BAISHENG (MYANMAR) INDUSTRY COMPANY LIMITED

INITIAL ENVIRONMENTAL EXAMINATION
ENVIRONMENTAL MANAGEMENT PLAN

FOR

FOOTWEAR PRODUCTION FACTORY PROJECT, PLOT NO. (12 - Kakyi), MYAY TAING BLOCK NO. (363), EAST GROUP VILLAGE, HTAN TA PIN TOWNSHIP, YANGON REGION

July 2022

National Engineering & Planning Services Co., Ltd, Myanmar

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ABBREVIATIONS AND ACRONYMS

Abbreviations	
BPC	Bio-Physical and Chemical
CO	Carbon Monoxide
CO_3	Carbon Dioxide
CSR	Corporate Social Responsibility
CMP	Cutting, Making and Packing
EERT	External Emergency Response Team
EIA	Environmental Impact Assessment
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
HCHO	Formaldehyde
IFC	International Finance Corporation
NEQEG	National Environmental Quality Emission Guideline, 2015
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
QC	Quality Control
RO	Reverse Osmosis
SO_2	Sulfur Dioxide
SIA	Social Impact Assessment
TSP	Total Suspended Particulate

TDS	Total Dissolved Solid
TVOC	Total Volatile Organic Compound

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INITIAL ENVIRONMENTAL EXAMINATION (IEE) AND ENVIRONMENTAL MANAGEMENT PLAN (EMP) REPORT ON BAISHENG FOOTWEAR PRODUCTION FACTORY PROJECT, HTANTAPIN TOWNSHIP, YANGON REGION

EXECUTIVE SUMMARY

Summary of Project Description

The Project Proponent "Baisheng (Myanmar) Industry Company Limited" is situated at North latitudes 16°53'36.52" and East longitudes 95° 59' 18.72" E, located at Plot No. (12/Kakyi), Myay Taing Quarter No. (363), East Group Village, Htantapin Township, Yangon Region for manufacturing all kinds of footwear products on CMP (Cutting-Making-Packing) basis with client-ordered design.

The amount of foreign capital investment for Baisheng (Myanmar) Industry Co., Ltd. Footwear Production Factory Project is 2.85 Million USD (100% Foreign Investment Company). The Project Site is 4.60 acres (18615.54 m^2). Land and buildings are leased by the project proponent with thirty (30) years rent at 23850 kyat per square meter per annum; between U Soe Hlaing (Lessor) and Baisheng (Myanmar) Industry Company Limited (Lessee).

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 include:

- One Storey Steel Structure + One Mezzanine floor
- Two Storey Steel Structure Building

The machinery, spare parts, raw materials and other accessories are intended to be imported and purchased from both foreign countries and local 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.

At the project site, tube well water is being treated by Reverse Osmosis treatment plant and is supplied to the entire project site for domestic uses and for drinking water purpose, the factory bought from reliable source whenever the R.O plant undergoes maintenance work. The factory has health clinic for workers with a certified nurse to take care of their general health and the Worker's Hospital is located at 1.75 km east of the project site. The electricity requirement for the factory is 200000 kwh/ year and the required electrical power supply is from the National Grid Line and three generators are being installed for emergency cases.

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.

Summary of Baseline Physical and Social Environment

Soil Quality: According to Ministry of Agriculture and Irrigation, the soil types around 10 kilometer range of the study area are Meadow and Meadow Alluvial Soils, Meadow and Meadow alluvial soils, which are prominent. Lateric soil and swampy soil type are also founded within 10 km range of the project area.

Land use: Since the project site is located within a developing township and main livelihood of the people is agriculture, most of the total area covers agriculture land and grassland out of the total area of 149979 acres. The observed land uses area are 74.55% of agriculture, 3.04% of grassland, 0.07% of industrial area, 1.67% of urban and built-up area, 4.8% of uncultivated land, 15.85% of barren and the remaining 0.06% of others.

Meteorology: Climate of the project area is subtropical climate with maximum temperature of 40°C and minimum temperature of 29°C. During the rainy season, the rainy days last consecutively for 80 - 116 days and the annual rainfall over the area averages 3053.08 millimeter (120.2 inches) during the past four year. Annual wind speed generally ranges from maximum wind speed of 2.9 mph and minimum wind speed of 1.7 mph with mean annual relative humidity of 79%.

Water Quality: Since the production process does not produce wastewater due to footwear production only, the water sample was collected from the tube well of the factory. The water quality assessment at the project site is done at Pro Lab Analytical Laboratory in 6th April, 2022. The measured parameter results are compared with WHO Drinking Water Standard.

According to the result, pH level, color (True), sulfate of water is on the margin of the standard value but the other parameters such as Chloride, Conductivity, Iron, Manganese, Total Dissolved Solids, Total Hardness and Turbidity excess the guideline. After having a proper treatment for the water, therefore, the water is suitable for drinking purposes or industrial uses[1].

***Air Quality*:** The OCEANUS-AQM09 was, used for outdoor air monitoring survey at factory area and the results are compared with National Environmental Quality (Emission) Guidelines. The DIENMERNTM Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector were used for indoor air monitoring survey at the production area and the average indoor air quality results were compared with Air Quality Index Guidelines by U.S Environmental Protection Agency (EPA) and OSHA (Occupational Safety and Health Administration) standard. The measured parameters are particulate matters (PM_{10}, $PM_{2.5}$ and $PM_{1.0}$), HCHO, TVOC, gases (CO_2, NO_2, CO, SO_2, O_3), total suspended particulate (TSP), relative humidity, air pressure, temperature, wind direction, wind speed etc.

[1] *Appendix E1: Treated Water Quality by Reverse Osmosis Water Treatment Plant at Baisheng Footwear Factory*

Among the measured parameters for outdoor air quality, average value of particulate matter ($PM_{2.5}$) is slightly over the NEQG standard guidelines but average value of particulate matter (PM_{10}) is relevant to the guideline. The highest value time of particulate matter ($PM_{2.5}$, PM_{10}) is during from 7 pm to 8 pm due to the overtime worker leave the factory. Sulfur Dioxide is also higher than the guideline because of two generators running in the factory and also generators running in surrounding factories and incoming cars to the factory. The other parameters are within the guideline. For indoor air quality, all of the measurement parameters; PM_{10}, $PM_{2.5,}$ $PM_{1.0,}$ TVOC, HCHO and CO_2 are within the Guidelines values.

***Noise Quality*:** Baseline noise quality was measured in the shoe factory in order to ensure and protect from the hazardous work environment by 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. It is noted that the minimum and maximum noise levels are 46.3 dBA and 89.3 dBA respectively with the average noise level of 58.96 dBA which is within the permissible limit as Myanmar National Standard (2015) for Industrial area.

Light Quality: Baseline Light Quality was measured in the shoe factory with a total of 5 stations which include QC line, B-2 line (putting the glue on shoes), cutting line, line 4 (parking line) and label putting line. According to the light measurement results, light level of QC line and cutting line are lower than the standard value but other light measurement places are within the standard value. Therefore, the proper action is required to increase the lighting.

***Sensitive Ecosystem*:** Except for Sandayaw Restaurant and Resort which is situated about 7.2 kilometers northwest of the project site, there is no sensitive ecosystem including national parks, wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, tiger reserve, elephant reserve, wetlands are present within 10 km distance of the project site.

Flora and Fauna: Since the project area is situated within the industrial zone and closed to rural and urban, there is no significant flora and fauna around the vicinity area. The native plants of Htantapin Township are bamboo, dhani and mangrove. Since the specific study area has already been urbanized with human activities and land used, the site within the industrial area has no significant vegetation or habitat for wildlife and its vegetation mainly comprises of the roadside vegetation.

Socioeconomic Data

Social Environment: The proposed site is located on the northern part of Htantapin Township bordered by four townships namely: Hmawbi and Shwe Pyi Thar Township in the east, Nyaungdong Township (Ayeyarwaddy Region) in the west, Hlaing Thar Yar Township in the south and Taik Kyi Township in the north. Since the project site is located beside the Yangon - Pathein Highway Road, it is easy access to transport goods and it is far about 4 km from Dagon Ayar Highway Bus Terminal. There are also other industrial zones, universities, resorts, and human settlement around the environment.

Socio-Economic Status: According to 2019 social study, the total population of the study area is 133226 with total household of 28475 and on the assumption that one family comprises of 6 members in average. This includes 66.4% of above 18 years and 33.6% of under 18 years. The ratio of male and female is 1:1.03 as of September 2019. The ethnicity of 93.9% is Burma and others make less than 6.1% including foreign. Out of the total population, the number of people who can work is 81896 and the unemployment rate is 8.14%. Main livelihoods are government services, industrial worker, merchant, services, livestock breeding, agriculture and casual labor.

Since Htantapin Township is a developing township in economic status, the important sectors for the economic development of the vicinity area are industry and agriculture. Main product of the township is rice and it is mostly imported to Yangon and other townships. There are one government hospital and three urban health care centers in the township. There are 8 Private Clinics, and 42 Rural Health Department in different villages. There are no archeological structures and historical sites within 10 km range of the project site.

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

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

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

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

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

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

Operational Phase		
Ref.	**Impact/Issue**	**Significance**
Bio-Physical & Chemical		
BPC/1	Changes in surface water quality	low
BPC/2	Changes in groundwater quality	low
BPC/3	Changes to drainage patterns	low
BPC/4	Risk of Soil erosion and siltation	low
BPC/5	Changes to air quality	medium
BPC/6	Changes to ambient noise levels	low
BPC/7	Changes to aquatic biota	low
BPC/8	Changes to terrestrial biota	low
BPC/9	Changes to disease vector populations	medium
BPC/10	Changes to land cover	low
BPC/11	Changes in natural heritage site	low
Socio-Economic & Cultural		
SEC/1	Changes involving loss of private assets	low
SEC/2	Changes involving loss of cultural heritage	low
SEC/3	Changes involving displacement of people	low
SEC/4	Changes to local traffic patterns	low
SEC/5	Changes in local wage labour incomes/livelihood opportunities	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[2].

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

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.

Summary of Key Informant Interview (KII) with Stakeholder Engagement

Key Informant Interviews (KIIs) were carried out by the Consultant Team during May, 2022 and the summary notes from these interviews with different key stakeholders are as follows:

Baisheng (Myanmar) Industry Co., Ltd: The Company specifically produced Sports shoes/ boots with CMP (Cutting-Making-Packing) procedure according to its ordered-footwear designs from China.

Working Hours: Working time starts from 7:30 am to 4:30 pm with 1 hour lunch-break in two shifts (11:45-12:45 hrs & 12:00 - 13:00 hrs);

Staff: At present, we have 800 workers (labors / staff). There are 60 males and 740 female workers, including one cook and one cleaner;

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

Factory Buildings and Dormitory: All the different processes for the manufacturing of the Baisheng shoes are carried out in these two Factory Buildings. The two-storey building composed of a dormitory at the first floor for eight male Chinese technicians and two female Chinese technicians. The ground floor of this building is factory office and the parlor.

Warehouse: Rolls of fabric and accessories are stored here. The chemical store is a separate room to store glue. Adjacent to this room, there is another room for mixing of glue and preparing work for specific glue composition;

Staff Welfare: The staff and labors eat meals in the dining hall. They bring their own lunch from home. The factory ferry transports them to and from work in time for factory hours. There are twenty (20) toilets in our factory: five for men and fifteen toilets for women. For ventilation system, big exhaust fans installed near the ceiling of the factory roof.

Medical Care: A nurse takes care of the staff to ensure that they are healthy and have no occupational health problem. The patients from the factory come to the clinic when they have minor cuts or indigestion and others are generally healthy and fit.

Waste Management: Since the factory production process is a dry process, it has only solid waste generated from the factory. The local municipality collected the solid waste five times a month and conveys them to the Htain Pin landfill site. Furthermore, the factory has storm water drains around the compound to drain the rainwater into the main drain and ultimately discharges into the nearest water body.

Water Supply: There is one tube well in the factory compound and the well water is hard water and does not comply with the WHO Drinking water quality standard. After treating the water with Reverse Osmosis Water Treatment Plant, the treated water is tested for its physical and chemical analyses and it is found to be chemically potable. The factory provides drinking water to its staff by purchasing drinking water from reliable source while the RO plant is in maintenance work.

Electricity Supply: It acquired the required electricity from the national gridline; installed 3.5 KVA two transformers in the factory compound. For emergency electrical supply, three generators are also installed in the electrical room.

Fire Fighting System: This is the big ground tank of 3200 gallons for storing water for emergency firefighting purpose. Water pipes and pumps are connected; with different firefighting equipment installed in the factory premises.

Summary of Stakeholder Consultation Meeting (8 July 2022)

A Stakeholder Consultation Meeting was held on 8 July 2022 at the Baisheng (Myanmar) Industrial Co., Ltd. Meeting Hall. Eighteen persons attended {Baisheng Factory Staff (13), Local Authority Representative (1), NEPS (4)}.

The project proponent explained about the proposed project. The Baisheng (Myanmar) Co., Ltd. was established on 5th June, 2020. The project is a ten-year planned project. The factory staffs are local people from Htantapin and Hlaingtharyar townships. The Factory

arranges ferry services for its staff. The working hour is 7:30 a.m. – 4:30 p.m. Overtime, leave facilities of staff are in accordance to relevant National Laws and Regulations. There are 70 males and 895 female workers in the factory. The foreign technicians oversee the project processes.

NEPS explained the findings in the Draft EMP Report that has been prepared for the project.[3] One representative participant (from the local authority) expressed the locality's honor to have this proposed project implemented in this area. One local staff representative commended the project that the staff is well- treated with ferry services and the working environment has good ventilation. The staffs enjoy their work and have no objection to the implementation of this project.

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);[4]
- ***Environmental Site Officer (ESO),*** who will assist EMO and carry out the environmental management on site;[5]

Environmental Management Plans for each identified impact***[6]:***

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;

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

- 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 kyat. However, if the project is beyond the current estimated cost, the necessary funds are deemed to be duly expanded; by the project proponent.

Summary Conclusion and Recommendation

Social Findings: The proposed project land has no inhabitants living in the area and no resettlement issue identified since the project area has already settled all issues of land acquisition for implementation of the footwear production work by CMP process. The site visit was, carried out in the environs of the project site during May 2022. A Stakeholders Consultation Meeting was conducted on 8 July 2022[7]. The summery notes of the meeting is incorporated in Chapter 9.3 of this report. 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 operates according to Standing Law, Rules and Regulations of 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 provide the production technique of shoe to Myanmar people and operate the operation works.

Environmental Findings: 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 May 2022. There is no sensitive or conservation worthy habitats observed in surrounding environ of the project area.

Outdoor Air Quality measurements detected particulate dust ($PM_{2.5}$ slightly over NEQG guideline values), and SO_2 exceeding the permissible values.[8] Mitigation measures mentioned in Section 7.4 of this Report and monitor that vehicle and engine exhausts are fully, operational and wash / splash the pavement ground environs with water occasionally.

[7] *Appendix H Meeting Minutes of Stakeholders Consultation Meeting on 8 July 2022*
[8] *Appendix E: Environmental Monitoring Report*

Indoor Air Quality measurements detected traces of toxic gases (such as TVOC) and dust ($PM_{1.0}$, $PM_{2.5}$ & PM_{10}). However, all parameters measured indoors at the specific testing point are within the acceptable range of Guideline Values according to AQI (Air Quality Index) by EPA (US Environmental Protection Agency).[9]

Light Quality measurements: Light levels of QC line and Cutting line are lower than the standard value but other light measurement places are within the standard value. Therefore, the proper action is required to increase the lighting capacity of the respective facilities accordingly.

The project proponent is desirous to conserve the environment. The affirmation of project proponent regarding environment impact is that; we, the Baisheng (Myanmar) Industry 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 and to keep the project site environment friendly by inclusion of replanting of trees program as describe in Chapter 8 of this IEE report. The project site grounds as well as the approach roads will have suitable shady sidewalks, flowering plants and trees and evergreen arbors.

Conclusion and Recommendation:

All the environmental and social impacts identified are capable of mitigation through a combination of adherence to National Environmental Conservation Law, 2012, Environmental Regulations, 2014, EIA Procedure Notification, 2015, Environmental Quality (Emission) Guidelines, 2015; and abiding to relevant local and international design codes and effective health and safety and environment (HSE) policy by the operators.

It is recommended to consider Incorporating Sections 7.2 "*Occupational Health and Safety for footwear sector and mitigating measures*" and 7.3 "*EHIA and management of Occupational Health Hazard*" in the EMP of the Project's operational and monitoring activities for a sustainable development, ensuring safe environment for its staff and surroundings.

Regular inspection and audit will underpin the efficacy of the EMP. The environmental risk of the project has been evaluated; as low assuming that the facilities are properly designed and operated according to international industry norms for the sector. Risks of fire hazard, severe weather or natural disaster affecting the project are present (cyclones, floods, fire, etc.). However, these are assumed to be mitigated; through sound engineering design of the facilities, professional construction technologies, supervision and monitoring of the project during its construction and operational phases. Effective process safety management should reduce accidents and minimize adverse effects of accidents on human's health, environment and properties.

[9] *Appendix E: Environmental Monitoring Report*

EXECUTIVE SUMMARY IN MYANMAR LANGUAGE

အကျဉ်းချုပ်အစီရင်ခံစာ
နိဒါန်း

အဆိုပြုစီမံကိန်းကိုဆောင်ရွက်နေသည့် Baisheng (Myanmar) Industry Co., Ltd သည် ရန်ကုန်တိုင်းဒေသကြီး၊ ထန်းတပင်မြို့နယ်၊ မြေတိုင်းအမှတ်(၃၆၃)တွင် ဖိနပ်အမျိုးမျိုးကို ဝယ်ယူသူဖက်မှ အပ်နှံထားသော ဒီဇိုင်းအတိုင်း ဖြတ်/ချုပ်/ထုတ်ပိုးသည့်စနစ် (CMP system) ဖြင့် ချုပ်လုပ်သောဖိနပ်ချုပ်စက်ရုံဖြစ်ပါသည်။

စီမံကိန်းအတွက် စုစုပေါင်းမတည်ငွေပမာဏမှာ အမေရိကန်ဒေါ်လာ (၂.၈၅) သန်း (ရာခိုင်နှုန်းပြည့် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု) ဖြစ်ပါသည်။ စီမံကိန်းမြေနေရာနှင့် အဆောက်အဦများကို ဦးစိုးလှိုင်ထံမှ (၄.၆၀) ဧကရှိသော မြေနေရာအား နှစ် (၃၀)စာအတွက် နှစ်စဉ်မြေငှားရမ်းခကို (၁)နှစ်လျှင် မြန်မာငွေကျပ် (၂၃၈၅၀)နှုန်းဖြင့် ငှားရမ်းထားခြင်းဖြစ်ပါသည်။

ဖြတ်/ချုပ်/ထုတ်ပိုးသည့်စနစ်ဖြင့် ဖိနပ်အမျိုးမျိုးချုပ်လုပ်ပြီး ပြည်ပသို့တင်ပို့ရန်အတွက် စက်ရုံများကို ဆောက်လုပ်ထားပြီးဖြစ်ပြီး၊ ယခုအချိန်တွင် အခြားအဆောက်အဦများနှင့် စက်ပစ္စည်းတပ်ဆင်ခြင်းလုပ်ငန်းများ ပြီးစီးမှုမှာ ၁၀၀% ရှိပါသည်။ စီမံကိန်းရှိ အဆောက်အဦများမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။

- ထပ်ခိုးပါ အလုပ်ရုံ တစ်ထပ်အဆောက်အအုံ
- အဆောင်နှင့် ရုံးခန်းအတွက် နှစ်ထပ်အဆောက်အအုံ

ဖိနပ်အမျိုးမျိုးထုတ်လုပ်ရန်အတွက် အသုံးပြုသောစက်ယန္တရားများ၊ ကုန်ကြမ်းပစ္စည်းများနှင့် အခြားလိုအပ်သောပစ္စည်းများကို ပြည်တွင်းနှင့်ပြည်ပမှ တင်သွင်းမည်ဖြစ်ပါသည်။ တင်သွင်းလာသောကုန်ကြမ်းပစ္စည်းများသည် သက်ဆိုင်ရာမှ အန္တရာယ်ကင်းရှင်းမှုရှိကုန်ပစ္စည်းများဖြစ်ကြောင်း ထောက်ခံချက် ရရှိထားပြီးဖြစ်ပါသည်။

စက်ရုံဇရိယာအတွင်းရှိ အဝီစိတွင်းရေမှရရှိသောရေများကို ရေသန့်စက်(RO treatment plant)ဖြင့် သန့်စင်ပြီး အထွေထွေသုံးရေအဖြစ် အသုံးပြုပါသည်။ ရေသန့်စက်တပ်ဆင်နေချိန်အတွင်း အလုပ်သမားများအတွက် သောက်ရေသန့် ထားရှိပေးပါသည်။ ထို့နောက်၊ စက်ရုံရှိအလုပ်သမားများ၏ ကျန်းမာရေးအတွက် လိုင်စင်ရသူနာပြုဆရာမတစ်ဦးကြီးကြပ်သော ဆေးပေးခန်းအပြင်၊ စီမံကိန်း၏ အရှေ့ဖက် (၁.၇၅) ကီလိုမီတာခန့် အကွာတွင် ထန်းတပင်မြို့နယ် အလုပ်သမားဆေးရုံလည်း ရှိပါသည်။ စက်ရုံ၏တစ်နှစ်တာလိုအပ်သည့် လျှပ်စစ်မော်တော်အားပမာဏသည် တစ်နှစ်လျှင် (၂၀၀၀၀၀) ကီလိုဝပ်ရှိပြီး၊ လိုအပ်သော လျှပ်စစ်မော်တော်အားကို လျှပ်စစ်နှင့် စွမ်းအင်ဝန်ကြီးဌာနမှ သွယ်ယူရရှိသည့်အပြင် အရေးပေါ်ကိစ္စများအတွက် စက်ရုံပိုင်အရန်မီးစက် (၃)လုံး တပ်ဆင်ထားပါသည်။ စက်ရုံစွန့်ထုတ်အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီနှင့် ချိတ်ဆက်၍ တစ်လ(၅)ကြိမ် လာရောက်သိမ်းဆည်းပြီး ထိန်ပင်အမှိုက်စွန့်ပစ်ကန်သို့ စွန့်ပစ်ပါသည်။

ယခုအချိန်တွင် အဆောက်အအုံများ၊ သိုလှောင်ရုံ၊ ရုံးခန်း၊ အဆောင်၊ စက်တပ်ဆင်မှုများနှင့် လုံခြုံရေးဂိတ်များ ဆောက်လုပ်မှုပြီးစီးပြီး၊ လုပ်ငန်းလည်ပတ်နေပြီဖြစ်ပါသည်။ မီးဘေးအန္တရာယ်ကာကွယ်ရန်နှင့် အရေးပေါ်ကိစ္စများအတွက် ကြိုတင်ပြင်ဆင်မှုများလည်း စနစ်တကျဆောင်ရွက်ပေးလျက်ရှိပါသည်။

စီမံကိန်းအနီးပတ်ဝန်းကျင်နှင့် လူနေမှုအခြေအနေအကျဉ်းချုပ်

မြေအရည်အသွေး။ ။၂၀၀၄ခုနှစ်၊ မတ်လတွင် လယ်ယာစိုက်ပျိုးရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားသော "မြန်မာနိုင်ငံတွင် တွေ့ရှိရသောမြေအမျိုးအစားများနှင့် မြေအမျိုးအစားများ၏ လက္ခဏာများ" အရ စက်ရုံတည်ရှိသောနေရာ၏ မြေအမျိုးအစားမှာ လယ်မြေ၊ နန်းတင်မြေနမြေအမျိုးအစားဖြစ်ပါသည်။ စီမံကိန်း၏ (၁၀)ကီလိုမီတာပတ်လည်တွင်မူ နွံပေါက်မြေနှင့် ဂဝံမြေအမျိုးအစားများကိုလည်း တွေ့ရှိရပါသည်။

မြေအသုံးချမှု။ ။ အဆိုပြုစီမံကိန်းသည် စက်မှုဖွံ့ဖြိုးတိုးတက်သော ထန်းတပင်မြို့နယ်အတွင်း တည်ရှိသည့်အပြင်၊ မြို့နယ်အတွင်း လူဦးရေ၏ အဓိကအသက်မွေးဝမ်းကျောင်းလုပ်ငန်းမှာ စိုက်ပျိုးရေးဖြစ်သည့်အတွက် မြို့နယ်၏ စုစုပေါင်းမြေဧကပေါင်း (၁၄၉၉၇၉)တွင် အဓိကအားဖြင့် စိုက်ခင်းမြေနှင့် စားကျက်မြေများကဖုံးအုပ်ထားပါသည်။ လေ့လာတွေ့ရှိချက်အရ၊ စိုက်ပျိုးရေးဧရိယာ (၇၄.၅၅%)၊ စားကျက်မြေ (၃.၀၄%)၊ မြို့ပြနှင့်တည်ဆောက်ရေး (၁.၆၇%)၊ စက်မှုဇုန်ဧရိယာ (၀.၀၇%)၊ မြေရိုင်းနှင့် စိုက်ပျိုးခြင်းမပြုနိုင်သည့် ဧရိယာ (၁၅.၈၅%) ဖြစ်ပြီး၊ ကျန်ရှိသည့်ဧရိယာသည် သစ်တောဖုံးလွှမ်းဧရိယာနှင့် အခြားမြေများဖြစ်ကြောင်း တွေ့ရှိရပါသည်။

ရာသီဥတု။ ။ စီမံကိန်းတည်နေရာသည် ပူအိုက်စိုစွတ်သောရာသီဥတုရှိပြီး အမြင့်ဆုံးအပူချိန်မှာ (၄၀) ဒီဂရီစင်တီဂရိတ် နှင့် အနိမ့်ဆုံးအပူချိန် (၂၉) ဒီဂရီစင်တီဂရိတ်ရှိပါသည်။ လွန်ခဲ့သော(၄)နှစ်အတွင်း မိုးရာသီတွင် မိုးရွာသောရက်များသည် (၈၀ - ၁၁၆) ရက်အထိ ဆက်တိုက်ရွာသွန်းပြီး၊ နှစ်စဉ်ပျမ်းမျှမိုးရေချိန် (၃၀၅၃.၀၈) မီလီမီတာ (၁၂၀.၂ လက်မ) ထိ မိုးရွာသွန်းလေ့ရှိပါသည်။ ၂၀၁၉ ခုနှစ်၊ ဒေသဆိုင်ရာအချက်အလက်များအရ၊ နှစ်စဉ်လေတိုက်နှုန်း အမြင့်ဆုံးနှင့်အနိမ့်ဆုံးမှာ တစ်နာရီ (၂.၉) ကီလိုမီတာ နှင့် တစ်နာရီ (၁.၇) ကီလိုမီတာအသီးသီးရှိပြီး ပျမ်းမျှစိုထိုင်းစ (၇၉) ရာခိုင်နှုန်းရှိပါသည်။

ရေအရည်အသွေး။ ။အဆိုပြုစီမံကိန်းသည် ဖိနပ်ချုပ်လုပ်သည့်လုပ်ငန်းဖြစ်သည့်အတွက် ရေအရည်အသွေးစမ်းသပ်ရန်အတွက်မူ စက်ရုံအတွင်းရှိ တွင်းရေကို ၂၀၂၂ခုနှစ်၊ ဇူလိုင် (၆)ရက်နေ့တွင် Pro Lab Analytical Laboratory တွင် စမ်းသပ်မှုပြုလုပ်ခဲ့ပြီး တိုင်းတာမှုပြုလုပ်သောရလဒ်အား ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့မှ ထုတ်ပြန်ထားသော သောက်သုံးရေစံနှုန်းများနှင့် နှိုင်းယှဉ်ထားပါသည်။

တိုင်းတာမှုပြုလုပ်သည့် ပါရမီတာများအနက် pH တန်ဖိုး၊ အရောင်နှင့် ဆာလဖိတ်တန်ဖိုးများသည် သတ်မှတ်တန်ဖိုးအတွင်းရှိသော်လည်း ကလိုရိုက်၊ လျှပ်ကူးနိုင်မှု၊ သံ၊ မဂ္ဂနိစ်၊ စုစုပေါင်းပျော်ဝင်သော အစိုင်အခဲများ၊ ရေနောက်ကျိမှုကဲ့သို့သော အခြားကန့်သတ်ချက်များသည် သတ်မှတ်ထားသော လမ်းညွှန်ချက်တန်ဖိုးထက် ကျော်လွန်နေကြောင်း တွေ့ရှိရပါသည်။ ထို့ကြောင့်၊ သင့်လျော်သော ရေအရည်အသွေးစစ်ဆေးခြင်း၊ သန့်စင်ခြင်းများပြုလုပ်ပြီးပါက သောက်သုံးရန် (သို့မဟုတ်) စက်ရုံလုပ်ငန်းသုံးအတွက် သင့်လျော်မည် ဖြစ်ပါသည်။

လေထုအရည်အသွေး။ ။ စက်ရုံပြင်ပလေထုအရည်အသွေးစမ်းသပ်ရန် OCEANUS™ AQM-09စက်ဖြင့် စမ်းသပ်မှုပြုလုပ်ခဲ့ပြီး၊ တိုင်းတာမှုရလဒ်ကို အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး(ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်စံနှုန်းဖြင့် နှိုင်းယှဉ်ထားပါသည်။ စက်ရုံအတွင်းရှိ လေထုအရည်အသွေး စမ်းသပ်ရန်အတွက် DIENMERNTM Multifuntional Air Quality Detector နှင့် SMART SENSOR Carbon Dioxide Detector စက်များဖြင့် အချောထည်အခန်းတွင် စမ်းသပ်မှုပြုလုပ်ခဲ့ပြီး၊ ရလဒ်များကို US Environmental Protection Agency ၏ လေထုအရည်အသွေးညွှန်းကိန်းလမ်းညွှန်ချက်များနှင့် လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးကင်းလုံခြုံရေးစံနှုန်းများနှင့် နှိုင်းယှဉ်ထားပါသည်။

ပြင်ပလေထုအရည်အသွေးတိုင်းတာမှုပြုလုပ်သည့်ပါရာမီတာများအနက် $PM_{2.5}$ ပမာဏသည် သတ်မှတ်စံနှုန်းထက် အနည်းငယ်ကျော်သော်လည်း၊ အခြားပါရာမီတာများသည် သတ်မှတ်စံနှုန်းနှင့် ကိုက်ညီမှုရှိပါသည်။ PM_{10} နှင့် $PM_{2.5}$ ၏ အမြင့်ဆုံးရလဒ်များသည် အချိန်ပိုဆင်းသည့်အလုပ်သမားများ အလုပ်ဆင်းသည့်အချိန်ည (၇-၈) ကြားတွင် ဖြစ်ကြောင်းတွေ့ရပါသည်။ သတ်မှတ်စံနှုန်းကျော်သည့် ဆာလဖာဒိုင်အောက်ဆိုဒ်သည် စက်ရုံတွင် လည်ပတ်နေသော မီးစက်နှစ်လုံး၊ ပတ်ဝန်းကျင်စက်ရုံများတွင် လည်ပတ်နေသည့် မီးစက်များနှင့် စက်ရုံအတွင်း ဝင်လာသည့်မော်တော်ယာဉ်များကြောင့် လမ်းညွှန်ချက်တန်ဖိုးထက် ပိုမိုမြင့်မားနေသည်ဟု ယူဆရပြီး၊ အခြားတိုင်းတာမှုရလဒ်များသည် လေထုအရည်အသွေးညွှန်းကိန်း လမ်းညွှန်ချက်များနှင့် ကိုက်ညီမှုရှိကြောင်း တွေ့ရှိရပါသည်။ စက်ရုံအတွင်း လေထုအရည်အသွေးတိုင်းတာမှုပြုလုပ်သည့် ပါရာမီတာများသည် အထက်ဖော်ပြပါ လေထုအရည်အသွေးညွှန်းကိန်း လမ်းညွှန်ချက်များနှင့် ကိုက်ညီမှုရှိကြောင်း တွေ့ရှိရပါသည်။

ဆူညံမှုတိုင်းတာခြင်း။ ။ BENTECH GM 1356 စက်ကိုအသုံးပြု၍ အွန်လာရယ်ရှိသော အလုပ်ပတ်ဝန်းကျင်မှ ကာကွယ်ရန်အတွက် အခြေခံဆူညံသံအရည်အသွေးကို တိုင်းတာမှုပြုလုပ်ခဲ့ပါသည်။ စက်မှုလုပ်ငန်းနှင့် စီးပွားရေးနယ်ပယ်အတွက် နေ့အချိန်နှင့် ညအချိန်တွင် တစ်နာရီလျှင် အများဆုံးခွင့်ပြုနိုင်သောဆူညံမှုနှုန်းကို ၇၀ dBA သတ်မှတ်ထားပါသည်။ တိုင်းတာမှုရလဒ်အရ၊ လက်ရှိစက်ရုံအတွင်း နေ့အချိန် အသံဆူညံမှုနှုန်း အနိမ့်ဆုံးနှင့်အမြင့်ဆုံးမှာ ၄၆.၃ dBA နှင့် ၈၉.၃ dBA အသီးသီးရှိပြီး၊ ပျမ်းမျှအားဖြင့် အသံဆူညံမှုနှုန်း ၅၈.၉၆ dBA ရှိပြီး အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး(ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်၏ သတ်မှတ်တန်ဖိုးအောက်ရှိသောကြောင့် တိုင်းတာမှုရလဒ်ကောင်းမွန်ကြောင်း တွေ့ရှိရသည်။

အလင်းအရည်အသွေးစမ်းသပ်ခြင်း။ ။ အခြေခံအလင်းအရည်အသွေးကို စက်ရုံအတွင်းရှိ QC လိုင်း, B-2 line (ဖိနပ်ပေါ် ကော်တင်ခြင်း), ဖြတ်တောက်သည့်လိုင်း၊ လိုင်း (၄) (ထုပ်ပိုးသည့်လိုင်း) နှင့် တံဆိပ်ကပ်သည့်လိုင်းစသည့် နေရာ(၅)နေရာတွင် တိုင်းတာမှုပြုလုပ်ခဲ့ပါသည်။ အဆိုပါတိုင်းတာမှုအရ QC လိုင်းနှင့် ဖြတ်တောက်သည့်လိုင်းများ၏ အလင်းရရှိမှုသည် သတ်မှတ်တန်ဖိုးဘောင်မဝင်သော်လည်း အခြားတိုင်းတာသည့်နေရာများတွင်မူ အလင်းရရှိမှုကောင်းမွန်ကြောင်း တွေ့ရှိရပါသည်။

ထိခိုက်လွယ်သော ဂေဟစနစ်။ ။ စီမံကိန်းနေရာ၏ အနောက်မြောက်ဘက် (၇.၂)ကီလိုမီတာအကွာတွင် ရှိသော စန္ဒယော်အပန်းဖြေစခန်းနှင့် စားသောက်ဆိုင်မှအပ အခြားတောရိုင်းတိရစ္ဆာန်ဘေးမဲ့တောများ၊ တောရိုင်းတိရစ္ဆာန်များ ရှောင်ပြောင်းနေထိုင်ရာများ၊ ဇီဝနယ်မြေ၊ ကျားထိန်းသိမ်းရေး၊ ရေတိမ်ဒေသများ အပါအဝင် ထိလွယ်ရှလွယ်သော ဂေဟစနစ်များသည် စီမံကိန်း၏ (၁၀)ကီလိုမီတာပတ်လည်တွင် မရှိကြောင်း တွေ့ရှိရပါသည်။

သဘာဝပေါက်ပင်နှင့်တိရစ္ဆာန်များ။ ။ အဆိုပြုစီမံကိန်းဖြစ်သည့်ဖိနပ်စက်ရုံသည် မြို့ပြနှင့်စက်မှုဇုန်အနီးတစ်ဝိုက်တွင် တည်ဆောက်ထားခြင်းဖြစ်သောကြောင့် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် သိသာထင်ရှားသော အပင်နှင့်သားရဲတိရစ္ဆာန်များမရှိကြောင်း တွေ့ရှိရသည်။ ထန်းတပင်မြို့နယ်၏ ဒေသပေါက်ပင်များမှာ ဝါး၊ ခနိနှင့် ဒီရေတောတို့ဖြစ်ပါသည်။ စီမံကိန်းဇရိယာသည် လူများ၏ လုပ်ဆောင်မှုနှင့် မြေယာအသုံးချမှုများကြောင့် မြို့ပြဖြစ်လာသည့်အပြင်၊ လက်ရှိအချိန်တွင် စက်ရုံအနီးပတ်ဝန်းကျင်တွင် မြို့ပြဖွံ့ဖြိုးတိုးတက်မှုကြောင့် လမ်းမတစ်လျှောက် စိုက်ပျိုးထားသောသစ်ပင်များနှင့် အခြားအပင်ငယ်များသာ ရှိပါသည်။

လူမှုပတ်ဝန်းကျင်အခြေအနေ။ ။အဆိုပြုစီမံကိန်းဖြစ်သည့်ဖိနပ်စက်ရုံသည် ထန်းတပင်မြို့နယ် မြောက်ပိုင်းတွင် တည်ရှိပြီး အရှေ့ဘက်တွင် မော်ဘီနှင့် ရွှေပြည်သာမြို့နယ်၊ အနောက်ဘက်တွင် ညောင်တုန်းမြို့နယ် (ဇရာဝတီတိုင်း)၊ တောင်ဘက်တွင် လှိုင်သာယာမြို့နယ်နှင့် မြောက်ဘက်တွင် တိုက်ကြီးမြို့နယ်တို့နှင့် ထိစပ်

လျက်ရှိပါသည်။ အဆိုပြုစီမံကိန်းသည် ရန်ကုန်-ပုသိမ်လမ်းမဘေးတွင် တည်ရှိသောကြောင့် ကုန်များတင်ပို့ရန် လွယ်ကူသည့်အပြင်၊ စီမံကိန်းနှင့် (၄)ကီလိုမီတာအကွာတွင် ဒဂုံဇရာအဝေးပြေးဂိတ်နှင့် အခြားစက်မှုဇုန်များ၊ တက္ကသိုလ်၊ အပန်းဖြေစခန်းများ နှင့် လူများ အခြေချနေထိုင်လျက်ရှိကြောင်း တွေ့ရှိရပါသည်။

<u>လူမှုစီးပွားရေးအခြေအနေ။</u> ။ ၂၀၁၉ ခုနှစ်၊ စက်တင်ဘာလဒေသဆိုင်ရာ အချက်အလက်များအရ မြို့နယ်အတွင်းရှိ လူဦးရေမှာ (၁၃၃,၂၄၆) ဦး၊ အိမ်ထောင်စုပေါင်း (၂၈၄,၇၅)နှင့် အိမ်ထောင်စုတစ်ခုတွင် ခန့်မှန်းမိသားစုဝင် (၆)ဦး ရှိပါသည်။ မြို့နယ်အတွင်းရှိ (၁၈)နှစ်အထက် ၆၆.၄% နှင့် (၁၈)နှစ်အောက် ၃၃.၆% ရှိပြီး၊ ကျား/မဦးရေအချိုးမှာ (၁း၁.၀၃) ဖြစ်ပါသည်။ အများစုနေထိုင်သူမှာ ဗမာလူမျိုး (၉၃.၉%) နှင့် နိုင်ငံခြားသားအပါအဝင် အခြားလူမျိုးနေထိုင်မှု (၆.၁%)ခန့် ရှိပါသည်။ စုစုပေါင်းနေထိုင်သူများအနက် အလုပ်လုပ်နိုင်သော လူဦးရေ (၈၁၉၆)ဦး ရှိပြီး အလုပ်လက်မဲ့ရာခိုင်နှုန်း (၈.၁၄) ရှိပါသည်။ ဒေသခံနေထိုင်သူများ၏ အဓိကအသက်မွေးဝမ်းကြောင်းလုပ်ငန်းများမှာ အစိုးရဝန်ထမ်း၊ စက်ရုံအလုပ်သမား၊ ကုန်သည်၊ မွေးမြူရေးလုပ်ငန်း၊ စိုက်ပျိုးရေးနှင့် ကျပန်းအလုပ်သမားစသည်တို့ဖြစ်ပါသည်။

ထန်းတပင်မြို့နယ်သည် စီပွားရေးကဏ္ဍတွင် ဖွံ့ဖြိုးတိုးတက်လျက်ရှိသည့်အတွက် အနီးတစ်ဝိုက် စီးပွားဖွံ့ဖြိုးတိုးတက်မှု၏အရေးကြီးဆုံးကဏ္ဍမှာ စက်ရုံလုပ်ငန်းနှင့် စိုက်ပျိုးရေးလုပ်ငန်း တို့ဖြစ်ပါသည်။ မြို့နယ်၏ အဓိကထွက်ကုန်ဖြစ်သည့် ဆန်စပါးကို ရန်ကုန်နှင့် အခြားမြို့နယ်များသို့ တင်ပို့ရောင်းချလျက်ရှိပါသည်။ စီမံကိန်းတည်နေရာသည် လမ်းပမ်းဆက်သွယ်ရေးကောင်းမွန်ပြီး ကုန်းလမ်းဖြင့်သွားလာနိုင်သည့်နေရာတွင် တည်ရှိပါသည်။ ကျန်းမာရေးကဏ္ဍအနေဖြင့် အစိုးရဆေးရုံ(၁)ရုံ နှင့် မြို့ပြကျန်းမာရေး စောက်ရှောက်ရေးဌာန(၃)ခု ရှိပြီး၊ ကျေးရွာအသီးသီးတွင် ပုဂ္ဂလိဂဆေးခန်း(၈)ခု နှင့် ကျေးလက်ကျန်းမာရေးဌာန(၄၂)ခု ရှိပါသည်။ စီမံကိန်းတည်နေရာ၏ (၁၀)ကီလိုမီတာပတ်လည်တွင် သမိုင်းဝင်ထင်ရှားသည့် အဆောက်အဦများနှင့် ရှေးဟောင်းအမွေအနှစ်အဆောက်အဦများ မရှိကြောင်း တွေ့ရပါ သည်။

လုပ်ငန်းလည်ပတ်သည့်ကာလအတွင်း အဓိကဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုများနှင့် ထိခိုက်မှုလျှော့ချရေးနည်းလမ်းများ

ထိခိုက်မှုများကိုဆန်းစစ်လေ့လာရာတွင် ထိခိုက်နိုင်သည့်အတိုင်းအတာ၊ အချိန်ကာလ၊ပမာဏနှင့် ဖြစ်နိုင်စွမ်းစသည့်ဖြင့် အမျိုးအစားလေးမျိုးခွဲ၍ အမှတ်ပေးစနစ်ဖြင့် ခွဲခြားသတ်မှတ်ပြီး အကဲဖြတ်တိုင်းတာရရှိပါသည်။ ပတ်ဝန်းကျင်အပေါ်ထိခိုက်သက်ရောက်မှုများအား အကဲဖြတ်ရရှိမှုများကို အောက်ပါဇယားတွင် ဖော်ပြထားပါသည်။

ရမှတ်	ထိခိုက်နိုင်သည့် အတိုင်းအတာ	အချိန်ကာလ	ပမာဏ	ဖြစ်နိုင်စွမ်း
၁	တိုက်ရိုက်ထိခိုက်မည့်ဇုံ (လုပ်ငန်းခွင်အတွင်း သို့မဟုတ် လုပ်ငန်းခွင် အနီး 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 လုပ်ငန်း တည်ဆောက်ပြီးကာလ နောက်ပိုင်း (သို့မဟုတ်) လုပ်ငန်းလည်ပတ်ဆဲ ကာလပြီးနောက် နှစ် တော်တော် များများ ဆက်လက်ထိခိုက်နေခြင်း	မြင့် - သဘာဝပတ်ဝန်းကျင်ဆိုင် ရာ လုပ်ဆောင်ချက် ပြောင်းလဲမှုများကြောင့် လူမှုစီးပွားရေး အခြေအနေ ပြင်းထန်စွာ 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	စိစစ်သည့် 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	ကုန်းနေသတ္တဝါ ပြောင်းလဲမှု	နိမ့်

၉	ရောဂါကူးစက်နိုင်မှု အခြေအနေ	အလယ်အလတ်
၁၀	မြေမျက်နှာပြင် ပြောင်းလဲမှု	နိမ့်
၁၁	အမွေအနှစ်နေရာ ပြောင်းလဲမှု	နိမ့်
လူမှုစီးပွားရေးနှင့် လူမှုရေးဆိုင်ရာ ထိခိုက်မှုများ		
၁	ကိုယ်ပိုင်ပစ္စည်းများ ပျက်စီးဆုံးရှုံးခြင်းအရပြောင်းလဲမှု	နိမ့်
၂	ယဉ်ကျေးမှုအမွေအနှစ်များ ပြောင်းလဲမှု	နိမ့်
၃	လူအများ ပြောင်းရွှေ့နေထိုင်မှု	နိမ့်
၄	ယာဉ်သွားယာဉ်လာ/ ယာဉ်ကြော ပိတ်ဆို့မှု	နိမ့်
၅	ဒေသအတွင်း အသက်မွေးဝမ်း ကျောင်းအခွင့်အလမ်းများ၊ ဝင်ငွေနှင့် လုပ်အားခများပြောင်းလဲခြင်း	အလယ်အလတ်
၆	ဒေသအတွင်း ကုန်သွယ်စီးပွား ဝင်ငွေ /အခွင့်အလမ်းများ ပြောင်းလဲခြင်း	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၊ စွမ်းအင်ခွဲတမ်းခြင်းနှင့် ကောင်းမွန်စွာ စွန့်ပစ်ခြင်း။
- စက်ရုံအလုပ်သမားများအတွက် သန့်ရှင်းသော သောက်သုံးရေရရှိနိုင်ရေးအတွက် တစ်နှစ် နှစ်ကြိမ် ရေအရည်အသွေးစစ်ဆေးခြင်းများ ပြုလုပ်ရန်။
- အလုပ်သမားများ၏ ကျန်းမာရေးနှင့်လုံခြုံရေးအတွက် နာခေါင်းစည်းများနှင့် အခြားလိုအပ်သည့် ကာကွယ်ရေးပစ္စည်းများ လုံလောက်အောင် ထောက်ပံ့ပေးရန်။

စီမံကိန်းနှင့်ပတ်သက်သည့် ပုဂ္ဂိုလ်များနှင့်တွေ့ဆုံမေးမြန်းမှု အကျဉ်းချုပ်

စီမံကိန်းနှင့်ပတ်သက်သည့် ပုဂ္ဂိုလ်များနှင့် တွေ့ဆုံမေးမြန်းမှုကို ၂၀၂၂ခုနှစ်၊ မေလ (၁၁)ရက်နေ့တွင် ပြုလုပ်ခဲ့ပြီး၊ အဆိုပြုစီမံကိန်းဖြစ်သည့်စက်ရုံရှိ ပုဂ္ဂိုလ်အသီးသီးနှင့် တွေ့ဆုံမေးမြန်းမှုအကျဉ်းချုပ်ကို အောက်ပါအတိုင်း ကောက်နှုတ်ဖော်ပြထားပါသည်။

Baisheng (Myanmar) Industry Co.,Ltd။ ။ ကုမ္ပဏီသည် အထူးသဖြင့် အားကစားနှင့် ဘွတ်ဖိနပ်အမျိုးမျိုးကို တရုတ်မှအပ်နှံသည့် ဒီဇိုင်းများအတိုင်း ဖြတ်/ညှပ်/ထုပ်ပိုးသည့်စနစ်ဖြင့် ချုပ်လုပ်သည့် ဖိနပ်ချုပ်စက်ရုံဖြစ်ပါသည်။

အလုပ်ချိန်။ ။ အလုပ်လုပ်ချိန်သည် မနက် (၇း၃၀)မှ ညနေ (၄း၃၀)ထိ သတ်မှတ်ထားပြီး၊ နေ့လည်အလုပ်နားချိန်အတွက် နှစ်ဆိုင်းခွဲ (၁၁း၄၅ - ၁၂း၄၅ နှင့် ၁၂း၀၀ - ၁း၀၀) သတ်မှတ်ပေးထားပါသည်။

ဝန်ထမ်း။ ။ လက်ရှိအချိန်တွင် အလုပ်သမား၊ ရုံးဝန်ထမ်း၊ ထမင်းချက်နှင့် သန့်ရှင်းရေးအပါအဝင် လူဦးရေ (၈၀၀)ဦးဖြင့် လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။

ထုတ်လုပ်မှု။ ။ ဖိနပ်ချုပ်လုပ်ငန်းသည် အော်ဒါမှာယူသည့် ဒီဇိုင်းအတိုင်း ဖြတ်တောက်ခြင်း၊ ကော်ကပ်ခြင်း၊ ချုပ်လုပ်သည့် လုပ်ငန်းဖြစ်ပါသည်။

စက်ရုံအဆောက်အအုံနှင့် အဆောင်။ ။ဖိနပ်ထုတ်လုပ်မှုလုပ်ငန်းစဉ်များအားလုံးကို စက်ရုံအဆောက်အအုံနှစ်လုံးတွင် ဆောင်ရွက်လျက်ရှိကြပါသည်။ အဆိုပါ နှစ်ထပ်အဆောက်အအုံသည် ပထမထပ်တွင် တရုတ်နည်းပညာရှင် အမျိုးသား(၈)ဦးနှင့် အမျိုးသမီး(၂)ဦးအတွက် အဆောင်တစ်ခုဖြင့် ဖွဲ့စည်းထားပြီး၊ မြေညီထပ်သည် စက်ရုံရုံးခန်းနှင့် ဧည့်ဆောင်ဖြစ်ပါသည်။

သိုလှောင်ခန်း။ ။ အထည်လိပ်များနှင့် အခြားဆက်စပ်ပစ္စည်းများကို ဤအခန်းတွင် သိမ်းဆည်းထားပါသည်။ ဓာတုပစ္စည်းများ သိုလှောင်ရန်အတွက် သီးခြားသိုလှောင်ခန်းဖွဲ့ထားပြီး၊ ဓာတုသိုလှောင်ခန်းနှင့်ကပ်လျက် အခန်းတွင် ကော်ရောစပ်ခြင်းနှင့် ပြင်ဆင်ခြင်းအတွက် သီးခြားအခန်းတစ်ခုရှိပါသည်။

ဝန်ထမ်းများ အကျိုးခံစားမှု။ ။ ဝန်ထမ်းများနှင့် စက်ရုံအလုပ်သမားများအတွက် စားဖိုဆောင်ထားရှိပေးထားပါသည်။ အလုပ်သမားများအား စက်ရုံအလုပ်ချိန်အတွင်း အချိန်နှင့်တပြေးညီ ကြိုပို့ပြုလုပ်ပေးသည့် ကြိုပို့ယာဉ်စီစဉ်ထားပါသည်။ စက်ရုံအတွင်းတွင် အိမ်သာအလုံး(၂၀)ရှိပြီး၊ အမျိုးသားအိမ်သာ(၅)လုံးနှင့် အမျိုးသမီးအိမ်သာ(၁၅)ဟူ၍ ခွဲခြားသတ်မှတ်ထားပါသည်။ လေဝင်လေထွက်ကောင်းမွန်စေရန် စက်ရုံခေါင်မိုးမျက်နှာကျက်တွင် အိတ်ဇောပန်ကာအကြီးများ တပ်ဆင်ထားပါသည်။

ကျန်းမာရေးစောင့်ရှောက်မှု။ ။ ဝန်ထမ်းများ၏ ကျန်းမာရေးစောင့်ရှောက်ရန်နှင့် လုပ်ငန်းခွင်အတွင်း ကျန်းမာရေးပြဿနာများ မရှိစေရန်အတွက် သူနာပြုဆရာမတစ်ဦးခန့်အပ်ထားပါသည်။ စက်ရုံလူနာများသည် အသေးစားထိခိုက်မှု သို့မဟုတ် အစာမကြေဖြစ်ခြင်းစသည့်တို့ကြောင့် ဆေးပေးခန်းသို့ လာရောက်ကြခြင်းဖြစ်ပြီး၊ အခြားဝန်ထမ်းနှင့် အလုပ်သမားများသည် ယေဘုယျအားဖြင့် ကျန်းမာရေးကောင်းမွန်ကြောင်း တွေ့ရပါသည်။

အမှိုက်စီမံခန့်ခွဲမှု။ ။ စက်ရုံမှ ဖိနပ်ထုတ်လုပ်သည့်လုပ်ငန်းစဉ်သည် ခြောက်သွေ့သောလုပ်ငန်းစဉ်ဖြစ်သောကြောင့် စက်ရုံမှထွက်သောအမှိုက်များသည် အစိုင်အခဲအမှိုက်များသာ ဖြစ်ပါသည်။ စွန့်ပစ်အမှိုက်များကို ရပ်ကွက်စည်ပင်သာယာရေးအဖွဲ့မှ တစ်လ ငါးကြိမ် အမှိုက်သိမ်းယူပြီး ထိန်ပင်အမှိုက်ပုံနေရာသို့ စွန့်ပစ်ပါသည်။ ထို့ပြင်၊ စက်ရုံအတွင်း စီးဆင်းသည့်မိုးရေများကို ပင်မမြောင်းထံသို့ စီးဆင်းစေခြင်းနှင့် နောက်ဆုံးတွင် စက်ရုံနှင့် အနီးဆုံးရှိသည့်မြစ်ချောင်းများသို့ စီးဆင်းစေရန်အတွက် စက်ရုံဝန်းအတွင်း ရေနုတ်မြောင်းများ တူးဖော်ထားပါသည်။

ရေပေးဝေမှု။ ။ စက်ရုံဝင်းအတွင်းတွင် ရေတွင်းတစ်တွင်းရှိပြီး၊ အဆိုပါတွင်းရေသည် ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့၏ သောက်သုံးရေအရည်အသွေးစံနှုန်းနှင့် ကိုက်ညီမှုမရှိသောကြောင့် ရေသန့်စင်စက် (R.O Water Treatment Plant) ဖြင့် သန့်စင်မှုပြုလုပ်ထားပါသည်။ ထို့နောက် ရေ၏ရုပ်ပိုင်းဆိုင်ရာနှင့် ဓာတုဗေဒဆိုင်ရာ ခွဲခြမ်းစိတ်ဖြာမှုပြုလုပ်ပြီးနောက် သောက်သုံးရန်သင့်တော်ကြောင်းတွေ့ရှိရပြီး၊ ရေသန့်စင်စက် ပြုပြင်ထိန်းသိမ်းခြင်းလုပ်ငန်းများ ဆောင်ရွက်နေချိန်တွင်မှ အလုပ်သမားများအတွက် သောက်သုံးရေကို ဝယ်ယူထားရှိပေးပါသည်။

လျှပ်စစ်မီးရရှိမှု။ ။ စက်ရုံအတွက် လိုအပ်သည့်လျှပ်စစ်ဓာတ်အားကို ၃.၅ kVA အားရှိသည့် ထရန်ဖော်မာ(၂)လုံးတပ်ဆင်ပြီး မဟာဓာတ်အားလိုင်းမှ သွယ်ယူထားခြင်းဖြစ်ပါသည်။ ထို့ပြင်၊အရေးပေါ်လျှပ်စစ်ပေးဝေရန်အတွက် အရန်မီးစက်(၃)လုံးကိုလည်း တပ်ဆင်ထားပါသည်။

မီးဘေးအန္တရာယ်ကာကွယ်မှု။ ။ အရေးပေါ်မီးငြိမ်းသတ်ရန် ရည်ရွယ်ချက်အတွက် ရေ(၃၂၀၀)ဂါလံဆံ့ရေသိုလှောင်တိုင်ကီရှိပြီး၊ စက်ရုံအတွင်းတွင် ရေပိုက်များနှင့် ပန့်များကို မီးသတ်ကိရိယာအမျိုးမျိုးဖြင့် စက်ရုံဝင်းအတွင်း ချိတ်ဆက်ထားပါသည်။

အများပြည်သူတွေ့ဆုံဆွေးနွေးခြင်း အကျဉ်းချုပ်

အများပြည်သူ တွေ့ဆုံဆွေးနွေးခြင်းအစည်းအဝေးကို ဇူလိုင်လ (၈)ရက်နေ့တွင် စီမံကိန်းတည်ရှိရာ ဘိုင်ရှိန့် ဖိနပ်စက်ရုံတွင် ကျင်းပခဲ့ပါသည်။ (စက်ရုံဝန်ထမ်း ၁၃ ဦး၊ ဒေသဆိုင်ရာ အာဏာပိုင် ၁ ဦး၊ တတိယအဖွဲ့အစည်းမှ ၄ ဦး တက်ရောက်ခဲ့ပါသည်)

စက်ရုံဖက်မှ တာဝန်ရှိသူမှ အဆိုပြုထားသည့် စီမံကိန်းအကြောင်းကို ရှင်းပြပါသည်။ အဆိုပြုစီမံကိန်းသည်

၂၀၂၀ခုနှစ်၊ ဇူလိုင်လ (၅)ရက်နေ့တွင် စတင်တည်ထောင်ခဲ့ပြီး၊ ဆယ်နှစ်စီမံကိန်းဖြစ်ပါသည်။ ဝန်ထမ်းများမှာ ထန်းတပင်နှင့် လိုင်သာယာမြို့နယ်များမှ ဖြစ်ကြပြီး စက်ရုံဝန်ထမ်းများအတွက် ဖယ်ရီဝန်ဆောင်မှုများ စီစဉ်ပေးထားပါသည်။ စက်ရုံအလုပ်ချိန်သည် မနက် (၇း၃၀)မှ ညနေ (၄း၃၀)ထိဖြစ်ပြီး အချိန်ပိုနှင့် ခွင့်များကို သက်ဆိုင်ရာနိုင်ငံတော်၏ ဥပဒေနှင့် နည်းဥပဒေများနှင့်အညီ ဆောင်ရွက်ထားပါသည်။ လက်ရှိတွင် အမျိုးသား (၇၀)ဦးနှင့် အမျိုးသမီး (၈၉၅)ဦးဖြင့် လည်ပတ်လျက်ရှိပါသည်။

NEPS အဖွဲ့မှ စီမံကိန်းအတွက် ပြင်ဆင်ထားသည့် IEE အစီရင်ခံစာ တွေ့ရှိချက်များကို ရှင်းပြခဲ့ပါသည်။ ဒေသဆိုင်ရာ အာဏာပိုင်ကိုယ်စားလှယ်မှ ဤစီမံကိန်းကို ဤဒေသတွင် အကောင်အထည်ဖော်ခွင့်ရခြင်းကို ဂုဏ်ယူကြောင်းနှင့် စက်ရုံဝန်ထမ်းများအား ဖယ်ရီဝန်ဆောင်မှုများနှင့် ကောင်းမွန်စွာ ဆက်ဆံပြီး လုပ်ငန်းခွင်သည် လေဝင်လေထွက်ကောင်းသည်ဟု ချီးကျူးပြောကြားခဲ့ပါသည်။ ဝန်ထမ်းများသည်လည်း ၎င်းတို့အလုပ်ကို နှစ်သက်ပြီး ဤစီမံကိန်း အကောင်အထည်ဖော်ဆောင်ရွက်ခြင်းကို ကန့်ကွက်ခြင်းမရှိကြောင်း ဆွေးနွေးပြောကြားပါသည်။

သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်

သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ် ပြီးမြောက်စေရန်အတွက် အဆိုပြုစီမံကိန်းတင် သွင်းသူနှင့် ဆောက်လုပ်ရေးပိုင်းဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မည့်သူများမှ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်ဖြစ်မြောက်ရေးအဖွဲ့အား ဖွဲ့စည်းရမည် ဖြစ်ပါသည်။

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

လေ့လာတွေ့ရှိရသော ပတ်ဝန်းကျင်ထိခိုက်မှုများအတွက် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်များမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

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

အထက်တွင်ဖော်ပြထားသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်ခွဲများကို 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 တာဝန်ရှိသည့်ပုဂ္ဂိုလ်များအဖွဲ့

စီမံကိန်း၏ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီအစဉ်ပြီးမြောက်နိုင်ရေးအတွက် နှစ်စဉ်ခန့်မှန်းကုန်ကျစရိတ်မှာ မြန်မာငွေကျပ် (၂၂) သန်းဖြစ်ပါသည်။ သို့သော်၊ စီမံကိန်းကုန်ကျစရိတ်သည် လက်ရှိခန့်မှန်းပမာဏထက် ကျော်လွန်ခဲ့ပါက အဆိုပြုတင်သွင်းသူဖက်မှ လိုအပ်သလို ကုန်ကျခံမည်ဖြစ်ပါသည်။

နိဂုံးချုပ်နှင့် အကြံပြုချက်

လူမှုရှုဖွေတွေ့ရှိချက်။ ။ အဆိုပြုစီမံကိန်းမြေနေရာတွင် လူများအခြေချနေထိုင်မှုမရှိသည့်အပြင် စီမံကိန်းအကောင်အထည်ဖော်ရန်အတွက် မြေဌားရမ်းမှုဆိုင်ရာပြဿနာအားလုံးကို ဖြေရှင်းပြီးဖြစ်သောကြောင့် စီမံကိန်းဇရိယာအတွင်း ပြန်လည်နေရာချထားရေးပြဿနာမရှိကြောင်း တွေ့ရှိရပါသည်။ အဆိုပြုစီမံကိန်းနေရာကို ၂၀၂၂ခုနှစ်၊ မတ်လတွင် တတိယအဖွဲ့အစည်းမှ ကွင်းဆင်းလေ့လာမှုပြုလုပ်ခဲ့ပြီး၊ အစည်းအဝေးမှတ်တမ်း အကျဉ်းချုပ်ကို အခန်း (၉.၃)တွင် ရေးသားဖော်ပြထားပါသည်။ အဆိုပြုစီမံကိန်းကို ပြည်သူများမှ ကန့်ကွက်ခြင်းမရှိကြောင်း တွေ့ရှိရပြီး ဒေသခံများသည် သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာထိခိုက်မှုများကို လျော့ချရန်နှင့် အလုပ်အကိုင်အခွင့်အလမ်းများရရှိရန်အတွက် စီမံကိန်းကို ကောင်းမွန်စွာ လည်ပတ်ဆောင်ရွက်နိုင်ရန် မျှော်လင့်နေကြောင်း တွေ့ရှိရပါသည်။

အဆိုပြုစီမံကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သော ဆိုးကျိုးများနှင့် အန္တရာယ်များမှ ကာကွယ်ရန်အတွက် သက်ဆိုင်ရာအစိုးရဌာနများနှင့် နိုင်ငံတကာစံပြုနည်းလမ်းများနှင့် လုပ်ထုံးလုပ်နည်းများအတိုင်း ဆောင်ရွက်သွားရန် အကြံပြုအပ်ပါသည်။ စီမံကိန်းအဆိုပြုတင်သွင်းသူမှ မြန်မာနိုင်ငံတွင် ဖိနပ်ထုတ်လုပ်သည့် နည်းပညာကို ပံ့ပိုးပေးကာ လုပ်ငန်းလည်ပတ်နိုင်အောင် ဒေသခံလူငယ်များအား လေ့ကျင့်သင်ကြားပေးရန် စီစဉ်နေသောကြောင့် ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင်အခွင့်အလမ်းများနှင့် စွမ်းဆောင်ရည် မြှင့်တင်ပေးနိုင်မည်ဖြစ်ပါသည်။

သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ တွေ့ရှိချက်များ။ ။ စီမံကိန်းနေရာသည် လွန်ခဲ့သည့်နှစ်များစွာအတွင်း လူသားများ၏ လုပ်ဆောင်မှုများဖြင့် မြို့ပြဖြစ်နေပြီးသားဖြစ်ပါသည်။ ၂၀၂၂ခုနှစ်၊ မေလအတွင်း ကနဦးကွင်းဆင်းလေ့လာမှုအရ စီမံကိန်းပတ်လည်တွင် သစ်ပင်အနည်းငယ်ကိုသာ တွေ့ရှိရပါသည်။ ထို့ကြောင့် စီမံကိန်းဇရိယာ၏ အနီးပတ်ဝန်းကျင်တွင် ထိခိုက်ပျက်စီးလွယ်သော (သို့မဟုတ်) ထိန်းသိမ်းစောင့်ရှောက်ရမည့်ဂေဟစနစ်မရှိကြောင်း တွေ့ရှိရပါသည်။

ပြင်ပလေထုအရည်အသွေးတိုင်းတာမှုများသည် အမှုန်အမွှားများဖြစ်သည့် $PM_{2.5}$ နှင့် ဆာလဖာဒိုင်အောက်ဆိုဒ်တန်ဖိုးသည် အမျိုးသားပတ်ဝန်းကျင်အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်၏ သတ်မှတ်တန်ဖိုးထက် အနည်းငယ် ကျော်လွန်နေကြောင်း တွေ့ရှိရသည်။ ထို့ကြောင့် ဤအစီရင်ခံစာ၏ အပိုင်း(၇.၄)တွင် ဖော်ပြထားသည့် လျော့ပါးသက်သာစေရေးအစီအမံများနှင့် ယာဉ်များ၊ အင်ဂျင်အိတ်ဇောများ အပြည့်အဝ လည်ပတ်နေစေရန်နှင့် လူသွားလမ်းများကို ရံဖန်ရံခါ ရေဖြန်းခြင်းများပြုလုပ်ပေးရန်အတွက် စောင့်ကြပ်စစ်ဆေးခြင်းများ ပြုလုပ်ပေးရန် လိုအပ်ပါသည်။

စက်ရုံအတွင်းလေထုအရည်အသွေးတိုင်းတာမှုများတွင် အဆိပ်ဓာတ်ငွေ့များ (ဥပမာ TVOC) နှင့် အမှုန်အမွှားများ ($PM_{1.0,}$ $PM_{2.5}$ နှင့် PM_{10}) များ ပါဝင်နေကြောင်း တွေ့ရှိရသည်။ သို့သော်၊ အမေရိကန် EPA ၏ လေထုအရည်အသွေးညွှန်းကိန်းအရ စမ်းသပ်တိုင်းတာမှုပြုလုပ်ထားသည့် ပါရာမီတာများသည် သတ်မှတ်လမ်းညွှန်ချက်တန်ဖိုးများအတွင်း ရှိကြောင်း တွေ့ရှိရပါသည်။

အလင်းအရည်အသွေးတိုင်းတာမှုတွင် အရည်အသွေးစစ်ဆေးသည့်နေရာနှင့် ဖြတ်တောက်ခြင်းပြုလုပ်သည့် နေရာများတွင် စံသတ်မှတ်တန်ဖိုးအောက် နိမ့်သော်လည်း အခြားတိုင်းတာသည့်နေရာများသည် လမ်းညွှန်ချက်အတွင်း ရှိနေကြောင်း တွေ့ရှိရသည်။ ထို့ကြောင့်၊ အဆောက်အဦ၏ သက်ဆိုင်ရာနေရာများတွင် အလင်းရောင်ရရှိမှုကို လိုအပ်သလို မြှင့်တင်ရန် လိုအပ်ပါသည်။

စီမံကိန်းအဆိုပြုတင်သွင်းသူသည် သဘာဝပတ်ဝန်းကျင်ကို ထိန်းသိမ်းရန်လိုလားပါသည်။ ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့်ပတ်သက်၍ တင်သွင်းသူဖက်မှ အတည်ပြုချက်မှာ - စီမံကိန်းဇရိယာအတွင်းနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအတွက် တာဝန်ယူဆောင်ရွက်ပေးမည်ဖြစ်ပြီး၊ လေထု၊ ရေထုနှင့် မြေထုညစ်ညမ်းမှုကို ကာကွယ်ရန်နှင့် ပတ်ဝန်းကျင်ပျက်စီးယိုယွင်းမှု မဖြစ်အောင် ကာကွယ်မည်ဖြစ်ပါသည်။ ကျွန်တော်တို့ကမ္ဘာ့ကီသည် ဤအစီရင်ခံစာ၏ အခန်း(၈)တွင် ဖော်ပြထားသည့်အတိုင်း သစ်ပင်ပြန်လည်စိုက်ပျိုးခြင်း အစီအစဉ်ကို ထည့်သွင်းခြင်းဖြင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကို ဖြည့်ဆည်းရန်နှင့် စီမံကိန်း ပတ်ဝန်းကျင်ကို သဟဇာတဖြစ်စေရန်အတွက် လိုအပ်သောအစီအမံများကို ဆောင်ရွက်လျက်ရှိပါသည်။ စီမံကိန်းဇရိယာနှင့် ချဉ်းကပ်လမ်းများကို သင့်လျော်သော အရိပ်ရလျှောက်လမ်းများနှင့် သစ်ပင်ပန်းမန်များနှင့် အမြစ်မိမ်းလန်းသော အပင်များကိုလည်း စိုက်ပျိုးသွားမည်ဖြစ်ပါသည်။

နိဂုံးချုပ်နှင့်အကြံပြုချက်

လေ့လာတွေ့ရှိထားသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ ထိခိုက်မှုများအားလုံးကို အမျိုးသားပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂)၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၄)၊ ပတ်ဝန်းကျင်ဆိုင်ရာထိခိုက်မှုများ လေ့လာဆန်းစစ်ခြင်း လုပ်ထုံးလုပ်နည်းအသိပေးချက်(၂၀၁၅)၊ ပတ်ဝန်းကျင်အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ (၂၀၁၅)စသည်တို့ကို ပေါင်းစပ်လိုက်နာခြင်းဖြင့် လျော့ပါးသက်သာစေခြင်းနှင့် တာဝန်ရှိသူများမှ ပြည်တွင်းနှင့် နိုင်ငံတကာဒီဇိုင်းကုဒ်များနှင့် ထိရောက်သော ကျန်းမာရေးနှင့် ပတ်ဝန်းကျင်မူဝါဒကို လိုက်နာရမည်ဖြစ်ပါသည်။

ဤအစီရင်ခံစာ၏ အပိုင်း(၇.၂)တွင် ဖော်ပြထားသည့် "လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် လျော့ပါးသက်သာစေရေးအစီအမံများ" နှင့် အပိုင်း(၇.၃)တွင် ဖော်ပြထားသည့် "လုပ်ငန်းခွင် ကျန်းမာရေးနှင့် အန္တရာယ်စီမံခန့်ခွဲမှု"တွင် စီမံကိန်း၏ လုပ်ငန်းလည်ပတ်မှုနှင့် ရေရှည်တည်တံ့ခိုင်မြဲသော ဖွံ့ဖြိုးတိုးတက်မှုအတွက် စောင့်ကြည့်ရေးလှုပ်ရှားမှုများနှင့် ဝန်ထမ်းများနှင့်ပတ်ဝန်းကျင်အတွက် ဘေးကင်း လုံခြုံမှုကို အာမခံချက်ပေးရန် အကြံပြုထားပါသည်။

ပုံမှန်စစ်ဆေးခြင်းနှင့် စာရင်းစစ်ခြင်းသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို ထိရောက်မှုဖြစ်စေရန် အထောက်အပံ့ပေးမည်ဖြစ်ပါသည်။ စက်ရုံလုပ်ငန်းလည်ပတ်မှုများသည် နိုင်ငံတကာစက်မှုလုပ်ငန်း စံနှုန်းများနှင့်အညီ စနစ်တကျဒီဇိုင်းဆွဲပြီး လည်ပတ်ဆောင်ရွက်နေသည့်အတွက် စီမံကိန်း၏ ပတ်ဝန်းကျင်ထိခိုက်မှုအဆင့် အကဲဖြတ်လေ့လာမှုသည် အဆင့်နိမ့်သည်ဟု သတ်မှတ်ထားပါသည်။ မီးဘေးအန္တရာယ်၊ ပြင်းထန်သော ရာသီဥတုအခြေအနေ (သို့မဟုတ်) စီမံကိန်းကို ထိခိုက်နိုင်သော သဘာဝဘေးအန္တရာယ်များ (ဆိုင်ဂလုန်း၊ ရေကြီးမှု၊ မီးလောင်ကျွမ်းမှုစသည့်)ရှိနေသော်လည်း လုပ်ငန်းသုံးကိရိယာများအတွက် အသံအင်ဂျင်နီယာ၊ ပရော်ဖက်ရှင်နယ် ဆောက်လုပ်ရေးနည်းပညာများ၊ ဆောက်လုပ်ရေးအဆင့်နှင့် လုပ်ငန်းလည်ပတ်သည့်အဆင့်များတွင် ကြီးကြပ်ကွပ်ကဲမှုနှင့် စောင့်ကြည့်ခြင်းများကြောင့် အန္တရာယ်ကို လျော့ပါးသက်သာစေသည်ဟု ယူဆထားပြီးဖြစ်ပါသည်။ ထိရောက်သော လုပ်ငန်းစဉ်ဘေးကင်းရေးစီမံခန့်ခွဲမှုသည် မတော်တဆမှုများကို လျော့ချပြီး လူ့ကျန်းမာရေး၊ ပတ်ဝန်းကျင်နှင့် ပိုင်ဆိုင်မှုများအပေါ် မတော်တဆထိခိုက်မှုများ၏ ဆိုးကျိုးများကို လျော့ချနိုင်မည်ဖြစ်ပါသည်။

1. INTRODUCTION

1.1 Project Overview

1.1.1 Project Details

Project Detail

Project Site:	Plot No. (12/Kakyi), Myay Taing Quarter No. (363), East Group Village, Htantapin Township, Yangon Region. (Latitudes 16°53'36.52"N and Longitudes 95° 59' 18.72"E)
Project Proponent:	Baisheng (Myanmar) Industry Company Limited
Description of Project:	Footwear Production Factory Project
Project Site Area:	4.60 acres (18615.54 m^2)
Project Investment:	2.85 Million USD (Wholly Foreign Owned)
Land Acquisition:	Lease land and building from U Soe Hlaing for 4.6 acres (18615.54 m^2) at 30 years for 23850 kyat per square meter per annum.
Project Completion:	Completion of Construction Phase is 100% (a) One Storey Steel Structure + One Mezzanine floor (b) Two Storey Steel Structure.[10]
Project Water Supply:	One tube well in the factory and after the water was treated by Reverse Osmosis Water Treatment Plant and used for domestic water consumption.[11] The factory provided drinking water to its staffs while the R.O plant is in maintenance work.
Electrical Power Supply:	National Grid (3.5kVA two Generators + 500kVA generator) and for emergency power supply in the factory compound, three generators were supplied.
Solid Waste Disposal:	Solid Waste generated by production process (from cutting) is collected by local municipality collects our waste five times a month and conveys them to the Htain Pin landfill site. There is storm water drains around the compound to drain rainwater and ultimately discharged into the nearest water body.
Health care:	Provide clinic at the factory for workers in-charged by a certified nurse and for staffs and workers who usually have minor cuts or indigestion.

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

[10] *Figure 4: Infrastructure Detail Baisheng Footwear Factory Project*
[11] *Appendix E of this Report: Environmental Quality Monitory Report: Water Quality Test Result*

1.2 Objective of the study

The initial environmental examination report (IEE) has been conducted by NEPS Co., Ltd. of Myanmar. The study examines the environmental and social context of the proposed site and then identifies potential socio-economic, cultural heritage and ecological impacts based on the activities associated with Footwear Manufacturing Factory Project.

Subsequent to environmental and social impact identification and assessment, a program of recommended mitigation measures is outlined. The mitigation component is further refined with the presentation of a suggested approach to environmental management during the construction and operational phases.

1.3 Methodology and Approach

The consultant has used a variety of approaches to establishment of the environmental and social baseline and the assessment of impacts; i.e.

- Secondary data collection from literature review
- Remote sensing data and maps
- Primary data collection and empirical analysis
- Public consultation through key informant interviews and focal group discussion
- Quantitative and qualitative assessment of impacts through a weighted matrix based tool

1.4 Project Proponent

The project proponent, "Baisheng (Myanmar) Industry Company Limited" has signed a Building and Land Lease Agreement with U Soe Hlaing for 4.6 acres (18615.54 m^2) at 30 years for 23850 kyat per square meter per annum.

Director of Baisheng (Myanmar) Industry Co.,Ltd : Mr. Tu De Xin
Manager (Human Resources) : Daw Zarchi Lin
: Daw Hla Hla Aye

Address : Plot No. (12/Kakyi), Myay Taing Quarter No. (363), East Group Village, Htantapin Township, Yangon Region.

Phone : 095 9 45090 0677, 095 9 4217 19273

1.4.1 Investment Plan and Economic Feasibility

Project investment is 2.85 Million USD (Wholly Foreign Owned)

1.5 Third Party Organization and Environmental and Social Experts

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	035	NEPS	01 8562407	Senior Geologist, Engineering Geology, Geomorphology, Geological formation analysis
U Thapye Moe Oo	035	NEPS	01 8562407	Legal Advisor
Daw Khin Khin Cho	035	NEPS	01 8562407	Senior Engineer Hydrologist, Water Resources Engineer, Climate Change Analysis

Daw Phyu Phyu Aye	035	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

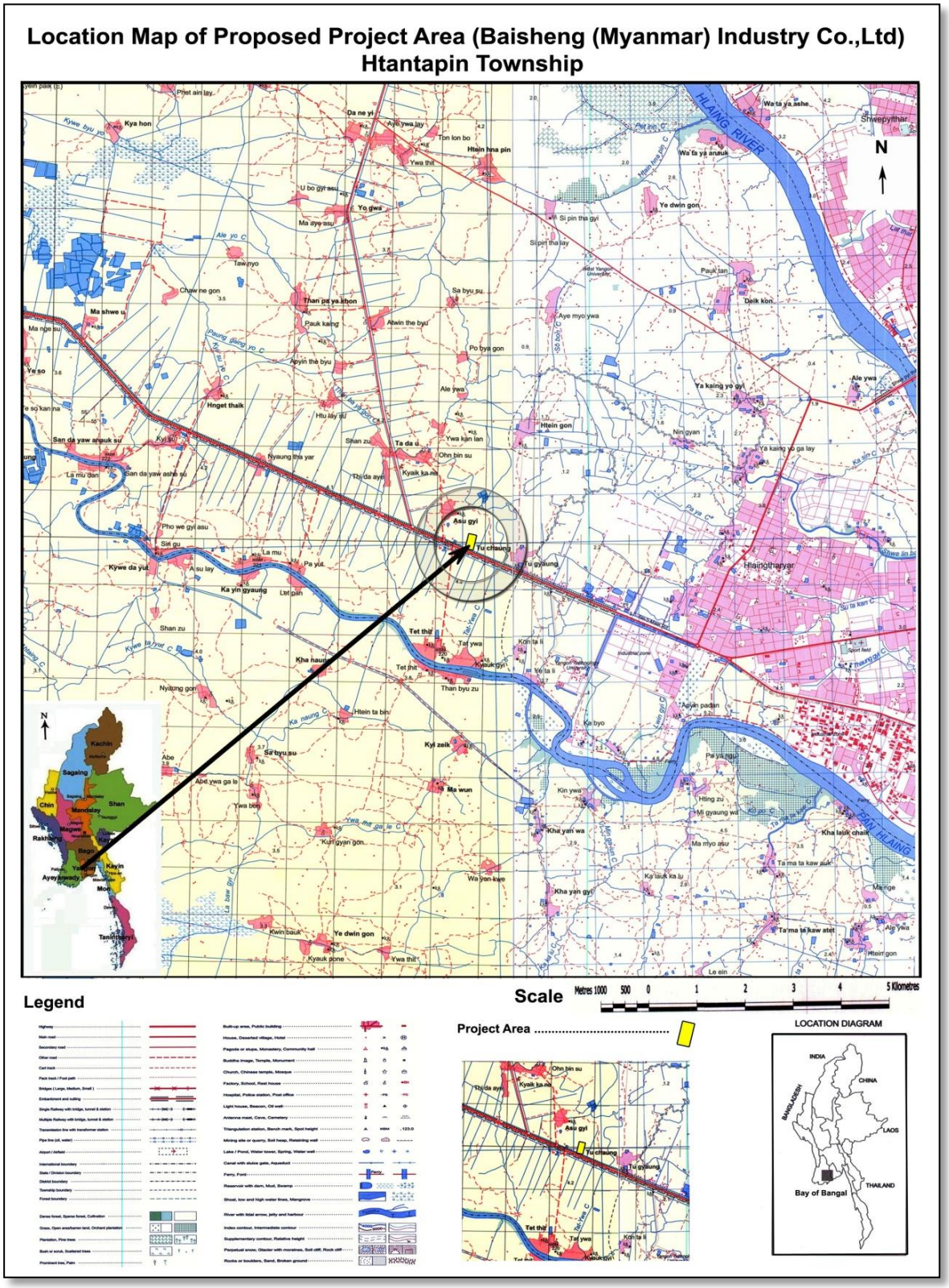


Figure 1: Location Map of the Project Site

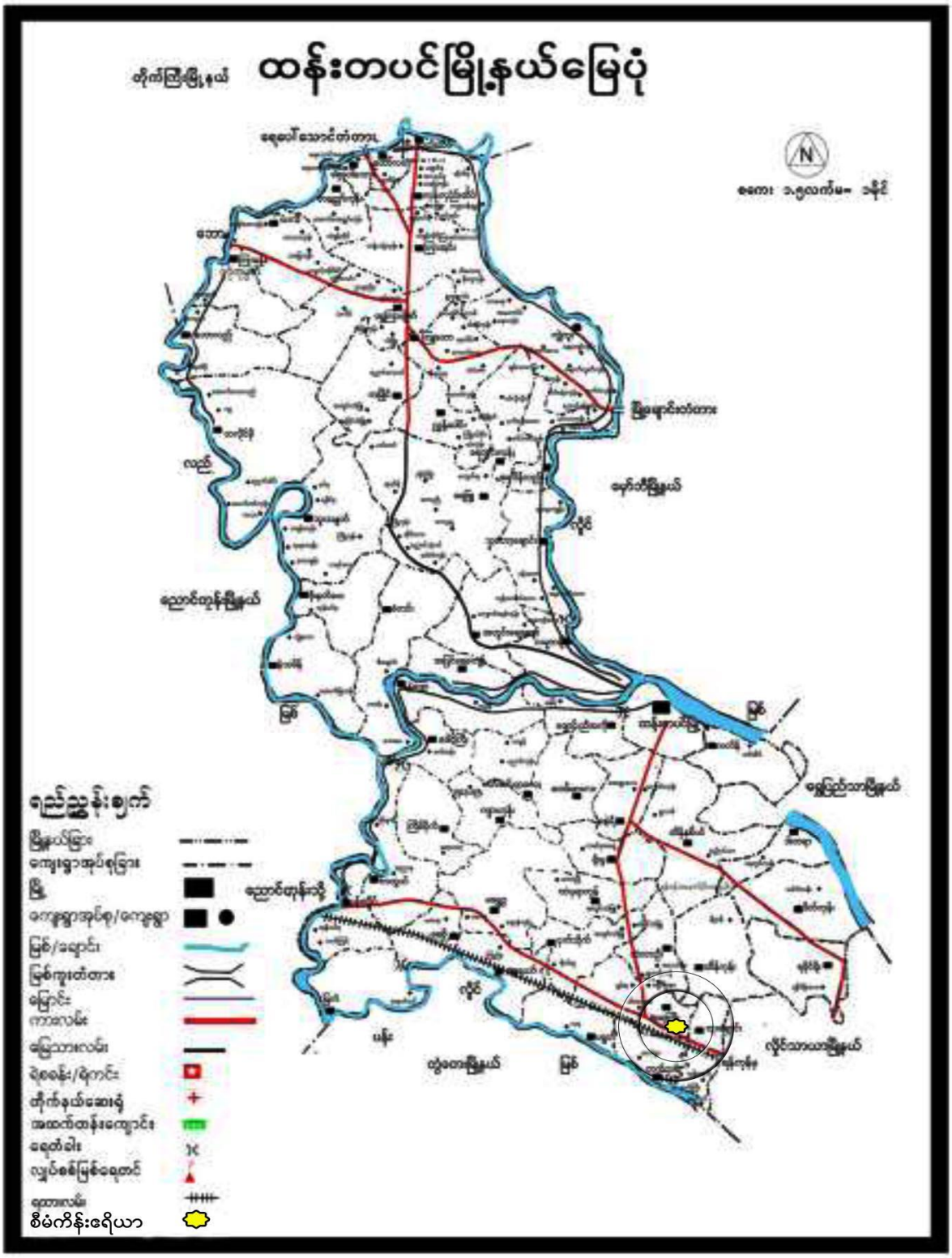


Figure 2: Project Site in Htantapin Township

Figure 3: Satellite Image of Project Site and its Environment

Figure 4: Infrastructures Overview Plan at Project Site

Figure 5: Electrical Power Supply System at Footwear Factory Project

Figure 6: Water Supply and Drainage System

Emergency Place for Labours

Figure 7: Staff Facilities

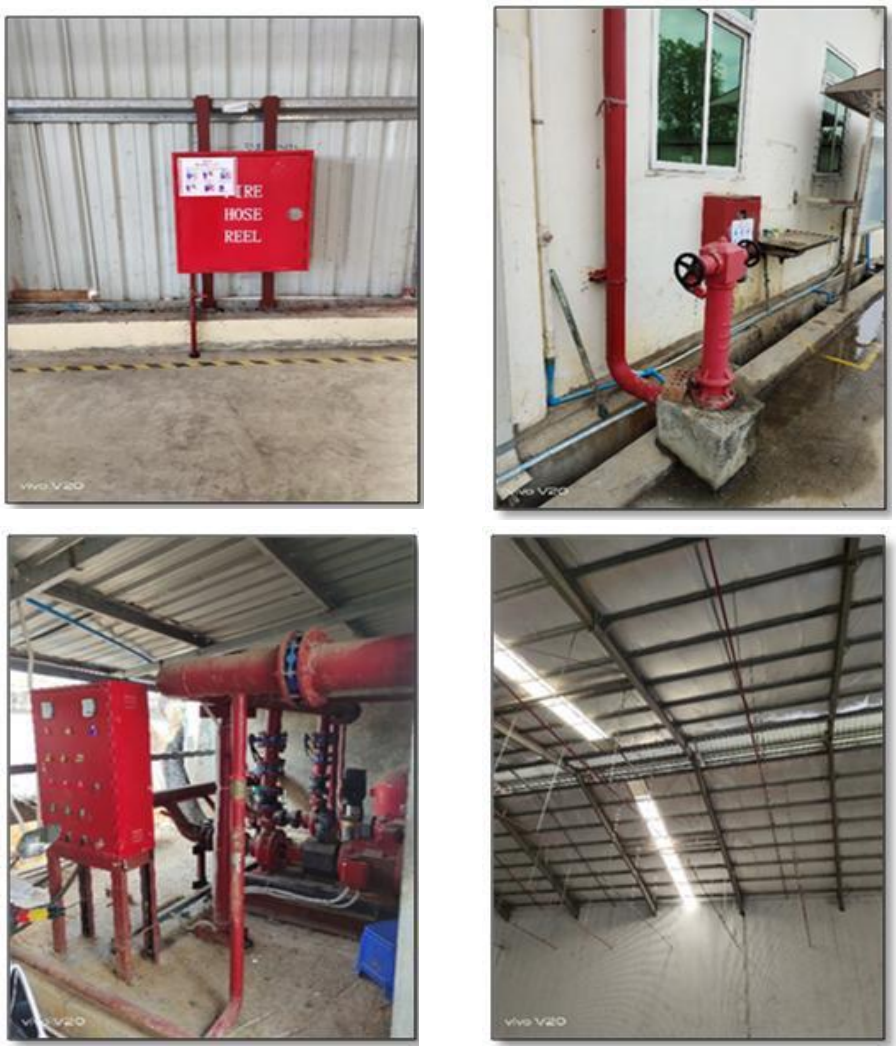


Figure 8: Fire Fighting System Equipment

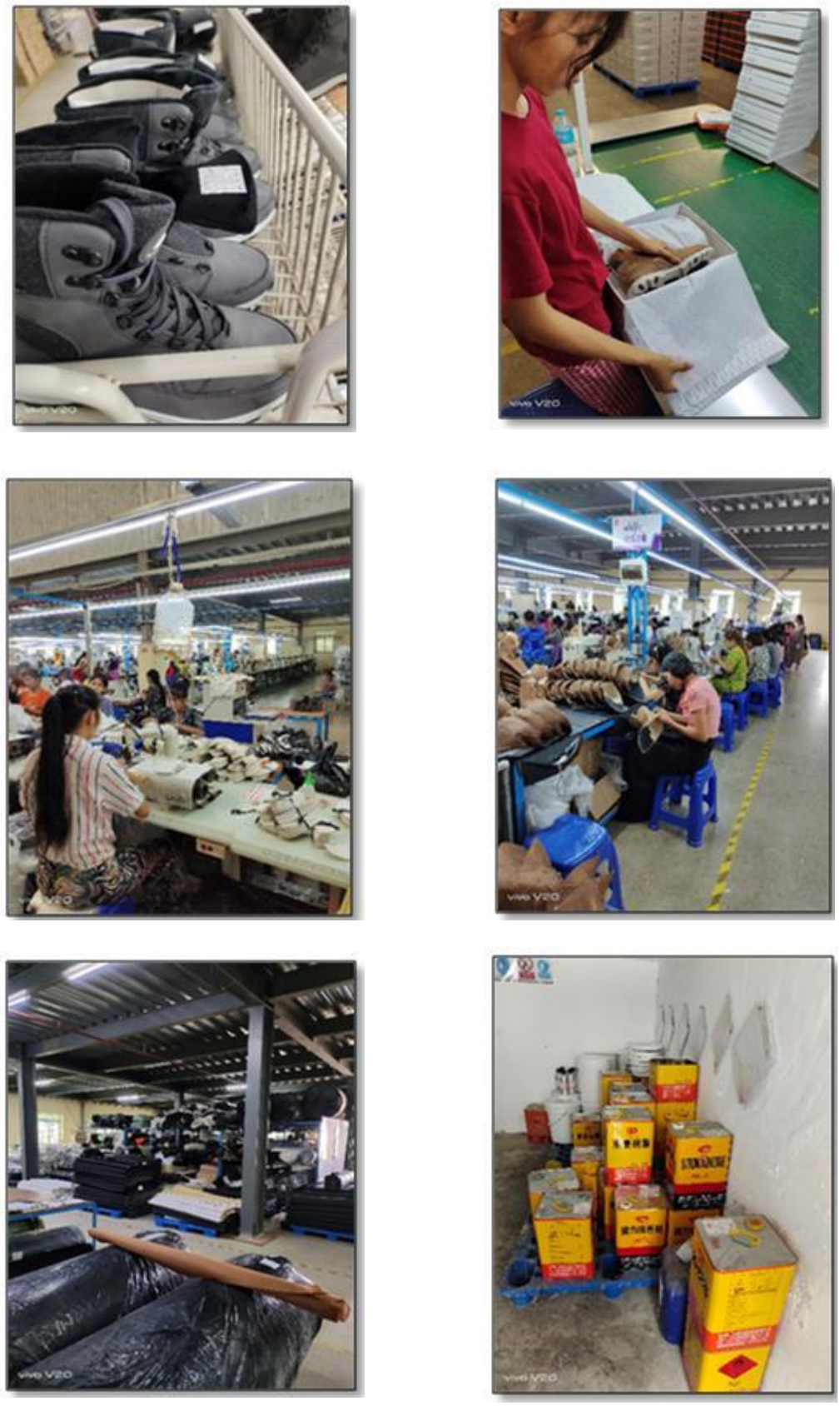


Figure 9: Finished Products, Staff Activities and Warehouse

2. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 Myanmar Regulatory 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 industrial operations (including shoe manufacturing works) are included in the following table:

Table 2: 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).
Ministry of Industry (MOI)	Responsible for managing manufacturing industries according to engineering norms and relevant national code of industrial practice for professional ethic and industrial development in Myanmar.
Ministry of Transport and Communications (MOTC)	Responsible for managing the development of transport and communication and has various departments under this ministry which deals with various types of transport including road, air, water navigation to meet relevant national standards for communication and transport in Myanmar.

2.2 Myanmar and International Legislation relevant to the Project

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)
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

2.2.2 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).

2.2.3 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 3: International Convention of Relevance to the Project

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

2.3 Commitment with Myanmar Legislation Relevant to the Project

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 IEE 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.

2.4 Myanmar Environmental Quality Emission Guidelines

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.

2.5 Project Developer's Standards and Guidelines

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.

2.5.1 Effluent Discharge

Effluent and storm water flows should be managed so as to achieve the following effluent levels.

Table 4: NEQEG on Effluent Discharge Levels

Parameter	Unit	Guideline Value
Biological oxygen demand	mg/l	30
Chemical oxygen demand	mg/l	250
Oil and grease	mg/l	10
pH	S.U.[a]	6-9
Total coli form bacteria	100 ml	400
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50

[a] Standard unit

2.5.2 Air and Noise Emission

The principal 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 and noise emission parameters are described in the Tables below:

Table 5: NEQEG Air Emissions Parameters

Parameter	Averaging Period	Guideline Value µg/m^3
Dichloromethane	24-hour	3,000
Nitrogen dioxide	1-year 1-hour	40 200
Ozone	8-hour daily maximum	100
Particulate matter PM_{10}[a]	1-year 24-hour	20 50
Particulate matter $PM_{2.5}$[b]	1-year 24-hour	10 25
Sulphur dioxide	24-hour 10-minute	20 500

[a] PM_{10} = Particulate matter 10 micrometres or less in diameter

[b] $PM_{2.5}$ = Particulate matter 2.5 micrometres or less in diameter

Table 6: 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

2.5.3 Guidelines and Standards for Project Related Activities

IFC General EHS Guidelines for Ports, Harbours and Terminals (2007) and Myanmar National Environmental Quality Emission Guideline (2015) are main references throughout all phases of the Projects. But regarding for other related activities, the Project Proponent will consider and comply to meet the under mentioned guidelines and standards.

1) Effluent Standards for Work Camps, Sanitary Facilities, Domestic Wastewater, Landfills (Pollution Prevention and abatement handbook. 1998. The World Bank)

2) Drinking water Quality Standards (National drinking water quality standards.2014. Ministry of Health, Myanmar)

3) Ambient water quality standards for the protection of aquatic life (Myanmar National Environmental Quality (Emission) Guidelines, December 2015)

4) Ambient Noise standards Noise Management (General EHS Guideline.2007. International Finance Corporation, Guidelines for Community Noise. 1999. World Health Organization) Social Guidelines.

3. PROJECT DESCRIPTION

3.1 Identification of the Project Proponent

The Project Proponent "Baisheng (Myanmar) Industry Company Limited" was incorporated in accordant with the Myanmar Investment Law and Rules as a wholly foreign owned investment by share.

3.2 Technical Transfer Method

The shareholder and director of the company have experienced in shoes production business for many years ago in China and other countries. The program of shifting out of technology has the following steps.

1. To import the automatic and modernize machines to Myanmar
2. To appoint the Technician and skillful labor
3. To teach the practical and lecture that related with business to Supervisor and leader.
4. Training time will toke 3 month for unskilled worker.

3.3 Supply Chain and Benefits to the other related Businesses

The company will import raw materials from China and produce shoes and export to USA, Europe and Japan, and also will create job opportunities for local people. The company can provide the production technique of shoe to Myanmar people. The company is exporting 100% of its products, foreign currency earning of Myanmar will be increase.

3.4 Operation

Supervisors at each department of the CMP Footwear process monitored the quality of manufacturing at each stage of the process. Process of CMP for footwear production is just cut, glue, and stitch; and produce the output product according to ordered footwear design:

- ***Raw Material Store***: Rolls of fabric and accessories are stored here with temperature-control and fungus prevention;
- ***Chemical Store***: This is a separate room to store glue. Adjacent to this room, there is another room for mixing of glue and preparing work for specific glue composition;
- ***Cutting Department***: According to the shoe design, cutting is made here;
- ***Measuring and Gluing***: measurement according to specific size and then glued.
- ***Sewing:*** Stitching with machines according to design.
- ***Lasting: Molding and Soling***: The stitched parts are put in molds; then glued to the sole
- ***Heating and Disinfection***: Passes through heating tower and sprayed with disinfectant to prevent fungus and purpose of long lasting.
- ***Packing:*** Labeling, stamping and packing in boxes for storage room, ready for export to China.

3.4.1 Machines to be used

To manufacture the varieties of shoes and boots, the electrical materials will be required and the machines that will be mounted in the shoe factory. Therefore, (91) types of machines are imported from China and (170) types of machines and office equipments are purchased in local. The raw materials used and machineries list are attached in the Appendix D.

3.4.2 Material to be used

The raw materials such as leather, fabric, cloth, glue (white/yellow/green) and relevant machinery/ equipment are imported from China and the final products are exported to Europe, USA and Japan. These raw materials are certified to ensure safe transportation to the project site as non-hazardous materials.

3.4.3 Operational Workforce

Currently, the proposed project has 800 workers (labors/ staff). There are 60 males and 740 female workers, including one cook and one cleaner. The working hour starts from 7:30 am to 4:30 pm with one-hour lunch break in two shifts (from 11:45 a.m. - 12:45 noon & 12:00 p.m - 13:00 p.m).

3.4.4 Electricity Requirement

The project gets its electricity from the national grid line and yearly electricity requirement is 200000 kWh per year. The land owner has installed one transformer (500 kVA) and two transformers (315 kVA each). Furthermore, for emergency blackouts, the project has installed three Generators.

3.4.5 Water Resources

Since the project process is a dry process, hardly any water is required except for domestic and sanitary purposes, of which the project site has one tube well. The well water is hard water and does not comply with the WHO Drinking water quality standard. Therefore, Reverse Osmosis Water Treatment Plant is installed, and the treated water is tested for its physical chemical analyses and is found to be chemically potable. For drinking water, the factory provides drinking water to its staff by purchasing drinking water from reliable source while the RO plant is in maintenance work.

3.4.6 Waste and Wastewater Management

Since the factory production process is a dry process, the solid wastes generated from the factory are collected by the local municipality five times a month and conveys them to the Htain Pin landfill site. The storm water drainage is constructed around the compound to drain rain water into the main drain in the community; and ultimately discharges into the nearest water body.

4. DESCRIPTION OF THE ENVIRONMENT

4.1 Location

The Proposed project area is situated beside Yangon – Pathien Highway Road and it is surrounded by the garment factory in west, the betel nut cutting factory in the east and fish farming in the north. The project site is well connected by roads and easy accessed to transport goods and Dagon Ayeyar Highway Bus Terminal is about 4 km from the factory.

4.2 Geographical Setting

4.2.1 Topography

The proposed area is mainly flat with ground elevation ranging around 22 feet above mean sea level and it has abundant of water resources.

4.2.2 Rivers and Creeks

Htantapin Township is a relatively low lying flat area with many rivers and creeks. Hlaing, Pan Hlaing River and Bawlay River are flowing from north to south, and Kokku River from east to west direction. Most of the water sources within the township area are fresh water which is mainly used for irrigation water supply.

4.2.3 Soil Type

According to Ministry of Agriculture and Irrigation, the soil types around the surrounding of the study area were Meadow and Meadow Alluvial Soils and lateric soil and swampy soil. The meadow soils or paddy soils are widely occurring in the different part of Myanmar in river plains, delta and low coastal plains and valley. Meadow soils of the lower Myanmar contain more plant nutrient than that of upper Myanmar. Regardless of the more content of iron, these soils can be utilized for rice and vegetables, and they are most suitable for paddy cultivation.

4.2.4 Biodiversity (Flora and Fauna)

The township is situated between Pan Hlaing river and Hlaing river, its surrounding is environmentally friendly. There is a reserved garden besides Yangon-Pathein Highway Road ownded by the Ministry of Forestry. Since the project area is situated closed to urban and industrial zone, there is no significant flora and fauna around the vicinity area. The native plants of Htantapin Township are bamboo, da-nih and mangrove.

4.3 Climate and Hydrology

The project area is located within Htantapin Township, its southern part, which is lying at Longitudes 96° 59' 17.72" E and Latitides 16° 53' 36.52" N; having subtropical climate; hot and humid weather with recorded maximum temperature of 41°C and recorded minimum temperature of 26°C. It shares borders with Hmawbi and Shwe Pyi Thar Township (Hlaing River) in the east; Hlaing Thar Yar and Twante (Pan Hlaing River) Township in the south;

Nyaungdon Township in the west and Taik Gyi Township in the north.

Therefore, its climate and hydrological data were collected from Department of Hydrology and Meteorology for the Initial Environmental Examination. The data was analyzed based on the available rainfall, temperature, relative humidity, and wind speed in the study area.

4.3.1 Rainfall and Temperature

Table 7: Annual Rainfall in mm at Htantapin (2016-2019)

Sr. No.	Year	Rainy Days	Total Rainfall (inches)
1	2016	116	144.13
2	2017	106	124.09
3	2018	111	139.59
4	2019	80	72.93

Source: Meteorological and Hydrological Department

Table 8: Monthly Rainfall in millimeter at Htantapin (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

Source: Meteorological and Hydrological Department

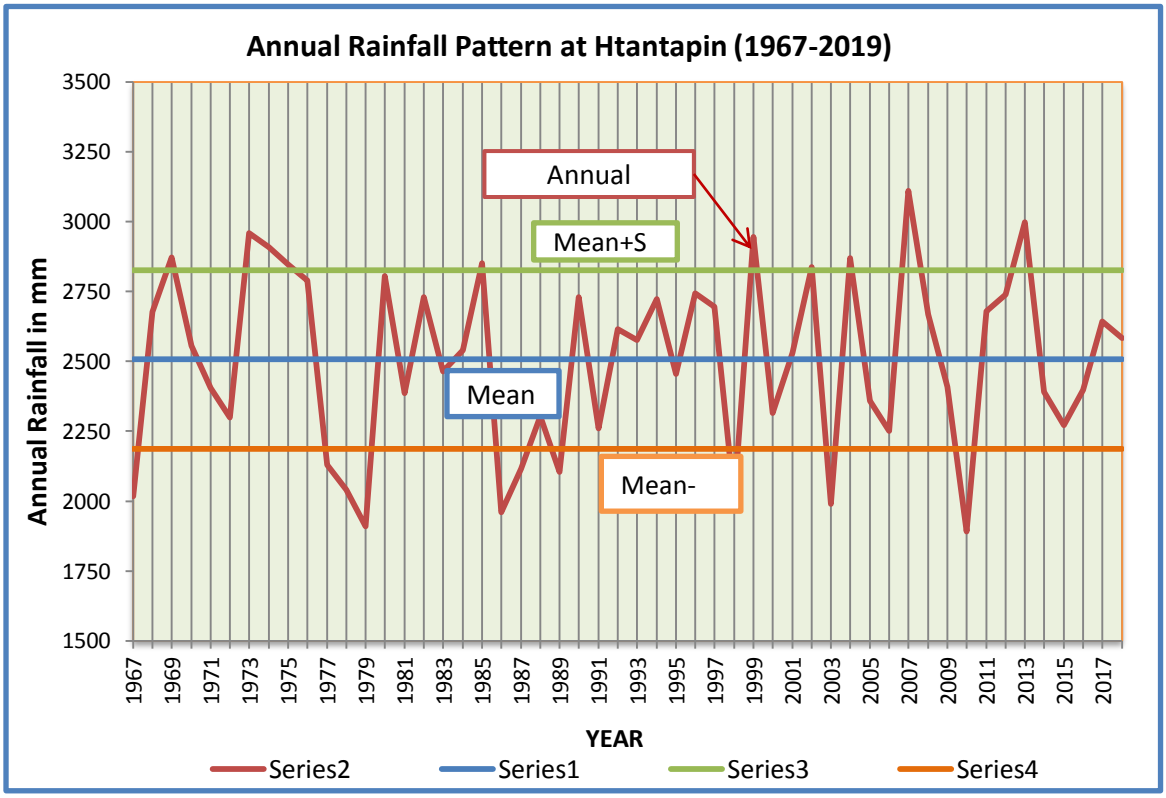


Figure 10: Annual Rainfall Pattern at Htantapin (1967-2019)

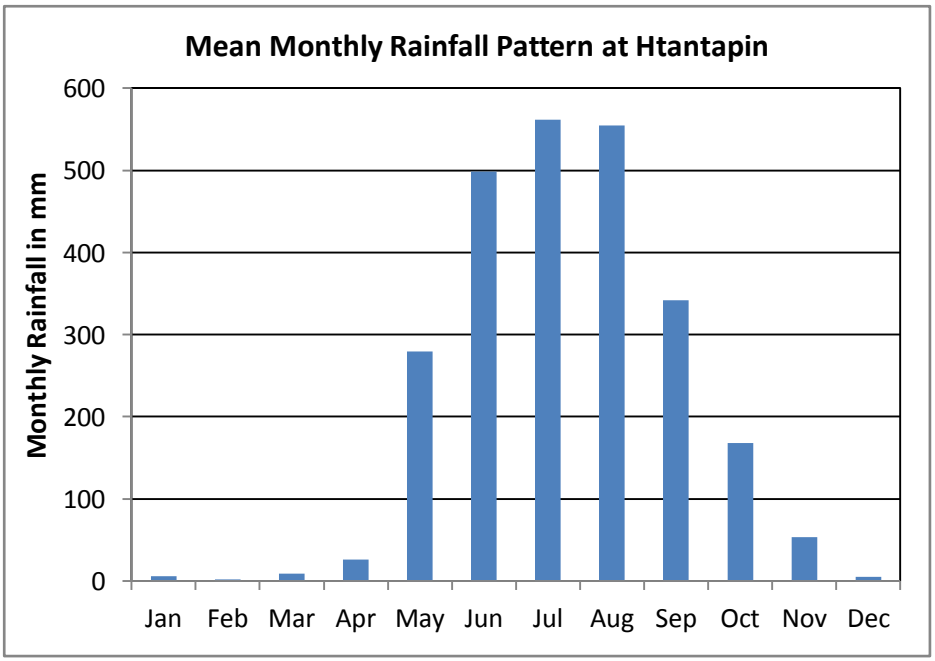


Figure 11: Mean Monthly Rainfall Pattern at Htantapin (1967 - 2018 Average)

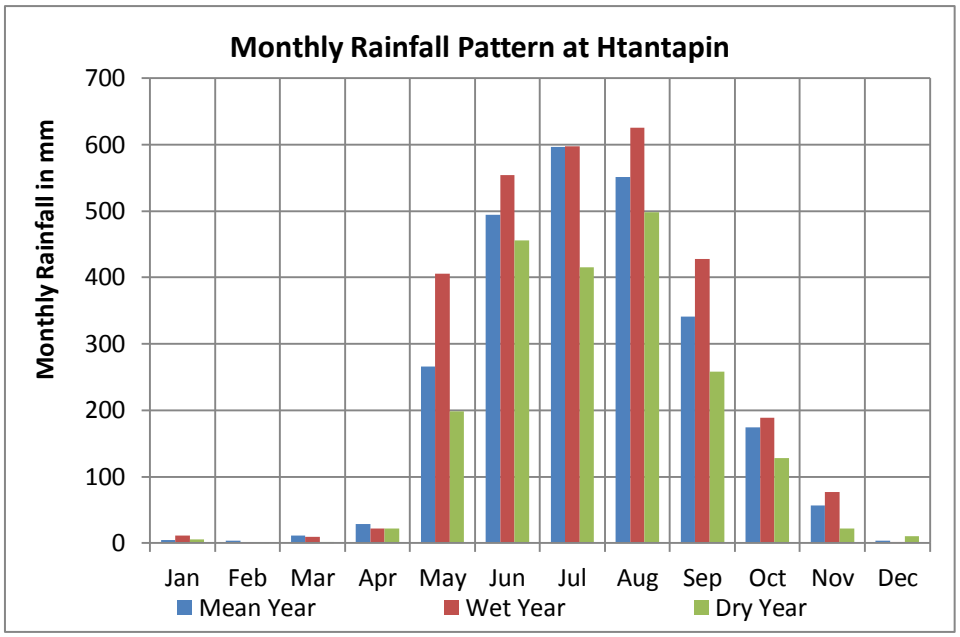


Figure 12: Monthly Rainfall Pattern at Htantapin (Mean, Wet and Dry Year)

Table 9: Monthly Mean, Maximum and Minimum Temperture 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

Source: Meteorological and Hydrological Department

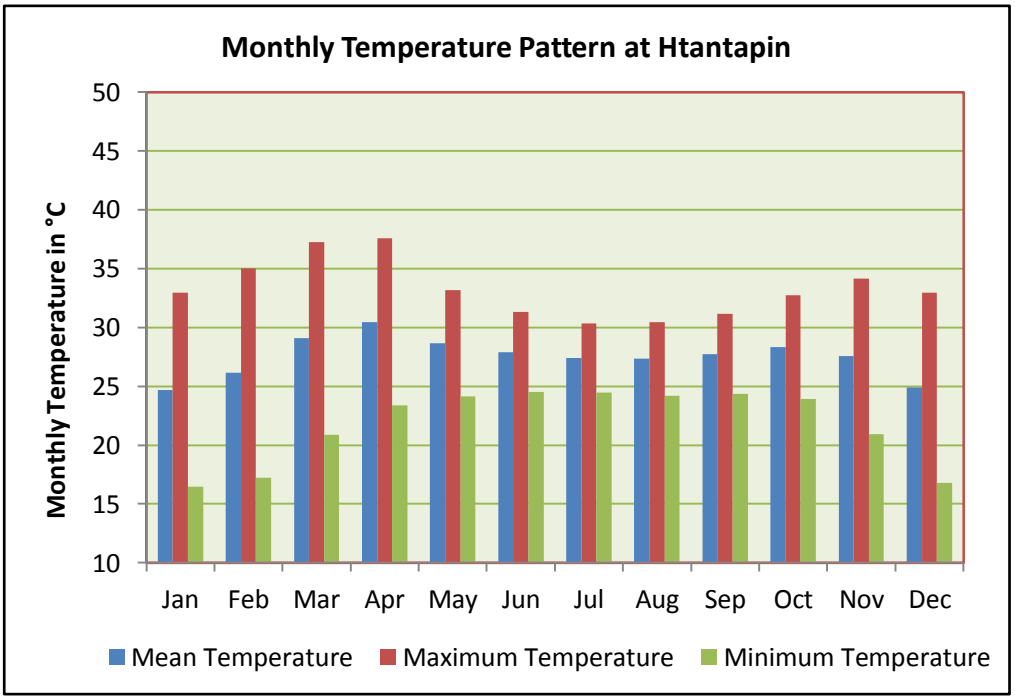


Figure 13: Monthly Temperature Pattern at Htantapin

Table 10: Monthly Mean Relative Humidity in % (9:30 hrs) (2006-2016)

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

Source: Meteorological and Hydrological Department

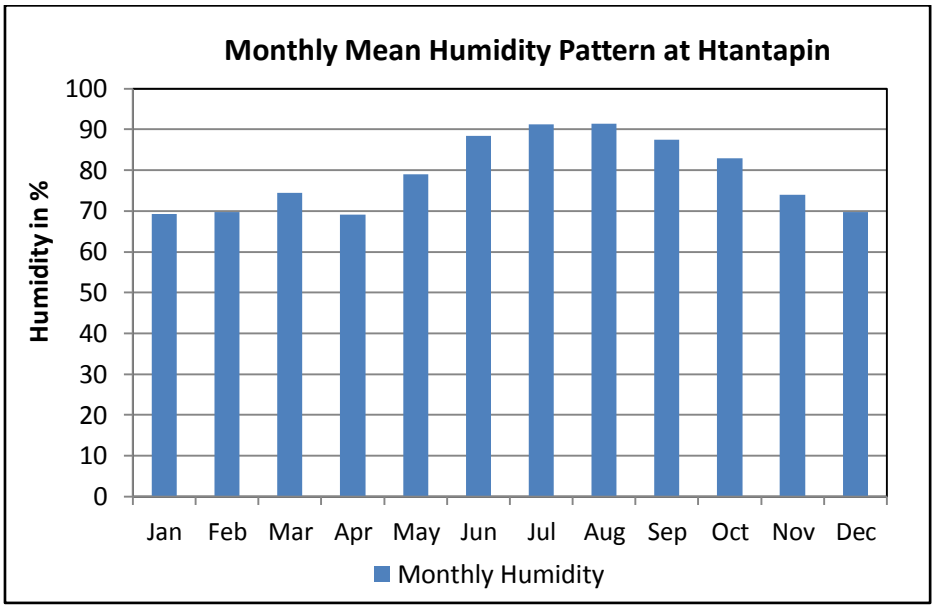


Figure 14: Monthly Humidity Pattern at Htantapin (1977-2010)

Table 11: Monthly Mean Wind Speed (m.p.h) and Direction

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

Source: Meteorological and Hydrological Department

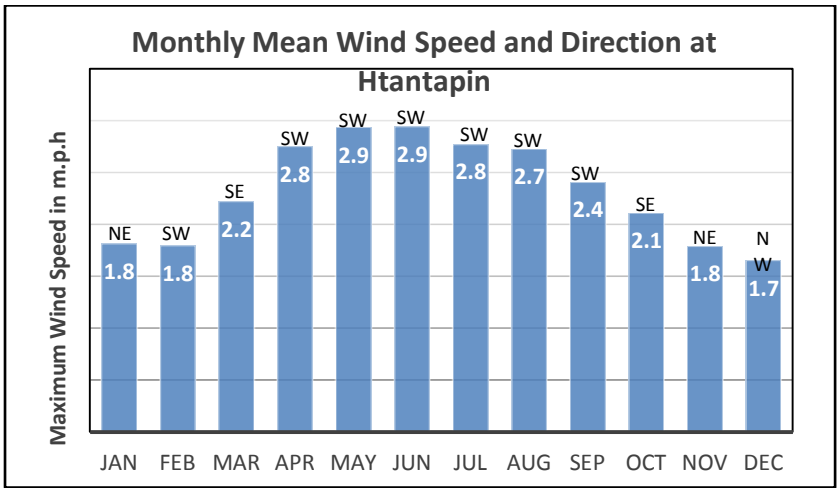


Figure 15: Monthly Mean Wind Speed at Htantapin

4.4 Environmental Baseline Condition of Project

4.4.1 Baseline Data

The baseline environmental data generation has been done during April, 2022. The study area within a 10 km radius around the proposed terminal site has been considered as general impact zone and 2 km radius as specific impact zone for the impact study. Primary and secondary data has been collected for both the zone. However, focus of primary data generation has been more for 2 km radius. The Salient Environmental Features of Footwear Factory Project within 500 m, 2 km and 10 km radius is summarized at Table 10 below.

Table 12: Salient Environmental Features of Footwear Factory Project Site

Sr. No.	Environmental Features	Within 500 m area around Proposed project site	Within 2 km area around Proposed project site	Within 10 km area around Proposed project site
1	**Ecological Environment**			
A	Presence of Wildlife Sanctuary / National Park / Biosphere Reserves	None	None	None
B	Reserved /Protected Forests	None	None	None
C	Wetland of state and national interest	None	None	None
D	Migratory route for wild animals	None	None	None
E	Migratory routes for birds	None	None	None
F	Presence of Terrestrial Fauna	None	None	None
G	Presence of Aquatic Fauna	None	None	None
H	Tree cover	Yes: General road side plantation	Yes: General road side plantation	Yes: General road side plantation
2.	**Physical Environment**			
I	Road connectivity	The site is situated beside Pathein Road and well connected by roads.	Pathein Road at its south.	Yangon-Pathein Road and Hlaing River Road at its east.
J	Rail connectivity	None	Rail road is running along its southern part.	None
K	Defense Installation	None	None	None
L	Densely Populated Area/ Industrial Area	Toe Chaung Village	Tadar U Village	Ywar Thar Gyi Shwe Pyi Thar Township Hlaing Thar Yar Township
M	Topography	Mainly flat with ground elevation ranging around 22 feet above mean sea level		
N	Seismicity	Low magnitude	Low magnitude	Low magnitude
P	Surface Water Resources (Rivers)	None	Pan Hlaing River is flowing at its southern part.	Hlaing River is running through north to south direction at its northern part.

Q	Groundwater	The groundwater resources found below the natural ground surface of the project site.		
R	Soil and Land Used [12]	*Meadow & Meadow alluvial soil* Land use in 500 m of site is under road, industrial use and settlements.	*Meadow & Meadow alluvial soil* Land use in 2 km area of site is under road, industrial use, and settlements.	*Lateritic Soils* Land use in 10 km of site is under agriculture, settlement, water bodies and rest of the land is under other uses.
3.	**Social Environment**			
S	Physical Setting	Industrial /Urban	Industrial / Rural	Urban / Rural / Resort/ Industrial Settings
T	Physical Sensitive Receptors	None	Yes (Temples, Schools, University, Hospital)	Yes (Temples, Schools, University, Hospital)
U	Archaeological Monuments	None	None	None

4.4.2 Physical Environment

4.4.2.1 Land

a. Soil: The soil types and the soil characteristics of representative soils in the project area are available in details respectively. According to soil types and soil characteristics of Myanmar, Ministry of Agriculture and Irrigation, March 2004, the soils of the project area are Meadow and Meadow alluvial soils, which are prominent. Lateric soil and swampy soil type are also founded within 10 km range of the project area.

b. Land Used: Since the project site is located within a developing township and main livelihood of the people is agriculture, most of the total area covers agriculture land and grassland out of the total area of 149979 acres. The observed land uses area are 74.55% of agriculture, 3.04% of grassland, 0.07% of industrial area, 1.67% of urban and built-up area, , 4.8% of uncultivated land, 15.85% of barren and the remaining 0.06% of others.

4.4.2.2 Water

a. Meteorology: Climate of the project area is subtropical climate; hot and humid weather with maximum temperature of 40°C and minimum temperature of 29°C. During the rainy season, the rainy days last consecutively for 80-116 days. Annual rainfall over the area averages 3053.08 milimeter (120.2 inches) during the past four year. Annual wind speed generally ranges from maximum wind speed of 2.9 mph and minimum wind speed of 1.7 mph with mean annual relative humidity of 79%.

b. Water Quality: Since the production process does not produce waste-water due to footwear production only, the water sample was collected from the tube well of the factory. The water quality assessment at the project site is done at Pro Lab Analytical Laboratory in 6th April, 2022. The measured parameter results are compared with WHO Drinking Water Standard.

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

According to the result, pH level, color (True), sulfate of water is on the margin of the standard value but the other parameters such as Chloride, Conductivity, Iron, Manganese, Total Dissolved Solids, Total Hardness and Turbidity excess the guideline. After having a proper treatment for the water, therefore, the water is suitable for drinking purposes or industrial uses.

4.4.2.3 Air, Noise [13]and Light

Ambient Air pollution and Noise level tests at the selected one monitoring point near the factory entrance of the production hall in the project area were conducted by the Haxagonal Angle Consulting Team from in 6th-7th April, 2022. During the assessment, the average temperature is 32.5°C and relative humidity is 55.8%.

***a. Air Quality*:** The OCEANUS-AQM09 was used for outdoor air monitoring survey at factory area and the results are compared with National Environmental Quality (Emission) Guidelines. The DIENMERNTM Multifunctional Air Quality Detector and SMART SENSOR-Carbon Dioxide Detector were used for indoor air monitoring survey at the production area and the average indoor air quality results were compared with Air Quality Index Guidelines by U.S Environmental Protection Agency (EPA) and OSHA (Occupational Safety and Health Administration) standard. The measured parameters are particulate matters (PM_{10}, $PM_{2.5}$ and $PM_{1.0}$), HCHO, TVOC, gases (CO_2, NO_2, CO, SO_2, O_3), total suspended particulate (TSP), relative humidity, air pressure, temperature, wind direction, wind speed etc.

Among the measured parameters for outdoor air quality, average value of particulate matter ($PM_{2.5}$) is slightly over the NEQG standard guidelines but average value of particulate matter (PM_{10}) is relevant to the guideline. The highest value time of particulate matter ($PM_{2.5}$, PM_{10}) is during from 7 pm to 8 pm due to the overtime worker leave the factory. Sulfur Dioxide is also higher than the guideline because of two generators running in the factory, generators running in surrounding factories and incoming cars to the factory. The other parameters such as Nitrogen Dioxide, Carbon Monoxide and Ozone are within the guideline.

Among the measured parameters for indoor air quality, all of the measurement parameters; PM_{10}, $PM_{2.5,}$ $PM_{1.0,}$ TVOC, HCHO and CO_2 are within the Guidelines values.

***b. Noise Quality*:** Baseline noise quality was measured in the shoe factory in order to ensure and protect from the hazardous work environment by 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. It is noted that the minimum and maximum noise levels are 46.3 dBA and 89.3 dBA respectively with the average noise level of 58.96 dBA which is within the permissible limit as Myanmar National Standard (2015) for Industrial area.

[13] *Appendix E: Environmental Quality Monitoring Report: Ambient Air, Noise Level and Water Quality Analyses Report*

c. Light Quality: Baseline Light Quality was measured in the Baisheng Shoe Factory to ensure the protection of the workers from harm and danger with too much or too little light; resulting in straining of the eyes that may cause eye discomfort (burning, etc.) and headaches. Therefore, the production areas were measured the quality of light with a total of 5 stations which include QC line, B-2 line (putting the glue on shoes), cutting line, line 4 (parking line) and label putting line.

The results are recorded and analyzed according to GENERAL EHS GUIDELINES: OCCUPATIONAL HEALTH AND SAFETY. According to the results, the current condition is in a good condition. As stated, in General EHS Guidelines by International Finance Corporation (World Bank Group) on 30th April 2007, the minimum limits of illumination intensity for precision work such as production and packing are required to have 500 Lux at least. Simple orientation and temporary visits (machine storage, garage, and warehouse) are required to have 50 Lux at least. Medium precision work and Precision work are required to have between 200- 500. The warehouse requires only little amount of attention and therefore the results are compared with 50 Lux. For office and sole stitching places, medium precision is required and therefore, they are compared with 200-500 Lux.

According to the light measurement results, light level of QC line and cutting line are lower than the standard value but other light measurement places are within the standard value. Therefore, the proper action is required to increase the lighting.

4.4.3. Ecological/ Biological Environment

4.4.3.1 Sensitive Ecosystem

Except for Sandayaw Restaurant and Resort which is situated about 7.2 kilometers northwest of the project site, there is no sensitive ecosystem including national parks, wildlife sanctuaries, migratory routes of wildlife, biosphere reserve, tiger reserve, elephant reserve, wetlands are present within 10 km distance of the project site.

4.4.3.2 Flora and Fauna

Since the project area is situated within the industrial zone and closed to rural and urban, there is no significant flora and fauna around the vicinity area. The native plants of Htantapin Township are bamboo, dhani and mangrove. The specific study area has already been urbanized with human activities and land used, nowadays, the site within the industrial area has no significant vegetation or habitat for wildlife and its vegetation mainly comprises of the roadside vegetation.

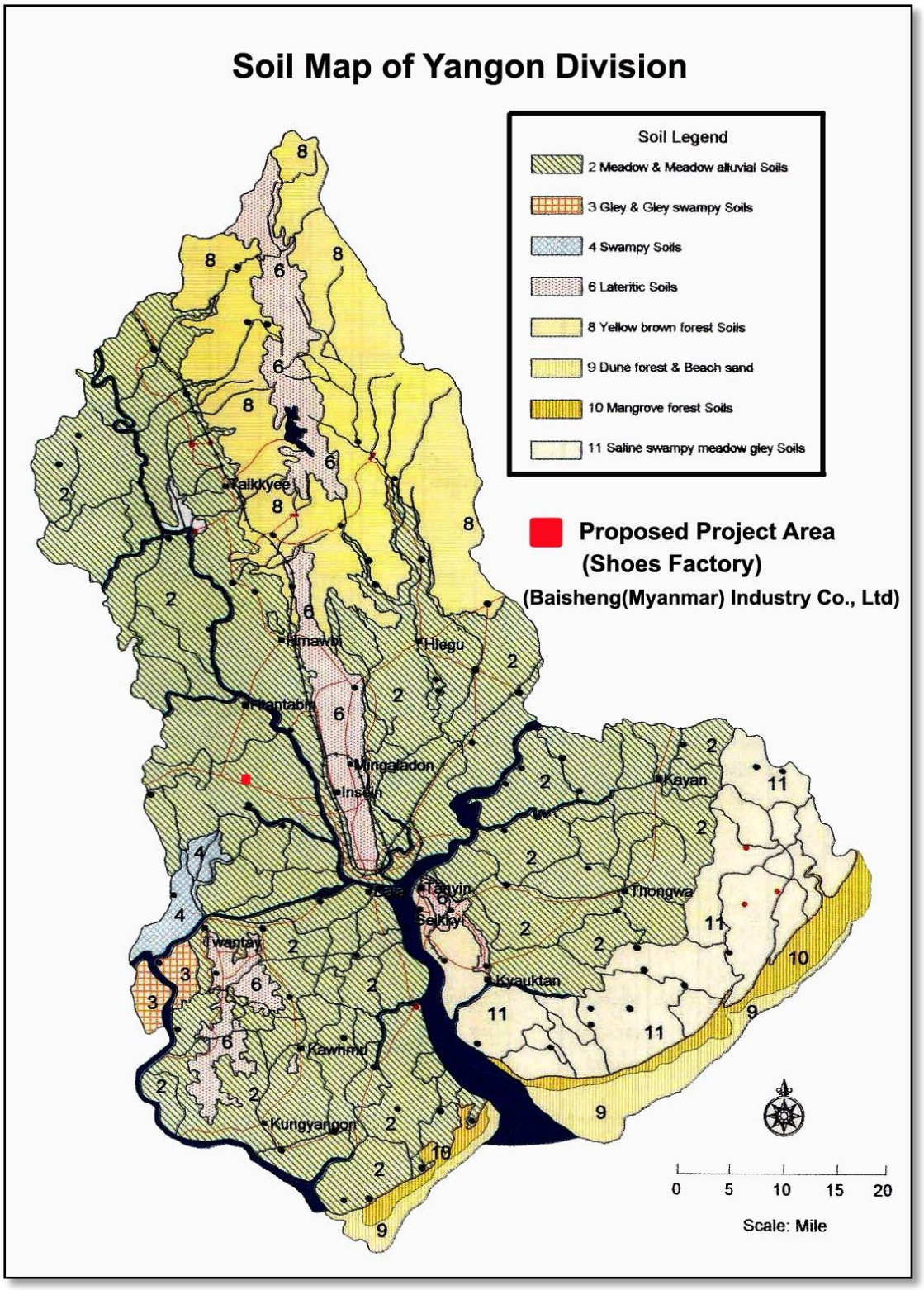


Figure 16: Soil Map of the Project Area

5. DESCRIPTION OF THE SOCIAL ENVIRONMENTAL CONDITION

5.1 Socio-Economic Data

The proposed site is located on the northern part of Htantapin Township and the site is bordered by Hmawbi and Shwe Pyi Thar Township in the east, Nyaungdong Township (Ayeyarwaddy Region) in the west, Hlaing Thar Yar Township in the south and Taik Kyi Township in the north. Since the project site is located beside the Yangon - Pathein Highway Road and surrounded by the garment factory in west, the betel nut cutting factory in east and fish farming in north. The Worker's Hospital is located at about 500 m near the factory. The nearest villages are Toe Chaung village and Tadar U village, which is far about 1 km from the project area. The project location is easy access to transport goods and it is far about 4 km from Dagon Ayar Highway Bus Terminal. There are also other industrial zones, universities, resorts, and human settlement around the environment.

5.2 Socio Economic Status

Since Htantapin Township is a developing township in economic status, the important sectors for the economic development of the vicinity area are industry and agriculture. Main product of the township is rice and it is mostly imported to Yangon and other townships. Main livelihoods are government services, industrial worker, merchant, services, livestock breeding, agriculture and casual labor.

5.2.1 Population

According to 2019 social study, the total population of the study area is 133226 with total household of 28475 and on the assumption that one family comprises of 5.5 members in average. This includes 66.4% of above 18 years and 33.6% of under 18 years. The ratio of male and female is 1:1.03 as of Sept 2019. The ethnicity of 93.9% is Burma and others make less than 6.1% including foreign. Out of the total population, the number of people who can work is 81896 and the unemployment rate is 8.14%. The ethnicity data is as described below:

Table 13: Ethnicity and Inhabitants Data, Htantapin Township

Sr. No.	Ethinity	Population	Township Population	Percentage
1	Kachin	8	133226	0.006
2	Kayin	18934	133226	14.211
3	Mon	279	133226	0.210
4	Bamar	113808	133226	85.42
5	Rakhine	59	133226	0.044
6	Shan	13	133226	0.010
7	Others	128	133226	0.09
	Total	133101	133226	100%

Source: Respective Township General Administrative Office

Table 14: Htantapin Township Urban and Rural Household Status

Sr. No.	Description	Number of Houses	%	Household	%	Number of Ward	Village tract	Villages
1	Urban	1651	5.87	1756	6.17	5	-	-
2	Rural	26480	94.13	26719	93.83	-	54	233
Total		28131	100	28475	100	5	54	233

Source: Respective Township General Administrative Office

Table 15: Htantapin Township Male and Female Population

Sr. No.	Description	Above 18 years of age			Below 18 years of age			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Urban	2650	2902	5552	1214	2453	3864	3864	4141	8005
2	Rural	40012	42900	82912	21502	20807	42309	61514	63707	125221
	Total	42662	45802	88464	22716	22046	44762	65378	67848	133226
	%	48.23	51.77	100	50.78	49.22	100	49.07	50.93	100

Source: Respective Township General Administrative Office

5.2.2 Land Use Statistics

Table 16: Land Utilization in Htantapin Township

Sr. No.	Description	Area (acres)	Percentage
1	Net Sown area *(a) Paddy Land* *(b) Upland* *(c) Alluvial Land* *(d) Garden* *(e) Dhani*	99830 *92909* - *1102* *4693* *1125*	*66.56* *93.07* - *1.10* *4.70* *1.13*
2	Unsown area *(a) Paddy Land*	 *11978*	 *7.99*
3	Pasture Land	4556	3.04
4	Industrial Area	100	0.07
5	Urban and Built-up Area	2508	1.67
6	Others	92	0.06
97	Barren	7146	4.76
8	Uncultivable Land	23769	15.85
TOTAL		149979	100%

Source: Respective Township General Administrative Office

5.2.3 Dams and Reservoir Area

Table 17: River Water Supply Projects

Sr. No.	Project Name	Location	Acres
1	Yea Paw Taung	Yea Paw Taung	3000
2	Gyogone	Kyuigu	5000
3	Kui Tan Shi	Gon Hle Seik	3000

4	Kyun Ngo	No.4 Ward	289
TOTAL			11289

Moreover, there are 7 earthen and 9 concrete dams/ weirs with the total benefits acre of 29386 acres in the township.

5.2.4 Irrigation Status

Table 18: (10) Types of Major Crop Products

Sr. No.	Types of Crop	2019-2019 Target Acre		20018-2019			
				Plant	Harvest	Rate	Yield (Bushel)
1	Paddy	Summer	37228	39153	39153	91.26	3576102
		Monsoon	92727	92372	92372	67.05	6193542
2	Peanut	Monsoon	-	-	-	-	-
		Winter	916	525	525	52.45	27536
3	Sesame	Monsoon	-	-	-	-	-
		Winter	29	5	5	8.75	44
4	Sunflower Seed	-	-				
5	Matpe	-	7365	7322	7322	12.60	92257
6	Green Mung Bean	Monsoon	-	-	-	-	-
		Winter	303	301	301	13.72	4129
7	Pulses	-	-	-	-	-	-
8	Cotton	-	-	-	-	-	-
9	Sugarcane	-	241	241	241	22.05	5314
10	Corn	-	213	213	213	75.2	16018

Source: Respective Township General Administrative Office

Table 19: Perennial Crop Production

Sr. No.	Types of Crop	Plant	Harvest	Rate (Viss)	Yield (Viss)
1	Coconut	127	127	2077	263779
2	Betel nut	9	9	526	4734
3	Fruits	3293	3293	-	-

Source: Respective Township General Administrative Office

5.2.5 Livestock Breeding Status

Table 20: Breeding (2018-19) at Htantapin Township (Nos.)

Sr. No.	Year	Buffalo	Beef	Pork	Chicken	Duck	Sheep/ Goat
1	2018-2019	888	6550	13803	401666	5000	820

Source: Respective Township General Administrative Office

Table 21: Meat Production (2018-19) at Htantapin Township

Sr. No.	Year	Buffalo	Beef	Pork	Chicken	Duck	Sheep	Goat
1	2018-2019	-	-	16200	280800	43200	-	-

Source: Respective Township General Administrative Office

5.2.6 Industries and Enterprise

Table 22: Industries, Workshops and Cottages at Htantapin Township

Sr. No.	Name	Type	Government/ Private	Labor Strength
1	Garment	Factory	Private	150
2	Welding	Workshop	-	3
3	Sewing	Cottage	-	-
4	Smith work	Cottage	-	3
5	Blacksmith	Cottage	-	1
6	Food	Cottage	-	-
7	Coconut Hair Rope	Cottage	-	-

Source: Respective Township General Administrative Office

5.2.7 Minerals Production

Table 23: Chemical Mining Production at Htantapin Township

Sr. No.	Material	Place of Origin	Production Amount	Production Price (Million Kyats)
1	Brick Baking	Kung Hle Seik	10000 Nos	201000
2	River Aggregate	Kaling (4)	8400 Sub	4462500
3	River Aggregate	Daunggyi (3)	6300 Sub	13385900
4	River Aggregate	Lamutan (10) No	21000 Sub	23073200

Source: Respective Township General Administrative Office

5.2.8 Energy Status

Table 24: Diesel / Petrol Stations at Htantapin Township

Sr. No	Name of Shop	Private	One Year Sell in Cans	
			Petrol	Diesel
1	ZTH	Private	835	1078
2	Aung Phyo Kyaw	Private	356	2010
3	Golden Lion	Private	-	-
4	Denko	Private	530	1655
5	Shwe Byiang Phyo	Private	705	1325

Source: Respective Township General Administrative Office

5.2.7 Communication Status

5.2.7.1 Transportation

a. Airway

There are no air fields in Htantapin Township.

b. Waterway

Table 25: Waterway at Htantapin Township

Sr. No.	Name of Waterway	Within Htantapin Township		River Length (mile)	No. of Jetty
		From	To		
1	Htantapin - Naytaming	Htantapin	Hnetaming	11	1
2	Htantapin – Tabawh Chaung	Htantapin	Tabawh Chaung	5	1
3	Angiasu – Bawlay	Angiasu	Bawlay	7	1
4	Htantapin – Daunggyi	Htantapin	Daunggyi	2	1
5	Htantapin – Chaung Nyiko	Htantapin	Chaung Nyiko	16	1

Source: Respective Township General Administrative Office

c. Bus Terminal

Table 26: Bus Terminal at Htantapin Township

Sr. No	Name of Terminal	Bus Route	Type of Bus	Number of Bus
1	YBS 52	Htantapin- Night Market	Minibus	18
2	YBS 21, 22	West University	Bus	177
3	YBS 85	Toe Chaung	Bus	51

Source: Respective Township General Administrative Office

d. Railway

Table 27: Railway Station at Htantapin Township

Sr. No.	Name of Railway	Within Htantapin Township		Railway Length (mile)	Number of Station
		From	To		
1	Yangon - Pathein	Toe Chaung	Pan Taing	11.24	1

Source: Respective Township General Administrative Office

e. Roads

Table 28: Roads in Htantapin Township

Sr. No	Road	Within Township		Length (Mile)
		From (mile)	To (mile)	
1	Thidar Aye – Htantapin Road	7/7 mile	9/6 mile	1/7 mile
2	Bayinhnaung Road	0/0 mile	0/5 mile	0/5 mile
	Total			

Source: Respective Township General Administrative Office

Table 29: Highways in Htantapin Township

Sr. No	Road	Length (Mile)	Types of Highway	Remark
1	Yangon – Pathein Road	11/1 mile	Bitumen	Hlaingtharyar – Nyaungdon
2	Yetwin- Myochaung- Tawlati Road	24/7 mile	Bitumen	Hmawbi - Taik Kyi

Source: Respective Township General Administrative Office

5.2.7.2 Bridges

Table 30: Bridges over 180 feet in Htantapin Township

Sr. No.	Bridge Name	Length (Feet)	Type of Bridge	Year	Permissible Vehicle
1	Myo Chaung	1940'	Reinforced Concrete	2000	Car
2	Yepaw Taung	1940'	Reinforced Concrete	2000	Car
3	Kokkuwa	2278'	Reinforced Concrete	2017-18	Car

Source: Respective Township General Administrative Office

There are 16 concrete bridges which are under 180 feet in the township.

5.2.8 Economic Infrastructures

Table 31: Markets in Htantapin Township

Sr. No.	Market Name	Location	Number of room	Remark
1	Local Market	Bayinnaung Road No. 2 Ward	122	Government

Source: Respective Township General Administrative Office

Table 32: Banks in Htantapin Township

Sr. No.	Name	Government	Private	Remark
1	Myanmar Economic Bank	Government	-	-

Source: Respective Township General Administrative Office

5.2.10 Health Status

5.2.10.1 Health Care Hospital and Clinics

..... Table 33: Hospitals and Health Care Centers in Htantapin Township

Sr.No.	Hospital	Government / Private	Numbers of Beds
1	Htantapin General Hospital	Government	50
2	Naytaming Urban Health Centre	Government	16
3	Hle Seik Urban Health Centre	Government	16
4	Bawlay Urban Health Centre	Government	16

Source: Respective Township General Administrative Office

There are 8 Private Clinics, and 42 Rural Health Department in different villages in Htantapin Township.

5.2.10.2 Common Diseases

Table 34: Common Disease that affects inhabitants in Htantapin Township

Sr. No.	Township/ Town	Type of Disease									
		Malaria		Diarrhoea		Tuberculosis		Dysentery		Liver Syros's	
		Patient	Death	Patient	Death	Patient	Death	Patient	Death	Patient	Death
1	Htantapin	2	-	1497	-	512	-	472	-	3	-

Source: Respective Township General Administrative Office

5.2.10.3 Healthcare Personnel

Table 35: Health Care Personnel at Htantapin Township

Sr. No.	Township	Population	Doctor's Care		Nurse Health Care		Assistant Health officer	Assistant Health Officer / Patient
			Doctor	Rate of Doctor/ Patient	Nurse	Rate of Nurse/ Patient		
1	Htantapin	133226	5	26645	19	7968	8	16653

Source: Respective Township General Administrative Office

5.2.11 Education Status

Table 36: School Status of Htantapin Township

Sr. No.	Township	University/ Institute	High School	Middle School	Primary School	Kindergarten	Monastic Education
1	Htantapin	1	19	14	116	13	2

Source: Respective Township General Administrative Office

5.2.12 Vocational Activities

The livelihood status at Htantapin Township is as shown in below table:

Table 37: Livelihood of Htantapin Township

Township	Government Service	Services	Agriculture	Livestock Breeding	Merchant	Industrial Worker	Casual Labour	Fishery & Waterworks	Others	Total
Htantapin	1713	1082	26676	2130	3068	483	1029	24047	16575	76803

Source: Respective Township General Administrative Office

Table 38: Unemployment Rate in Htantapin Township

Sr. No.	Township	Number of People who can work	Number of People who are employed	Number of People who are unemployed	Unemployment Rate
1.	Htantapin	81896	76803	5993	8.14

Source: Respective Township General Administrative Office

Table 39: Gross Domestic Product of Htantapin Township

Sr. No	Description	2017-18 Net Production Value	2018-19 Plan	2018-19 GDP (Million Kyats)		
				Value	Implement	Progress (%)
1	Product Value	78511.4	85973.1	85358.4	99.3	8.7
2	Services Value	63187.66	63159.9	66132.9	104.7	4.7
3	Trade Value	31154.4	73372.1	33311.6	45.4	6.9
4	GDP	172853.3	222505.1	184802.9	83.1	6.9

Source: Respective Township General Administrative Office

5.2.13 Social, Religious and Cultural Environment

5.2.13.1 Social Organization

There is no INGO established in Htantapin Township. However, there are some NGOs (Non-Governmental Organizations) established within the Htantapin Township.

Table 40: NGOs at Htantapin Township

Sr. No.	Township	Women Organization	Women and Children Organization Network of Myanmar	Myanmar Veterans' Organization	Myanmar Red Cross Society	Myanmar Fire Brigade
1.	Htantapin	22995	51257	101	548	247

Source: Respective Township General Administrative Office

5.2.13.2 Language and Religion

The most common language used is Bamar and other ethnic languages are also spoken within the respective ethnic groups in Htantapin Township.

5.2.13.3 Religious Buildings

There are no other religious buildings, i.e, monque, hindu temple, church, Chinese temple, except only pagoda and monastery in Htantapin Township.

Table 41: Number of Pagodas, Monasteries, Monks, Nuns

Sr.No.	Township	Pagoda	Monastery	Monk	Novice	Nun
1	Htantapin	6	2	959	331	12

Source: Respective Township General Administrative Office

Table 42: Other Religious Buildings

Sr. No.	Township	Church	Islam Temple	Hindu Temple	Chinese Temple
1	Htantapin	5	3	3	2

Source: Respective Township General Administrative Office

6. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

This section presents the potential impact assessment methodology and approach for recommendation of mitigation measures, to reduce or avoid potential adverse impacts, where appropriate and enhancement measures for the beneficial impacts in the environmental and social context.

6.1 Impact Assessment Methodology and Approach

The impact assessment methodology provides a basis to characterize the potential impacts of the Project and is based on models commonly employed in impact assessment and takes into account national and international best practices.

The impact assessment steps are summarized as follow:

Impact prediction: to determine what could potentially happen to resources/receptors as a consequence of the Project and its associated activities.

Impact evaluation: to evaluate the significance of the predicted impacts by considering their magnitude or likelihood of occurrence (for unplanned events), and the sensitivity, value and/or importance of the affected resource/receptor.

***Identification of Mitigation and Enhancement*:** to identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts.

Residual impact evaluation: to evaluate the significance of impacts assuming effective implementation of mitigation and enhancement measures.

Data Collection: The study requires collection of a considerable amount of information including secondary and primary data. To ensure it, the literature review and desk study, Field data Collection and Stakeholder Consultation and Interview were employed to collect information.

6.1.2 Literature Review and Desk Study

The survey team firstly reviewed all existing and available technical and scientific documents relevant to the area and other unpublished data from other governmental departments and academic institutions.

6.1.3 Field Data Collection

Field observations were conducted to collect primary and secondary data. During the visits, experts from NEPS met local governmental officials, some NGOs and local inhabitants.

6.1.4 Stakeholder Consultation and Interview

Stakeholder meeting and focus group meeting were undertaken with various government departments during field survey. Participants and respondents actively discussed and

disclosed information about existing activities and concerns about the environmental degradation.

6.2 Limitation

Major challenge during the study was encountered in the study including very limited numbers of studies on ecology and environmental features of region were published.

6.3 Key of Impact Identification[14]

Potential 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. The following framework of key determinants based on the typical impact evaluation criteria (extent, duration, intensity, probability, mitigation potential and significance) was used to assess impacts and resulting mitigation measures.

Table 43: 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 (green) in the impact matrix.

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

6.4 Environmental, Biological and Social Impact Assessment[15]

Following from the establishment of the baseline, an environmental impact assessment was conducted. The impact assessment considers the main potential issues associated with project development and also takes in to account the project cycle. The assessment is carried out prior to any mitigation or management measures being applied, thus impacts that are indicated as significantly negative may be minimized or reduced by effective mitigation strategies applied subsequently.

Table 44: Summary of Impact Assessment Matrix

Although the project is now in its operational phase, the following tables depict the summary of impacts in the installation and operational phases:

Installation 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	medium
BPC/7	Changes to aquatic biota	low
BPC/8	Changes to terrestrial biota	low
BPC/9	Changes to disease vector populations	low
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	medium
SEC/5	Changes in local wage labour incomes/livelihood opportunities	medium
SEC/6	Changes in local trade/commercial incomes/opportunities	low
SEC/7	Changes in visual amenity	low
SEC/8	Changes to public infrastructure/community resources	low

[15] *Appendix C: Impact Assessment Matrix for Footwear Production Factory Project*

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.

6.4.1 Installation Phase Impacts

Table 45: Installation Phase Impact Assessment of Project

INSTALLATION PHASE IMPACTS for Environmental and Social Impact Assessment of Baisheng Footwear Production Project, Htantapin 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	Installation of machines and electrical equipment for footwear production affects the surface water quality	1	1	1	1	**low**
BPC/2	Changes in groundwater quality	Risk of disturbance to underground water resources due to installation of machines	1	1	2	2	**low**
BPC/3	Changes to drainage patterns	Alteration of the natural drainage system due to installation of machines	1	2	1	2	**low**
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**
BPC/5	Changes to air quality	Air quaility will be changed because of dust, particulate matter during installation works	1	2	2	2	**medium**
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**
BPC/7	Changes to aquatic biota	No Change in aquatic biota due to installation works	0	0	0	0	**low**
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**
BPC/9	Changes to disease vector populations	Health risk to labours during installation period (dust / noise)	1	2	1	2	**low**
BPC/10	Changes to land cover	No significant changes in land cover due to installation works	2	3	1	2	**low**
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**
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**
SEC/2	Changes involving loss of cultural heritage	No significant cultural heritage at proposed project area	0	0	0	0	**low**
SEC/3	Changes involving displacement of people	No displacement of inhabitants.	0	0	0	0	**low**
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**
SEC/5	Changes in local wage labour incomes/livelihood opportunities	Labours are employed.	2	2	2	2	**medium**
SEC/6	Changes in local trade/commercial incomes/opportunities	No significant local trade / commercial incomes during construction phase.	1	2	1	2	**low**
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**
SEC/8	Changes to public infrastructure/community resources	Change in infrastructure due to installation works	1	2	1	2	**low**

6.4.2 Operational Phase Impacts

Table 46: Operational Phase Impact Matrix of Footwear Project

OPERATIONAL PHASE IMPACTS for Environmental and Social Impact Assessment of Baisheng Footwear Production Project, Htantapin 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**

6.4.3 Operational Phase Impacts Detail

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 PLAN 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[16]

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.

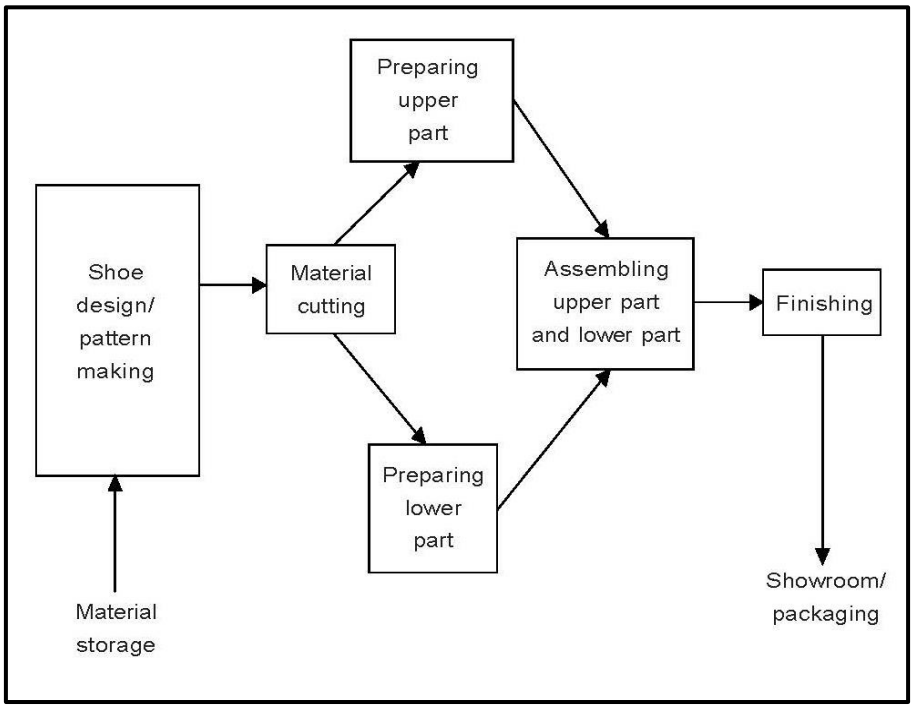


Figure 17: Footwear Production Flowchart

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.

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

A. Physical Environment

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

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

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

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

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

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

Mitigation measure: Protect workers from chemical hazards:

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

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

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

Mitigation measure: Ensure that noise does not harm workers:

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

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

Mitigation measure: Protect the workers from excessive heat:

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

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

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

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

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

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

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

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

Mitigation measure: Establish a good waste disposal system:

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

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

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

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

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

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

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

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

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

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

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

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

Mitigation measure: Protect your business from fire accidents:

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

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

Mitigation measure: Prevent workers from breaking their backs:

- Train workers to use their legs rather than their backs when lifting;
- Raise and lower materials slowly in front of the body without twisting or deep bending;
- Instead of lifting or carrying heavy weight, divide them into smaller packages, containers, or baskets which allow a use of power grip, instead of pinch grip when handled manually;
- Use carts, hand trucks and other wheeled devices or rollers when moving heavy materials;
- Combine lifting with physically lighter tasks to avoid injury, fatigue, and to increase efficiency. Rotate work tasks.
- Right lifting method[17]: 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

[17] *ILO-WISE Manual*

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;
- 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[18]:

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

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

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

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)[19]

Assessment and Findings

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

1. Medical Service:
   - Physical examination
   - 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;

[19] Appendix G: EHIA Report on Baisheng (Myanmar) Industry Co., Ltd.

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 ;
    (a) Ventilation ;
    (b) Illumination ;
    (c) Water Supply;
    (d) Toilet facilities;
    (e) Packing and store room;
    (f) Waste disposal;

Recommendation:

Raw water quality test result shows that it is hard water. But, the output water quality after RO Water Treatment Plant is tested for its physical chemical parameters of health significance and is found to comply with WHO Guidelines for drinking water quality standard. 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 longtime use of this water as drinking water is considerable.

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

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

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

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

If possible, a Safety Engineer and a Physician should be on the staff. Safety engineer must measure temperature, humidity, air dusts etc., analysis, record and report. Physician will be responsible for routine periodic medical examination to the plant workers, keeps the record for individuals and gives necessary advice and reports to the authority. Seeing the warning placards, separate lunch room, first aid kit (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 47: Mitigation Measure for Impacts during Operational Phase

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

7.5 EMP Organization

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

Three levels of organization, fully complementary, are set-up by the EMP.

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

General organization is presented in the following figure:

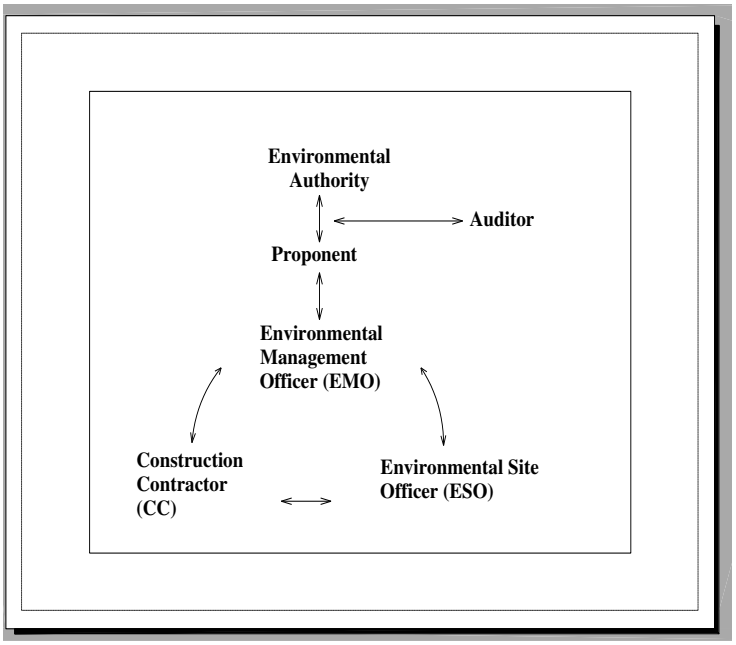


Figure 18: EMP Organization

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

The EMO role is executed by:

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

The EMO coordinates (directly or through the site construction supervision staff) with the various CCs and with the ESO(S) appointed by the Construction Contractors. The overall role of the EMO is to oversee and monitor adherence to, and implementation of, the EMP by the CCs (which includes compliance with the relevant obligations contained in the EMP).

The EMO is assisted by the site supervision staff and the ESO on the CC's side, responsible for monitoring construction-related activities and implementing environmental measures on site as part of the EMP conditions.

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

7.5.1 EMO Roles & Responsibilities

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

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

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

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

7.5.2 ESO Roles & Responsibilities

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

The specific responsibilities of the ESO are to:

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

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

- Interface with EO to assist in field interpretation of environmental requirements, provide advice regarding corrective actions and resolving non-compliance situations, and issue specific formal instructions to the CC workforce;
- Interface with CC manager to help communicate requirements, obtain a hands-on view of special problems so that implementation difficulties can be communicated to the EMO to aid in problem resolution especially in situations where adjustment of compliance requirements may be necessary;
- Communicate to EMO by:
  Interaction with EMO as needed to define corrective action recommendation for any identified non-compliance situation.
- Implementation for environmental controls and measures specified in the EMP, Sub-Plans.
- Ensuring measures to protect project staff health are implemented.

8. ENVIRONMENTAL MANAGEMENT, MONITORING AND BUDGET ALLOCATION

8.1 Water Quality Management Plan

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

Objective	To reduce discharge of wastes that impact water quality and to determine if additional implementation of management practices are necessary to improve and/or protect water quality. Ensure safe drinking water, which is essential for good health.
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation and Decommissioning Phases
Management Action	▪ Put a set of procedure for the stockpiling and removal of waste material (particularly liquid, solid and human waste) from project site; and establishing sewerage facilities on site; ▪ Regularly inspect the accumulated solid waste for periodic removal from site for proper waste treatment or disposal for recycling; ▪ Installation of proper waste water drainage outside work premises. ▪ Provide a rain water drainage system. Keep the drainage clean and clear on a regular basis; ▪ Chemically contaminated run-off should be intercepted and discharged where it will not leak to contaminate ground water. ▪ Provide proper facilities for drinking water near the work area; ▪ Ensure that there is always safe drinking water available and that the water cannot be contaminated by dust, chemicals, or dirt for example spread by insects.
Monitoring Plan	Monitor the waste water from the project area before discharging into the nearby water body. Monitor the solid waste from footwear production process and ensure that they are systematically disposed for recycling and environmental protection measures. Ensure safe drinking water adhering to National Environmental Quality Guidelines, 2015 for safe drinking water and waste water effluent.
Parameters for waste water and drinking water	▪ Turbidity, EC, Total hardness, Total dissolved Solids, Chloride, Sulfate, Calcium, Magnesium, BOD, COD, pH, Temperature, Ammonia for waste water; ▪ Physico-Chemical parameters (e.g. Turbidity, EC, Total hardness, Total dissolved Solids, pH, Temperature, Iron (as Fe), SO_4, Nitrates (as NO_3), Fluoride (F), etc. and Microbiological parameters (E-coli

	and total coliforms) for drinking water.
Location	One sample at outlet of Project Area (surface water), and one sample for drinking water
Frequency	Twice per year
Budget Allocation	100,000 Kyats / test (100,000 x 2 x 2 Kyats per Year) = 400,000 Ks
Responsibilities	Monitoring by EMP Organization or Third Party

8.2 Drainage Management Plan

Objective	To flow clean water outside the project area
Legal Requirements	National Environmental Quality (Emission) Guidelines, 2015
Implementation Schedule	During Operation Period
Management Action	Avoid removing and altering the natural features of the land as much as possible; Provide proper waste drainage outside work premises, provide a rain water drainage system, keep the drainage clean and clear on a regular basis; Periodically clear drainage, maintain channels to prevent seepage and reduce inefficiencies resulting from siltation and weeds, all access to channels for maintenance in design, application of effective litter prevention and control, implementation of secondary containment procedure that avoid accidental or intentional releases of contaminated containment fluids.
Monitoring Plan	Site supervision during operational period; once a week
Parameters	Good housekeeping and professional landscape and drainage design
Location	Site Project Area
Frequency	Weekly
Budget Allocation	500,000 Kyats/ year
Responsibilities	Monitoring by EMP Organization or Third Party

8.3 Air Quality Management Plan

Objective	To reduce the potential impacts of noise and dust; to reduce exposure to fine dust; to ensure clean physical environment; To monitor emissions from Project activities and establish measures to mitigate emissions from Project activities to meet air quality legislative

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

<table>
<tr><td></td><td>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.</td></tr>
<tr><td>Parameters</td><td>Nitrogen dioxide (NO_2), Ozone (O_3), Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulfur dioxide (SO2), Total Suspend Particulate (TSP), CO, Temp, Relative Humidity.</td></tr>
<tr><td></td><td>NEQEG Noise Level Parameters<table><tr><th>Receptor</th><th>One hour LAeq (dBA)[a]</th><th></th></tr><tr><th></th><th>Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)</th><th>Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)</th></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>[a] Equivalent continuous sound level in decibels</td></tr>
<tr><td>Location</td><td>One sample is measured to cover the whole Project Area</td></tr>
<tr><td>Frequency</td><td>Once per year</td></tr>
<tr><td>Budget Allocation</td><td>1,500,000 Kyats x 1 / year = 1,500,000 Kyats / year</td></tr>
<tr><td>Responsibilities</td><td>Monitoring by EMP Organization or Third Party</td></tr>
</table>

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 discharge 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

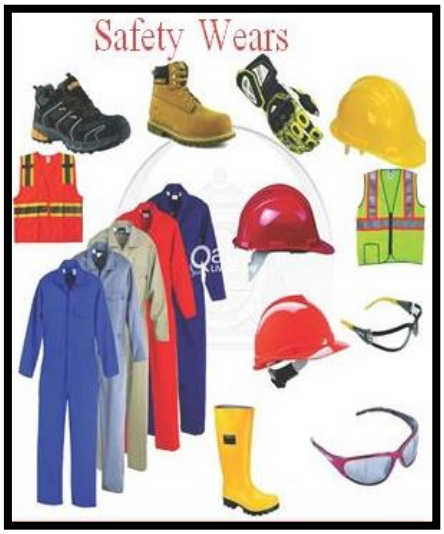
Objective	To inform communities about footwear production activities, work schedules, potential health and safety issues and how to engage with the project for any grievances Community engagement plan, the following information will be conducted such as raising awareness campaign to local community to 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	During Operation and Decommissioning Phases

Schedule	
Management Action	Health and Safety of Population Lack of care or lack of information can cause accidents (e.g. traffic incidences, electrocution where they may suffer injury, and risk of fire hazard). Thus, people or workers under direct influence of project should be informed by project proponent or their appointed representative regarding appropriate security precautions for example: Using appropriate PPE (Personal Protective Equipment) during operation; Participation of training programs regarding adhering to emergency response procedures and activities; Abiding to good and standard practice and procedures for relevant machineries and equipment; and Monitoring of alarm system for emergency conditions. Occupational Health The manager must take effective steps to ensure the safety and health of the workplace. Workers should first be given training prior to the use of machinery / equipment for safety reasons and should report to relevant departments for accidental cases. Pre-employment and regular medical examinations shall be carried out on all plant employees. The Company will provide well-equipped sanitary facilities for its employees. Occupational Safety Minimum age of employment is 18 year of age (Children should not be working with footwear chemicals); - One day of rest per week - Limited working hours - Provision of clean water and medical facilities - Right of inspectors to survey safety and health Occupational Health and Safety Training The level of training that site personnel receive in emergency preparedness needs to be significantly increased. In particular emphasis should be placed on testing the whole emergency response system, especially under worst case scenarios such as night or weekend. Training shall consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site specific hazard or color coding in use

	shall be thoroughly reviewed as part of orientation training. Occupational Safety Wear  Area Signage Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors and the general public as appropriate.
Monitoring Plan	- Define the scope of the Management Plan including roles, responsibilities and time frame; - Prepare a list of potential community health, safety and security risks associated with the proposed Project - Discuss Project commitments, programs, operational procedures and guidance that respond to and mitigate the identified risks - Suggest monitoring and reporting procedures and identify Key Performance Indicators to measure the achievements of the proposed Project Commitments and Programs - Anticipate training requirements
Location	Direct Affected Area
Frequency	Regularly Monitoring and Quarterly Reporting
Budget Allocation	2,400,000 Kyats (Lump sum/year)
Responsibilities	Monitoring by EMP Organization or Third Party

8.8 Emergency and Rescue Plan

Objective	Ensure processes for requesting outside emergency support, notification of officials and incident documentation is clearly defined, communication tools are understood and the appropriate action is taken.

<table>
<tr><td></td><td>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.
Maintain good communication lines with the EERT to ensure prompt help response & adequate protection, by keeping them informed of Project progress.</td></tr></table>
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</td></tr>
</table>

	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	2,400,000 Kyats (Lump sum/year)

Allocation	
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 after tax to be allocated as CSR fund starting from the project operation: Training for employee (1.5%) and to support the environmental protection and to creat the green area of the trees (0.5%).

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 48: Annual Replanting 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 49: 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

<table>
<tr>
<td>6. Noise and Vibration</td>
<td>One sample is measured to cover the whole Project Area</td>
<td>Yearly</td>
<td>NEQEG Noise Level Parameters
<table>
<tr><th rowspan="2">Receptor</th><th colspan="2">One hour LAeq (dBA)[a]</th></tr>
<tr><th>Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)</th><th>Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)</th></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>EMP Organization or Third Party</td>
</tr>
<tr>
<td>7. Waste Management</td>
<td>the whole Project Area</td>
<td>Weekly</td>
<td>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></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></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></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>
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<td>EMP Organization or Third Party</td>
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</table>

8.12 Environmental Monitoring Cost Allocation

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

Table 50: 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 Program	500,000	1	500,000	Yearly
Total Estimated Annual Budget for EMP and Monitoring (Kyats)				21,900,000	Kyats

Say 22,000,000 Kyats

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

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

9. STAKEHOLDER ENGAGEMENT PROCESS AND INFORMATION DISCLOSURE

9.1 Stakeholder Engagement Process

Stakeholder engagement (SE) is considered a best practice in sustainability reporting, as it increases companies' social legitimacy and reputation.

It is now also recognized as a fundamental accountability mechanism since it obliges an organization to involve stakeholders in identifying, understanding and responding to sustainability issues and concerns, and to report, explain and answer to stakeholders for decisions, actions, and performance.

9.2 Key Note of Stakeholder Engagement and Key Informant Interview

9.2.1 Summary KII (Key Informant Interview) Notes

KIIs (Key Informant Interviews) were carried out by the Consultant Team during 11 May, 2022. The summary notes from these interviews with different key stakeholders are as follows:

Table 51: Summary Notes from Key Informant Interviews (KIIs), 11 May, 2022

Item	Name of Key Informant / Stakeholder	Designation / Organization	Summary Notes
1	Daw Zar Chi Lin	Manager, Human Resources	***Baisheng Company Limited*** specifically produces Sports shoes / boots with CMP (Cutting-Making-Packing) procedure according to its ordered-footwear designs from China. ▪ ***Working Hours***: Working time starts from 7:30 am to 4:30 pm with 1 hour lunch-break in two shifts (11:45-12:45 hrs. & 12:00-13:00 hrs.) ▪ ***Staff***: At present, we have 800 workers (labors / staff). There are 60 males and 740 female workers, including one cook and one cleaner; ▪ ***Dormitory***: The two-storey RC building composed of a dormitory at the first floor for eight male Chinese technicians and two female Chinese technicians. The ground floor of this building is our factory office and the parlor. ▪ ***Factory Buildings:*** All the different processes for the manufacturing of the Baisheng shoes are carried out in these two Factory Buildings.

2	Daw Khin Moe Pyae	Factory Staff, Production Process	▪ ***The production process***: It is just cut, glue, and stitch; and produce the output product according to ordered footwear design. ▪ ***Chemical Store***: This is a separate room to store glue. Adjacent to this room, there is another room for mixing of glue and preparing work for specific glue composition; ▪ ***Warehouse:*** Rolls of fabric and accessories are stored here. ▪ ***Cutting***: According to the shoe design, cutting is made here. ▪ ***Measuring and Gluing***: measurement according to specific size and then glued. ▪ ***Sewing:*** Stitching with machines according to design. ▪ ***Lasting: Molding and Soling***: The stitched parts are put in molds; then glued to the sole ▪ ***Heating and Disinfection***: Passes through heating tower and sprayed with disinfectant to prevent fungus and purpose of long lasting. ▪ ***Packing:*** Labeling, stamping and packing in boxes for storage room, ready for export to China.
4	Daw July Swe	Nurse, Clinic	▪ ***Medical Care***: 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 minor cuts or indigestion. Others are generally healthy and fit. ▪ ***Dining Hall:*** We eat our meals in the dining hall. We bring our own tiffin from home. ▪ ***Ferry System:*** The Factory Ferry transports us to and from work in time for factory hours. ▪ ***Toilets:*** There are twenty (20) toilets in our factory. Five for men, and fifteen toilets for women. ▪ ***Waste Management:*** Since our factory production process is a dry process, we have only solid waste generated from the factory. The local municipality collects our waste five times a month and conveys them to the Htain Pin landfill site. ▪ ***Drainage System:*** We have storm water drains around our compound to drain the rainwater into the main drain in our community; and ultimately discharged into the nearest water body.

5	U Zaw Win Htut	Factory Staff	▪ ***Water Supply***: We have one tube well. The well water is hard water and does not comply with the WHO Drinking water quality standard. ▪ ***Water Purification***: We have one Reverse Osmosis Water Treatment Plant. After treating the well-water from our factory compound, the treated water is tested for its physical chemical analyses and is found to be chemically potable; ▪ ***Drinking Water Supply***: The factory provides drinking water to its staff by purchasing drinking water from reliable source while the RO plant is in maintenance work. ▪ ***Electrical Power Supply***: We acquire electricity from the national grid. We have two transformers installed in the factory compound, each having 3.5 KVA. ▪ ***Generators:*** For emergency electrical supply, we have three Generators installed in our electrical room. ▪ ***Exhaust Fan:*** We have ventilation system and big exhaust fans installed near the ceiling of our factory roof. ▪ ***Fire Fighting System:*** This is the big ground tank of 3200 gallons for storing water for emergency fire-fighting purpose. Water pipes and pumps are connected; with different firefighting equipment installed in the factory premises.

9.3 Summary Notes from Stakeholder Consultation Meeting (8 July 2022)

Summary Notes of Stakeholder Consultation Meeting (8 July 2022)[20]

Location : Baisheng Factory Meeting Hall
Date : 8 July 2022
Time : 9:00 – 11:00 a.m.
Participants : Baisheng Factory Staff (13), Local Authority Representative (1), NEPS Team (4)

[20] Appendix H: Meeting Minutes of Stakeholders Meeting (8 July 2022)

Item	Name of Key Participant	Designation / Organization	Summary Notes
1	Daw Nay Chi Lin	HR Manager, Baisheng Factory	*Baisheng (Myanmar) Industry Company Limited* produces boots / shoes (men / women) according to customer design; and was established on 6/5/2020, with an initial ten-year plan. The raw material is imported from China and the products imported to ordered customers (e.g. France, etc.). ▪ The factory staffs are generally local inhabitants from Htantapin and Hlaing Thayar townships. ▪ There is ferry service to transport staff to and from factory and home. ▪ The working hour is from 7:30a.m. – 4:30 p.m. ▪ Working overtime, medical leave, sick leave, practiced according to National relevant standing rules for labors concerning overtime and leave. ▪ There are 70 men and 895 women workers in the factory. ▪ Foreign technicians oversee the overall factory sections such as shoe design, cutting, molding, and final additions of the products.
2	Daw Phyu Phyu Aye	Senior Environmental Engineer, NEPS	This meeting is held to explain about the Environmental Management Plan (EMP) Report that NEPS has prepared after being assigned by *the Baisheng (Myanmar) Industrial Company Limited* to carry out this environmental task. The components of the EMP consists of: ▪ Baseline Study: (a) location of project and its environment; (b) Physical environment (air, water, sound, light quality); (c) Biodiversity; (d) Social environment: ▪ Impact (adverse / beneficial) due to the proposed project is assessed; according to four parameters: extent, duration, magnitude and probability on the Biophysical and Chemical (BPC) and the Socio-economic and cultural (SEC) aspects of the environment. The significance value of each impact (adverse or beneficial) is defined {significance = (extent +

			duration + probability) x magnitude}. If the value is less than 9 = low impact; if between 9-14 = medium, >14= High impact. ▪ After assessing the corresponding impacts for each aspect of BPC and SEC, mitigation measures are recommended and discussed for implementing the Environmental Management Plan (EMP) ▪ Although the Physical study measurements for outdoor air quality of the factory detected some parameters slightly exceeding the NEQEG guideline values for $PM_{2.5}$, and SO_2, the indoor air quality measurements are: $PM_{2.5}$ = Moderate, PM_{10}= Good, TVOC= Safe, HCHO= too little, not detected, CO_2 = Moderate, according to EPA guideline value. The production workers are recommended to use the necessary PPE as advised in the MSDS and EMP Report during production process and the warehouse handling of chemicals / glue. ▪ The EMP will be carried out by EMO (Environmental Management Officer); and ESO (Environmental Site Officer), (either from the present staff or recruited for monitoring the factory's environment issues). ▪ The EMP of each sub plan is prepared with its individual estimated costs to carry out the plan. Daw Haymar Hnin will now explain in detail the findings from the EMP Report.
3	Daw Haymar Hnin	Environmental Engineer, NEPS	This power point presentation of EMP Report of King Foam Factory will also attach; as Appendix H to the EMP Report. The findings from the measurements of the environmental monitoring report are as follows: Outdoor Air quality: Other parameters conform to NEQEG Guideline Values, except for $PM_{2.5}$ = 27 $\mu g/m^3$ >25 $\mu g/m^3$, SO_2 = 120 $\mu g/m^3$ > 20 $\mu g/m^3$, which are presumed to be emitted from the generators running in the factory and its neighboring factories.

			Indoor Air quality: According to EPA (US Environmental Protection Agency) of the OSHA (Occupational Safety and Health Administration) standard guideline value, the measured value of $PM_{2.5}$ = 14.8 µg/m^3 = Moderate (sensitive people should consider limiting prolong exposure); PM_{10} = 18.8 µg/m^3 = Good; TVOC = 0.0884 mg/m^3 < 0.6 mg/m^3 = threshold limit. {Safe}; HCHO= 0.0136 mg/m^3 < (0.101-0.2 mg/m^3 = light) = not detected (too little); CO_2 = 592.6 ppm (within 450-700 ppm) = Stuffiness and odor. Therefore, the factory staff are: recommended to wear the necessary PPE (Personal Protective Equipment) as instructed by the factory manager and reminded with poster board near the mixing of chemical in the production of foam process. Environmental Management Plans for each identified impact***:*** 1. Occupational Health and Safety Plan; 2. Emergency Preparedness Plan; 3. Corporate Social Responsibility (CSR) Plan; 4. Water Quality Management Plan; 5. Drainage Management Plan; 6. Air Quality Management Plan; 7. Waste Management Plan; 8. Traffic Management Plan; 9. Community Engagement and Development Plan; 10. Restoration and Replantation Plan; 11. Environmental Monitoring Plan; 12. Cost Estimate for EMP and 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. The EMP and Monitoring plan will be carried out be the EMO (Environmental Management Officer) and supported by ESO (Environmental Site Officer), chosen by the project proponent either from the present staff or by recruiting new project staff.
4	U Aung Myo Lwin	Local Authority Representative, Ahsugyi Village head, Htantapin Township,	▪ Honored to be present at this meeting. ▪ Many local youths enjoy employment due to this project. ▪ Willing to of any help for the successful implementation of this project. Thank you.
5	Daw Thuzar Aung	Head, Assembly Section, Baisheng footwear Production Factory, Representative Local people	▪ We enjoy our work at the Baisheng Footwear Factory ▪ We live in this locality. ▪ The factory has good ventilation. ▪ There is no problem for travelling to and from the factory. We recommend this good project
6	Daw Nay Chi Lin	HR Manager, Baisheng Factory	Thank you all for your participation and recommendations for the good of this project.

10. RECOMMENDATION AND CONCLUSION

10.1 Social Findings

The proposed project land has no inhabitants living in the area and no resettlement issue identified since the project area has already settled all issues of land acquisition for implementation of the footwear production work by CMP process. The site visit was carried out in the environs of the project site during May, 2022. 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 provide the production technique of shoe to Myanmar people and operate the operation works.

10.2 Environmental Finding

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 May, 2022. 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 Baisheng (Myanmar) Industry 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 five times a month by the local municipality and conveys them to the Htain Pin landfill site.

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

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

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

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