့် အသုံးပြုဇယား

NO.	DESCRIPTION	UNIT	PROPOSAL	DETAIL MACHINE ITEM	QTY	UNIT PRICE	USD	ID NO.	REM
	MACHINE WITH COMPLETE SET		QTY						
1	Industrial Sewing Machine	SET	480						
2	Industrial Sewing Machine	SET	80						
3	Hammering Machine	SET	16						
4	Clinder Sewing Machine	SET	8						
5	Clinder & Zigzag Sewing Machine	SET	8						
6	Button Machine	SET	5						
7	Heel Setting Machine	SET	16						
8	Director-Driver , Interlock Stitch Sewing Machine	SET	5						
9	Simple Button Machine	SET	4						
10	Cup-Feed Overseam Sewing Machine	SET	8						
11	Shoe Upper Gathering (fullness) Sewing Machine	SET	5						
12	High Speed Overlock Stitch Sewing Machine	SET	2						
13	Computer Flanging Machine	SET	2						
14	Spary Glue Machine (Water-Based Glue)	SET	32	Machine with Complete Set and Accessories - Spary Glue Machine (Water-Based Glue) (U=Set) , Brand Name: Dong Guan Shi Liang Machine CoLtd, Model : L J110N	2	215.00	430	100174966140 (8.6.2021)	ကော်ဖျန်းစက်
15	Hammer Flat Machine	SET	5						
16	Spary Glue Machine	SET	32						
17	Punchine Machine	SET	16						
18	Skiving Machine	SET	8						
19	Overlock Stitch Sewing Machine	SET	4						
20	Zigzag Sewing Machine	SET	16						
21	Director-Driver , Procedural Floriation Sewing Machine	SET	10						
22	Director-Driver , Procedural Floriation Sewing Machine	SET	10						
23	Director-Driver , Procedural Floriation Sewing Machine	SET	6						



NO	DESCRIPTIONS	PLAN AREA 面积尺寸 (mxm)	REMARKS
1	1 号 层厂房 ,STEEL	120X32	钢构
2	2 号 层厂房, STEEL	120X32	钢构
3	宿舍楼 RC	39x14.9	RC
4	化料房	12.2x8.2	
5,6	发动机间 + 配电箱间	18x8	
7	FIRE FIGHTING TANK 消防水池	52'-6"x26'-3"	土建

APPENDIX – E

MINGSHANG SPORTS MYANMAR CO., LTD.

ENVIRONMENTAL QUALITY MONITROING REPORT

25th November, 2021

Prepared by

HEXAGONAL ANGLE INTERNATIONAL CONSULTANTS CO., LTD.

Office: No. 233/2, 1st Floor, Daung Min Street, Thanthumar Road, 14/3 Quarter, South Okkalapa Township, Yangon, Myanmar.
Tel: +959 898333722
Email: info@hexagonalangle.com
Website: www.hexagonalangle.com

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1

ENVIRONMENTAL QUALITY MONITORING REPORT

1.1. INTRODUCTION

Environmental quality monitoring was conducted by Hexagonal Angle Consulting Team at Mingshang Sports Myanmar Co., Ltd. from November 15th to 16th, 2021, which is located at Plot No. 13, 14, Mayaytaing Block No. 143/1, Kyansitthar Yeik Mon Industrial Zone, Dagon Myothit (South) Township, Yangon Region. The environmental quality monitoring includes outdoor air quality measurement, temperature, humidity, noise measurement and water quality testing. During that day, the average temperature was 29.95°C and humidity was 67.19%.

In addition, outdoor air quality, temperature and humidity are measured by using the OCEANUS-AQM09 device. The water quality samples are collected and analyzed by the various methods of each parameter in a laboratory. Noise measurement is used by the Digital Sound Level Meter (GM-1356). The detailed information of the measurement devices is mentioned in the **APPENDIX- C**.

1.1.1. Overview of the Project Area

The Project Site is located at Plot No. 13, 14, Mayaytaing Block No. 143/1, Kyansitthar Yeik Mon Industrial Zone, Dagon Myothit (South) Township, Yangon Region and it lies between North latitudes 16˚ 52′47.71″ and East longitudes 96˚ 14′47.20″. Location map of the project area is as shown in Figure 1-1. Its neighborhood is bordered by Skytec Industrial Park Co., Ltd., CMI Engineering Co., Ltd., Dagon Talent Garment Co., Ltd., an industrial zone, and various types of factories around the project area.

Figure 1-1 Overview Map of the Project Area

1.2. BASELINE ENVIRONMENTAL QUALITY

1.2.1. Outdoor Air Quality

Air quality measurement was conducted at the project area from November 15th to 16th, 2021. The OCEANUS-AQM09 was used for air monitoring survey.

The measurement station is located at the project area and monitoring point is located in loading/ unloading place between two production factories. The air quality measurement station as displayed in Figure 1-2 and the measurement photos as shown in Figure 1-3 respectively.

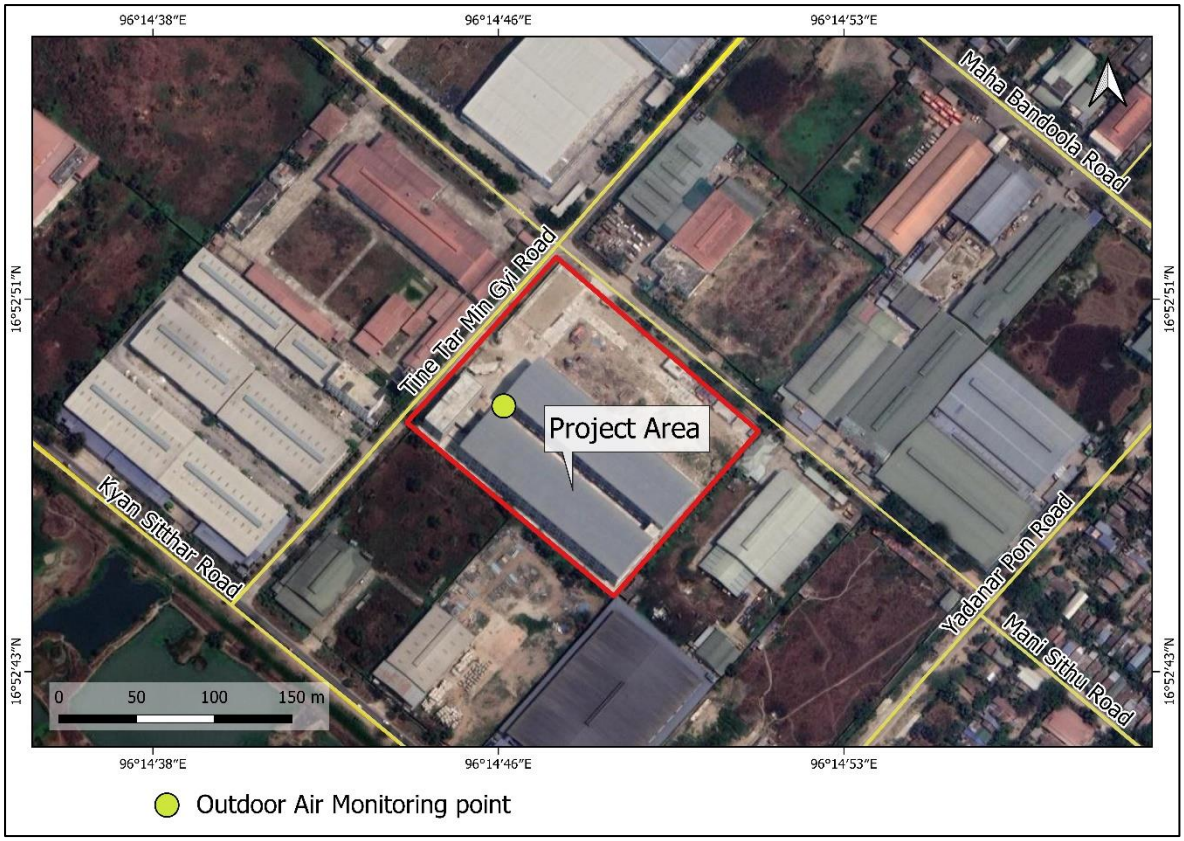


Figure 1-2 Outdoor Air Quality Measurement Location (24 Hours Measurement)

The OCEANUS-AQM09

Air quality measurement

Figure 1-3 Air Quality Monitoring (15th to 16th November 2021)

The emission of harmful gaseous pollutants in the atmosphere is a major health issue. The shoe operations will be generated the different kinds of air pollution, depending upon the kinds of fuels use in generator and other vehicle uses. HA's Environmental Team conducted the outdoor air quality measurements such as particulate matter (PM_{10} and $PM_{2.5}$), gas (NO_2, CO, SO_2, O_3), total suspended particulate (TSP), relative humidity, air pressure, temperature, etc. during the field survey on 15th to 16th November 2021 as displayed in Figure 1-3.

Air quality measurements were taken at the truck entrance area between the two-shoe factories. These measurements were made in accordance with the guidelines of National Environmental Quality (Emission) Guidelines in the project site area. Both results of the study and guidelines are as shown in Table 1-1.

According to the result, particulate matter (PM_{10} and $PM_{2.5}$) are above the standard guidelines (Analyzed Graph is shown in Figure 1-4). However, other parameters such as Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2) and Carbon Monoxide (CO) are 0.043 µg/m^3, 0.076 µg/m^3 and 0.31 ppm respectively and it is under standard guidelines. The rest parameters are also compliance with the standard limitations.

According to the analyzed data, PM_{10} and $PM_{2.5}$ are obviously exceeding the guidelines between 5:00 AM and 6:00 AM and 6:00 PM and 7:00 PM, respectively. These exceeding results in the atmosphere are caused by vehicle movements. Therefore, there will need to be a mitigation plan in the dust-generating area of the proposed factory.

Table 1-1 Results of the Ambient Outdoor Air Monitoring Measurement

No	Parameter	Analyzed Period	Result	Unit	Average Period		WHO Guideline Value	NEQG* Guideline Value	Remark
1	Particulate Matter PM_{10}	24-hr	75.21	$\mu g/m^3$ $\mu g/m^3$	1 24	Year Hour	-	*20 $\mu g/m^3$ *50 $\mu g/m^3$	Above the guideline
2	Particulate Matter $PM_{2.5}$	24-hr	57.7	$\mu g/m^3$ $\mu g/m^3$	1 24	Year Hour	25$\mu g/m^3$	*10 $\mu g/m^3$ *25 $\mu g/m^3$	Above the guideline
3	Total Suspended Particulate (TSP)	24-hr	106.92	$\mu g/m^3$	24 Hours		NG	NG	-
4	Sulphur Dioxide (SO_2)	24-hr	0.076	$\mu g/m^3$ $\mu g/m^3$	10 24	Mins Hours	8 ppb	* 500 $\mu g/m^3$ * 20 $\mu g/m^3$	Under the guideline
5	Nitrogen Dioxide (NO_2)	1-hr	0.043	$\mu g/m^3$ $\mu g/m^3$	1 1	Year Hour	21 ppb	*40 $\mu g/m^3$ *200 $\mu g/m^3$	Under the guideline
6	Carbon Monoxide (CO)	24-hr	0.31	ppm	24 Hours		9 ppm	NG	Under the guideline
7	Ozone (O_3)	8-hr	74.4	$\mu g/m^3$	8 Hours		NG	100 $\mu g/m^3$	Under the guideline
8	Relative Humidity	24-hr	67.19	%	24 Hours		NG	NG	-
9	Temperature	24-hr	29.95	°C	24 Hours		NG	NG	-
10	Air Pressure	24-hr	1009.9	hPa	24 Hours		NG	NG	-
11	Wind Direction	24-hr	212.1	degree	24 Hours		NG	NG	-
12	Wind Speed	24-hr	0.48	m/s	24 Hours		NG	NG	-

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

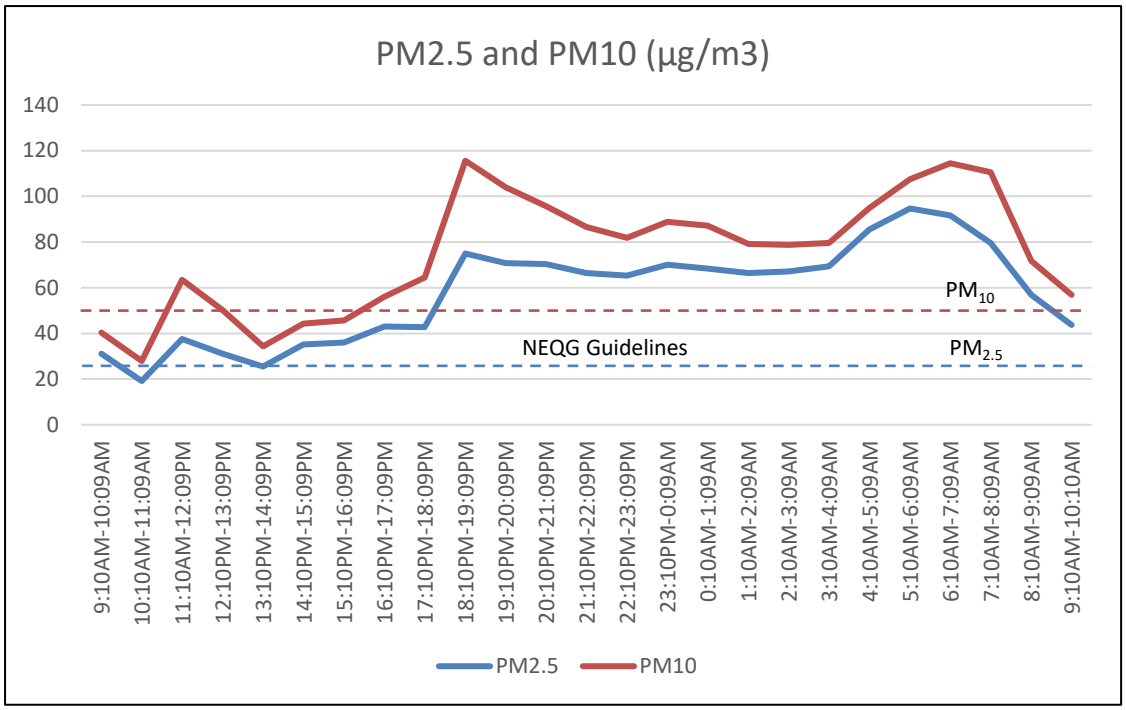


Figure 1-4 Graph for PM_{10} and $PM_{2.5}$ Emission

Remark: PM_{10} and $PM_{2.5}$ are exceeding above the guidelines due to the vehicle movements in operation area. Regular checkups and maintenance on all vehicles with fossil fuel usage are needed. Water spraying is needed every morning and evening at the entrance of the project site.

1.2.2. **Noise**

WHO has described noise pollution as an underestimated threat that can cause hearing loss, cardiovascular problems, cognitive impairment, stress and suffering from depression. Noise pollution can affect people in several ways, some of which includes cardiovascular diseases and sleep disturbances. MONREC (Ministry of Natural Resources and Environmental Conservation) has issued National Environmental Quality (Emission) Guidelines to provide the basis for regulations and control of noise level. Noise impacts should not exceed the levels presented in Table 1-2.

Table 1-2 Noise Level Standard

Receptor	**One Hour LAeq (dBA)[a]**	
	Daytime 07:00-22:00 (10:00-22:00 for Public holidays)	**Nighttime 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

A reconnaissance survey of noise level measurements was made in the shoe factory in order to ensure and protect from the hazardous work environment. The data were collected on 15th and 16th November 2021. Noise measurements are needed to make in the factory as it helps in identifying work

locations where there are noise problems, employees who may be affected, and in checking the compliance with noise regulations, noise control and community annoyance. It is also important to determine that if noise is a potential problem in the workplace. Equipment that is used to measure ambient noise measurement is as shown below in Figure 1-5. The stations which were made noise measurements are shown in Figure 1-6.

GM-1356 Digital Sound Level Meter It is used for measuring noise and other sounds in the project factory.	

Figure 1-5 Equipment Used to Measure Noise Levels

Figure 1-6 Noise Quality Measurement Point (24 Hours)

The measurements of noise quality were made in loading/unloading place between two production halls at the same time with the outdoor air monitoring. The measurement was made in

between the two production factories because the operation is starting. Therefore, the measurement was made to know the noise pollution in the compound of the factory.

In measuring noise measurement, it is noted that minimum noise level is 54.9 dBA and 91.6 dBA at the maximum. There is no heavy activity in the loading/unloading place, except the generator is operating at the distance at that time for electricity to power outdoor air monitoring device and the average noise level is 67.44 dBA. Thus, the measurement was relevant to the standard noise level. The measurement result and the photo made in the field visit are shown in Figure 1-7, Figure 1-8 and the results are in Table 1-3 and Table 1-4 respectively.

According to the noise measurement results, although the average noise result is not exceeding the guidelines, the maximum dBA (91.6) is above the guidelines. It would be caused by the vehicle movements and operation processes of the factory. There will need to check the vehicles and equipment of all operation works.

Table 1-3 Noise Results in One Hour Time Interval

No.	Time Interval		Analyzed Period	Average Value	Unit
1	1:06 PM	2:06 PM	1hr	76.7	dBA
2	2:06 PM	3:06 PM	1hr	77.2	dBA
3	3:06 PM	4:06 PM	1hr	72.4	dBA
4	4:06 PM	5:06 PM	1hr	75.2	dBA
5	5:06 PM	6:06 PM	1hr	75.4	dBA
6	6:06 PM	7:06 PM	1hr	77.9	dBA
7	7:06 PM	8:06 PM	1hr	75.9	dBA
8	8:06 PM	9:06 PM	1hr	75.7	dBA
9	9:06 PM	10:06 PM	1hr	75.2	dBA
10	10:06 PM	11:06 PM	1hr	59.4	dBA
11	11:06 PM	12:06 AM	1hr	57.5	dBA
12	12:06 AM	1:06 AM	1hr	56.7	dBA
13	1:06 AM	2:06 AM	1hr	57.0	dBA
14	2:06 AM	3:06 AM	1hr	56.3	dBA
15	3:06 AM	4:06 AM	1hr	56.7	dBA
16	4:06 AM	5:06 AM	1hr	57.2	dBA
17	5:06 AM	6:06 AM	1hr	57.9	dBA
18	6:06 AM	7:06 AM	1hr	58.0	dBA
19	7:06 AM	8:06 AM	1hr	58.3	dBA
20	8:06 AM	9:06 AM	1hr	59.9	dBA
21	9:06 AM	10:06 AM	1hr	66.6	dBA
22	10:06 AM	11:06 AM	1hr	80.7	dBA

No.	Time Interval		Analyzed Period	Average Value	Unit
23	11:06 AM	12:06 PM	1hr	78.1	dBA
24	12:06 PM	1:06 PM	1hr	78.2	dBA

Table 1-4 Monitoring Measurement of Noise (dBA)

No.	Measurement Place	Current activity during monitoring	Noise Level (dBA)			NEQG[1] standard	
			Day Time			Residential, Institutional, educational	Industrial, commercial
			Minimum dBA	Maximum dBA	Average dBA		
1	Loading/Unloading place	Generator is operating at the distance	54.9	91.6	67.44	55	70

[1]National Environmental Quality (Emission) Guidelines, 29 Dec 2016

*Average equivalent for one hour

**Average maximum for one hour

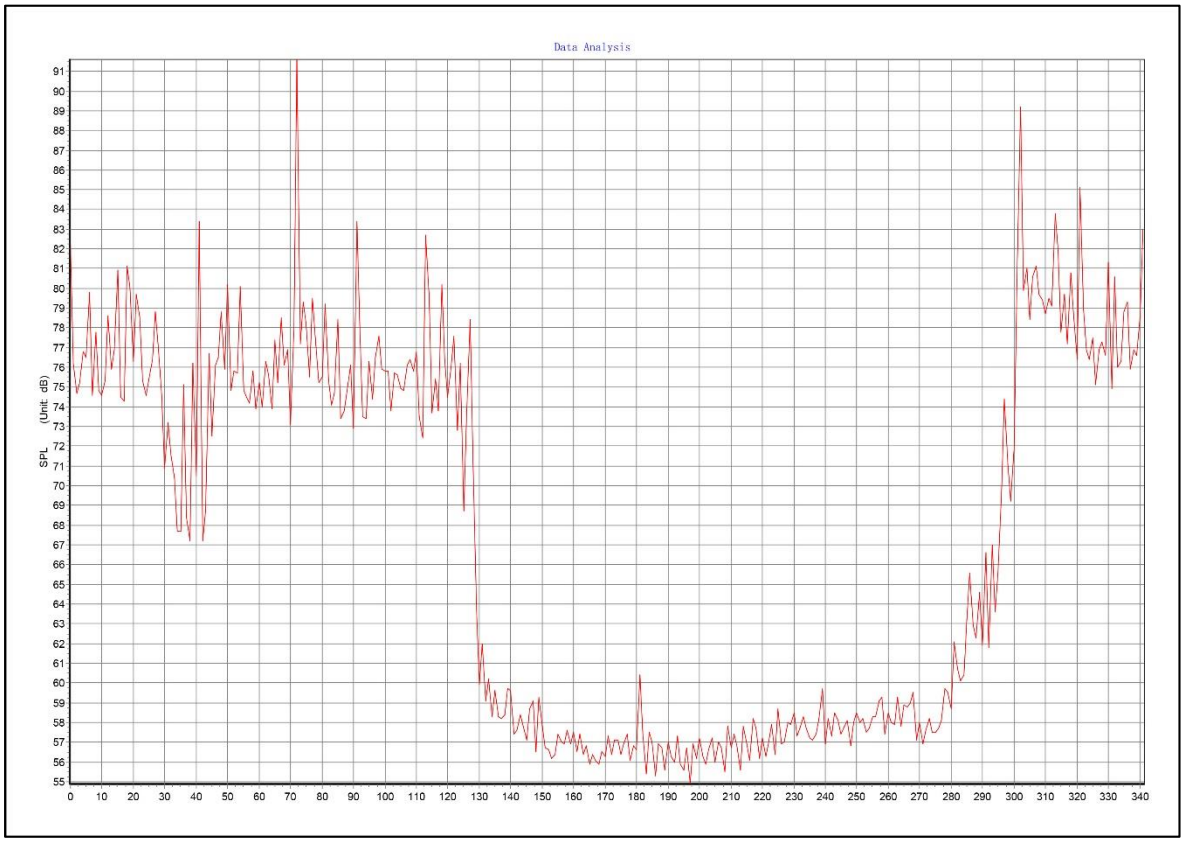


Figure 1-7 Noise Level Graph of the Factory

Loading/Unloading Place

Figure 1-8 Noise Level Measurement in the Factory

1.2.3. **Water Quality**

The production process does not produce waste-water, therefore water sample was collected from drinking water pipe for workers, shown in Figure 1-9. The process was conducted on 15th and 16th November 2021 then sent to the laboratory. As the result, pH level of water is neutral stage and the other parameters such as Chloride, Conductivity, Manganese, Sulphate and other parameters are under the guideline. Water sample collection map of Mingshang Sports Myanmar Co., Ltd. is shown in Figure 1-10. The result of water sample is as shown in Table 1-5 and original laboratory test result is attached in **Appendix B**.

Figure 1-9 Water Sample Collection Photo

Project Name	Water Quality Measurement GPS Location	Date
Mingshang Sports Myanmar Company Limited	16°52'48.46"N 96° 14'45.34"E	15th and 16th November 2021

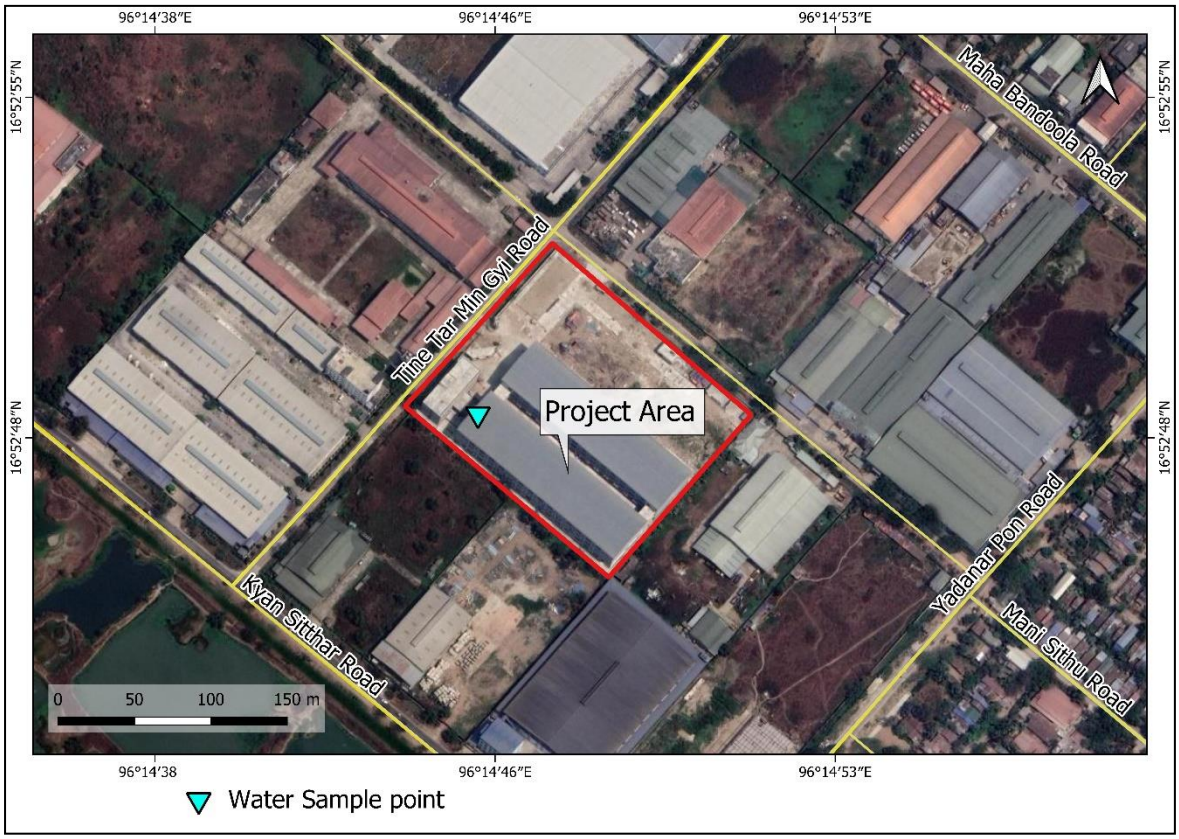


Figure 1-10 Location of Water Sample

Table 1-5 Drinking Water Quality Result

No.	Parameter	Result	Unit	Method	WHO Guideline Value	Remark
1	Acidity	13.07	mg/L	Titration Method	NA	-
2	Alkalinity	7.96	mg/L	Hanna (HI97104)-Alkalinity Photometer	NA	-
3	Bicarbonate	5.97	mg/L	Titration Method	NA	-
4	Calcium Hardness	Nil	mg/L	EDTA Titrimetric Method	NA	-

No.	Parameter	Result	Unit	Method	WHO Guideline Value	Remark
5	Carbonate	Nil	mg/L	Titration Method	NA	-
6	Chloride	5.96	mg/L	Argentometric Method	250 mg/L	Under the guideline
7	Color (True)	Nil	TCU	Hanna (HI 97727) -Color of water Portable Photometer	15 TCU	Under the guideline
8	Conductivity	58	µS/cm	Hanna (HI 991300) – pH, EC, TDS and Temperature Meter	2500 µS/cm	Under the guideline
9	Iron	Nil	mg/L	Phenanthroline Method	0.3 mg/L	-
10	Magnesium Hardness	Nil	mg/L	EDTA Titrimetric Method	NA	-
11	Manganese	<0.006	mg/L	1 –(2-pyridylazo) 2-Naphthol (PAN) Method	0.4 mg/L	Under the guideline
12	P-Alkalinity	Nil	mg/L	Hanna (HI97104) – Alkalinity Photometer	Na	-
13	PH	6.43	-	Hanna (HI 2211)- pH and Temperature Meter	6.5-8.5	Agree with the guideline
14	Phosphate	Nil	mg/L	Ascorbic Acid Method	500 mg/L	-
15	Salinity	10.77	mg/L	Argentometric Method	NA	-

No.	Parameter	Result	Unit	Method	WHO Guideline Value	Remark
16	Sodium Chloride	9.82	mg/L	Argentometric Method	NA	-
17	Sulphate	<2	mg/L	USEPA SulfaVer 4 Method	250 mg/L	Under the guideline
18	Total Dissolved Solids	39	ppm	Hanna (HI 991300) – pH, EC, TDS and Temperature Meter	1000 mg/L	Under the guideline
19	Total Hardness	Nil	mg/L	EDTA Titrimetric Method	500 mg/L	Under the guideline
20	Total Solids	39	mg/L	Calculation Method	NA	-
21	Total Suspended Solids	Nil	mg/L	Dried at 103 – 105° C	NA	-
22	Turbidity	Nil	NTU	Milwaukee (MI 415) – Turbidity Meter	5 NTU	-

*WHO Guideline Value NA=Not Available

Appendix A
Air Quality Results

HEXAGONAL ANGLE
INTERNATIONAL CONSULTANTS CO.,LTD.

Office: No. 233/2, First Floor, Daung Min Street, 14/3 Quarter, South Okkalapa Township, Yangon, Myanmar.
Tel: +959 898333722
Email: info@hexagonalangle.com
Website: www.hexagonalangle.com

Air Quality Sampling Result (လေအရည်အသွေးတိုင်းတာမှုရလဒ်)

No. (စဉ်)	Parameter (အရည်အသွေး)	Analyzed Period	Result (ရလဒ်)	Unit (ယူနစ်)	Average Period (ပျမ်းမျှကာလ)		*Guideline Value (ထုတ်လွှတ်မှုစံနှုန်း)	Remark
1	Particulate Matter PM_{10}	24-hr	75.21	µg/m³ µg/m³	1 24	Year Hour	*20 µg/m³ *50 µg/m³	Above the guideline
2	Particulate Matter $PM_{2.5}$	24-hr	57.7	µg/m³ µg/m³	1 24	Year Hour	*10 µg/m³ *25 µg/m³	Above the guideline
3	Total Suspended Particulate (TSP)	24-hr	106.92	µg/m³	24 Hours		NG	-
4	Sulphur Dioxide (SO_2) ဆာလဖာဒိုင်အောက်ဆိုဒ်	24-hr	0.076	µg/m³ µg/m³	10 24	Mins Hours	* 500 µg/m³ * 20 µg/m³	Under the guideline
5	Nitrogen Dioxide (NO_2) နိုက်ထရိုဂျင်ဒိုင်အောက်ဆိုဒ်	1-hr	0.043	µg/m³ µg/m³	1 1	Year Hour	*40 µg/m³ *200 µg/m³	Under the guideline
6	Carbon Monoxide (CO) ကာဗွန်မိုနောက်ဆိုဒ်	24-hr	0.31	ppm	24 Hours		NG	Under the guideline
7	Ozone (O_3)	8-hr	74.4	µg/m³	8 Hours		100	Under the guideline
8	Relative Humidity စိုထိုင်းဆ	24-hr	67.19	%	24 Hours		NG	-
9	Temperature အပူချိန်	24-hr	29.95	Degree Celsius	24 Hours		NG	-
10	Air Pressure	24-hr	1009.9	hPa	24 Hours		NG	-
11	Wind Direction	24-hr	212.1	Degree	24 Hours		NG	-
12	Wind Speed	24-hr	0.48	m/s	24 Hours		NG	-

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

Analyzed by

Myat Noe Pwint
Environmentalist
Hexagonal Angle International Consultants Co., Ltd.

Checked by

Ei Ei Zaw
General Manager (Environmental & Social Specialist)
Hexagonal Angle International Consultants Co., Ltd.

Appendix B
Water Quality Results

PRO LAB
ANALYTICAL LABORATORY

Myanmar Innovation Group of Co.,Ltd.
Address : No.(9), Sabae Housing,Pyi Htaung Su Road,
(26)Ward, South Dagon Tsp,Yangon,Myanmar.
Tel : 09-893 767 424
E-Mail : info@prolabmyanmar.com

LABORATORY ANALYSIS REPORT

1 Client Name : Ming Sheng Footwear Factory
2 Location : Plot No. 13+14, Myay Taing Block No. (131/1), Kyan Sitt Thar Yeik Mon, South Dagon Township
3 Type of Sample : Drinking Water
4 Sample No. : 00424/2021
5 Contact Person : Ko Win Naing Oo
6 Phone No. : 09-898333722
7 Date Received : 15.11.2021
8 Date of Test Performed : 15.11.2021
9 Date of Issued : 19.11.2021
10 Result :

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Acidity	13.07	mg/L	NA	Titration Method
2	Alkalinity	7.96	mg/L	NA	Titration Method
3	Bicarbonate	5.97	mg/L	NA	Titration Method
4	Calcium Hardness	Nil	mg/L	NA	EDTA Titrimetric Method
5	Carbonate	Nil	mg/L	NA	Titration Method
6	Chloride	5.96	mg/L	250 mg/L	Argentometric Method
7	Color (True)	Nil	TCU	15 TCU	Hanna (HI 97727) - Color of water Photometer
8	Conductivity	58	µS/cm	2500 µS/cm	Hanna (HI 991300) - pH, EC, TDS and Temperature Meter
9	Iron	Nil	mg/L	0.3 mg/L	Phenanthroline Method
10	Magnesium Hardness	Nil	mg/L	NA	EDTA Titrimetric Method
11	Manganese	< 0.006	mg/L	0.4 mg/L	1 - (2 - Pyridylazo) - 2 - Napthol (PAN) Method
12	P-Alkalinity	Nil	mg/L	NA	Titration Method
13	pH	6.43	-	6.5-8.5	Hanna (HI 2211) - pH & Temperature Meter
14	Phosphate	Nil	mg/L	500 mg/L	Ascorbic Acid Method

PRO LAB
ANALYTICAL LABORATORY

Myanmar Innovation Group of Co.,Ltd.
Address : No.(9), Sabae Housing,Pyi Htaung Su Road,
(26)Ward, South Dagon Tsp,Yangon,Myanmar.
Tel : 09-893 767 424
E-Mail : info@prolabmyanmar.com

LABORATORY ANALYSIS REPORT

1 Client Name : Ming Sheng Footwear Factory
2 Location : Plot No. 13+14, Myay Taing Block No. (131/1), Kyan Sitt Thar Yeik Mon, South Dagon Township
3 Type of Sample : Drinking Water
4 Sample No. : 00424/2021
5 Contact Person : Ko Win Naing Oo
6 Phone No. : 09-898333722
7 Date Received : 15.11.2021
8 Date of Test Performed : 15.11.2021
9 Date of Issued : 19.11.2021
10 Result :

No.	Parameter	Result	Unit	WHO STD 2018	Method
15	Salinity	10.77	mg/L	NA	Argentometric Method
16	Sodium Chloride	9.82	mg/L	NA	Argentometric Method
17	Sulfate	< 2	mg/L	250 mg/L	USEPA SulfaVer 4 Method
18	Total Dissolved Solids	39	ppm	1000 mg/L	Hanna (HI 991300) - pH, EC, TDS and Temperature Meter
19	Total Hardness	Nil	mg/L	500 mg/L	EDTA Titrimetric Method
20	Total Solids	39	mg/L	NA	Calculation Method
21	Total Suspended Solids	Nil	mg/L	NA	Dried at 103 - 105°C
22	Turbidity	Nil	NTU	5 NTU	Milwaukee (MI 415) - Turbidity Meter

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

Tested By
Name : HTET HTET KYAW
Position : Laboratory Technician
Signature :.....

Approved By
Name : MAY THU ZAW MYINT
Position : Chief Technical Officer
Signature :.....

Myanmar Innovation Group of Co., Ltd. PRO LAB ANALYTICAL LABORATORY

Appendix C
Calibration Report of OCEANUS-AQM09

Calibrate report

Product	Air Quality Monitor System	**Model**	AQM-09
Quantity	1pcs	**Cali date**	JUNE , 24 , 2020
Product No.	OC20200624484529		
Appearance	☑Clean ☑Non corrosive ☑No damage		
Gas type	O_3:ppb NO_2:ppb SO_2:ppb CO: ppm PM10:ug/m^3 PM2.5:ug/m^3 TSP:ug/m^3 Atmospheric : hpa Wind veloci: m/s Wind direct:° Temperature and humidity: ℃/%RH		
Accuracy	±3%F.S		
resolution	1 ppb 0.1ppm		
Response time	≤30S		
Survey range	O_3:0-2000ppb NO_2:0-2000ppb SO_2:0-2000ppb CO:0-200ppm PM2.5:0-1000ug/m^3 PM10:0-1000ug/m^3 TSP:0-1000ug/m^3 Atmospheric:600-1100hpa Windveloci:0-60m/s Winddirect:0-360° Temperature: -20-50℃, Humidity:0-100%RH		
Signal output mode	4G LTE		
Power supply voltage	AC 220V/50Hz		
Power dissipation	≤ 30W		
Working temperature and humidity range	-20℃-50℃ / 5%RH-95%RH		
Testing condition indoor	Temperature: 30℃ Humidity: 60%RH		
Calibration gas	O_3 NO_2 SO_2 CO		
Cali gas test	1. O_3: Cali gas concentration: 2000ppb Inspect concentration: 1992 ppb 2.NO_2: Cali gas concentration: 1260ppb Inspect concentration: 1262 ppb 3. SO_2: Cali gas concentration: 1200ppb Inspect concentration: 1201 ppb 4. CO: Cali gas concentration: 100ppm Inspect concentration: 97.8 ppm 5. PM2.5:Measured value: 37 ug/m3 PM10:Measured value: 47 ug/m3 TSP:Measured value: 73 ug/m3 6.Atmospheric:Measured value 1000 hpa 7. Wind veloci:Measured value: 0 Wind direct:Measured value : ok 8. Temperature: Measured value: 28.0° Humidity:Measured value: 48%		
Test result	**Qualified**		
Remark			

Check: _____ **Approval:** _____ **Tester:** _____

Company: Henan Oceanus Import & Export Co., Ltd.

Date: JUNE , 24 , 2020

Email: info@china-oceanus.com Telephone: +86-0371-6099-8169

APPENDIX – F

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

Policies	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 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

Laws and Regulations	Description
	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.
- 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

Laws and Regulations	Description
	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. ▪ 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)	

Laws and Regulations	Description
	▪ 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". ▪ 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)	

Laws and Regulations	Description
	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, 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	

Laws and Regulations	Description
	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.
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

Laws and Regulations	Description
	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 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 conditions to be complied by non-Buddhist

Laws and Regulations	Description
	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* .

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 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, 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.*.

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	^0C	<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 1.3 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 1.3 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 Mingshang Footwear Factory

1. Introduction

On 23.11.21, our group (NEPS) including Environmental and Public Health Engineers went to Ming Shang (Myanmar) Footwear Co., Ltd to detect possible EIA & EHIA of the work place.

The footwear factory is situated premises at Plot No. (13 + 14), Myay Taing Block No. 143/1, Kyan Sitt Thar Yeik Mon Industrial Part 2, Dagon Myothit (Southern) Township, Yangon Region. Besides, it is surrounded by some factories (i.e. Iron and another footwear factory 100 m away)

2. Background

2.1 At present there are 1100 workers (labors) and 14 Chinese employees (14 male and 14 female) and most of the local labors are females. Moreover, they are now giving on job training to the new workers before full-swing operating. They (Chinese) resided 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 in two shifts (11:30 to 12:30 hrs.) and (12:30 – 13:30 hrs.)

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

2.2 Responsible persons met; Human Resource manager, Daw Pann Ei Phyu, 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

Daw Hnin Yu Yu Khaing, a nurse takes care of the factory staff. Apart from indigestion and head-ache, the patients has no other complaint for health attention. Though we have not much information about this work it should be carried out with inclusion of physician (and dentist).

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. 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 limitation 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, wearing mask and washing hands 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 inhaul fans were installed at each workplace floor, with windows open and fans operating were observed. 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 (Bureau 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 far as possible, direct contact between the workers and dangerous substances must be avoided, 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 of order 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 2000L. 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 ˚ F.

The factory provides drinking fountains, which is favorable than the common cup. 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 ˚F.

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, 9 toilet seats for women and 9 plus urinals for men are found. 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 drying machine installed for prevention of fungus to the finished product, which is good practice.

22(f) **Waste disposal-** Solid wastes of the plant are categorized into two types i.e., 'wet' and 'dry' refuse, Wet refuse is disposed weekly by the plant and dry ones will be disposed by township municipality by contract 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 is hard water. 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.

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.

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.