

## **EXECUTIVE SUMMARY**

The project is investment for manufacturing of high quality vermicelli company from local (Myanmar). According to the Myanmar Environmental Conservation Law 2012, it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry to Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD) said project requires an Environmental Management Plan (EMP) to meet the environmental assessment requirements. Therefore, Win Win Vermicelli Industry Co., Ltd commissioned Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co., Ltd) for EMP report study. The specific objectives of this study area

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

The proposed project aims to manufacturing of garments under CMP basis and 100% export to foreign country.

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

### **Policy, Legal and Institutional Framework**

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

1. The Constitution Law, 2008
2. The Environmental Conservation Law, 2012
3. The Environmental Conservation Law, 2014
4. Environmental Impact Assessment Procedure, 2015
5. National Environmental Quality (Emission) Guideline 2015
6. National Myanmar Environmental Policy 2019
7. Foreign Investment Law, 2012
8. Foreign Investment Rule, 2013
9. Myanmar Investment Rule, 2017
10. Myanmar Insurance Law, 1993
11. Payment of Wages Law 2016
12. Payment of Wages Law 2016
13. Yangon City Development Committee Law 2018
14. The Amended law of factories Act 1951 (2016)
15. The Private Industrial Enterprise Law
16. The Export and Import Law 2012
17. The Prevention of Hazard from Chemical and Related Substances Law 2013
18. The Underground Water Act
19. Myanmar Fire Brigade Law 2015
20. Fire Safety Procedure
21. The Electricity Law 2014
22. Boiler Law 2015
23. Labor Dispute Settlement Law 2012
24. The Law Amending the Settlement of Labor Dispute Law 2019
25. The Social Security Law 2012
26. The Employment and Skill Development 2013
27. The Worker's Compensation Act 1923
28. The Leave and Holidays Act 1951 Partially Reused In 2014

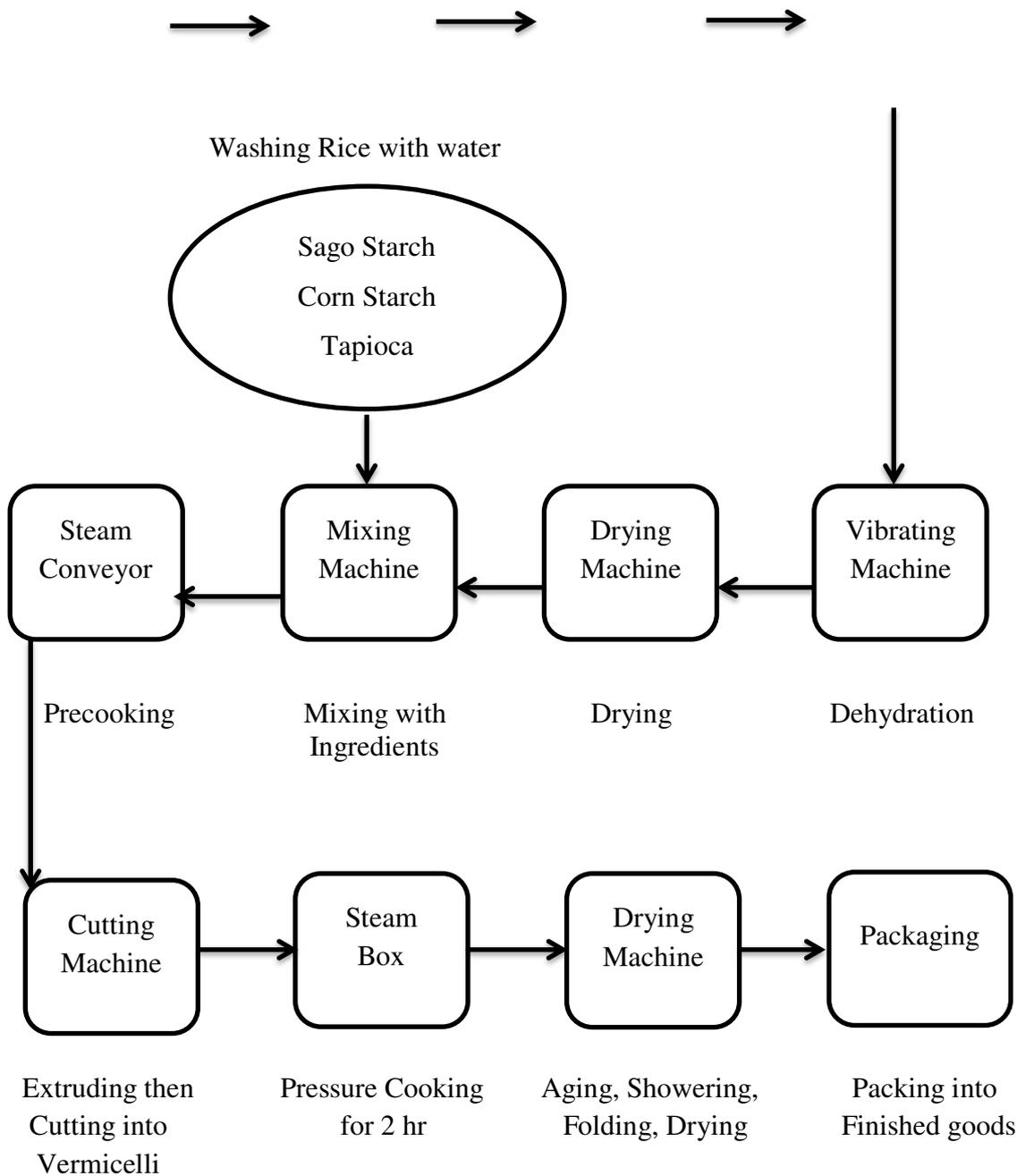
29. The Minimum Wage Law 2013
30. Public Health Law 1972
31. Prevention and Control Of Communicable Disease Law 1995 Amendment 2011
32. Occupational Safety and Health Law 2019
33. The Law On Standardization
34. လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သော ဝတ္ထုပစ္စည်းများဆိုင်ရာဥပဒေ 2018
35. The Motor Vehicles Law 2015
36. The Conservation of Water Resources and River Law 2006
37. The Commercial Tax Law 1990 Amended 2014
38. The Natural Disaster Management Law 2013

**Project Description**

Type of proposed business	Manufacturing of high quality vermicelli
Type of investment	100% local investment
Name of company	Win Win Vermicelli Industry Co., Ltd
Total land area	1 acre (4046.86 sq meters)
Land Lease Year	15.5.2014
Production Year	23.9.2014
Type of land	Industrial Land
Address of proposed project	No (27), U Tayote Street, Shwe Pyi Thar Industrial Zone (2), Shwe Pyi Thar Township, Yangon Region, Myanmar
Contact Person & Number	U Myo Min Naing, 09-420027111

The proposed project is located at Yangon region. The total area of project site is 1 acre (4046.86 sq meters). Main structure is designed into production area for one building. Generator room, canteen and dormitory are separated by main factory building structure. The factory layout plan which is also can be seen in this report. Production is requiring of work force 1 foreign technician and 81 local employees for first year operation to 10 years operation. The main product of the Win Win Vermicelli Industry Co., Ltd factory is vermicelli. The utilities for proposed factory include fuel oil for emergency used generator and water for domestic use.





**Figure 1 Process Flow**

**Brief Description of Surrounding Environment**

Primary data and secondary data collections are very important to assess environmental impacts. Primary data collections (environmental quality measurements and monitoring) play an important role for conducting EMP. Therefore, Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co.,Ltd) conducted air quality, temperature and humidity, noise level measurement and light pollution measurement on 13 August 2022 and compared with the National Environmental Quality (Emission) Guidelines and described how to reduce the impact and how to maintain the pollutions also described the weather conditions, rainfalls and socio-economic component of the proposed project.

**Potential Environmental Impact and Mitigation Measure**

Possible effects such as impacts on environmental resources, ecological resources, human and waste disposal due to construction, operation and decommissioning processes. Potential impacts for the proposed projects are normally differentiated into three categories, viz, construction phase,

operation phase and decommissioning phase. The budget in environmental monitoring program is estimated to be **3,000 USD** for operation phase.

The relative important of each impact is assessed based on the understanding that general mitigation measures will be integrated into the baseline project. Therefore, when the general mitigation measures reduce impacts to the point of rendering them negligible they are excluded from further analysis. Once the significance of the impact is established as more than negligible, it is described and additional, specific mitigation measures may be proposed to allow optimal integration of the project into the environment.

**Table 1 Environmental and Social Risk Assessment**

Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance
		M	D	E	P	SP	
Construction Phase; It is not assessed in this phase because of construction is already completed during EMP preparation.							
<b>Operation Phase</b>							
Air Pollution	<ul style="list-style-type: none"> <li>Dust and GHGs emission from vehicles used for transporting raw materials and final products</li> <li>Particulate matters emission from the activities of production process</li> <li>Emission of smoke from (rice briquettes) and kitchen</li> <li>Emission from emergency diesel generator</li> </ul>	3	4	2	4	36	Moderate
Water Pollution	<ul style="list-style-type: none"> <li>Sewage disposed of from the toilets</li> <li>Oil spill and grease leaks from transporting vehicles and machinery equipment used in operation phase</li> </ul>	2	4	2	3	24	Low
Soil contamination	<ul style="list-style-type: none"> <li>Accidental spillage of oil used by vehicles operating</li> </ul>	1	4	1	2	12	Very low
Noise pollution	<ul style="list-style-type: none"> <li>Generating noise from the production machinery</li> <li>Noise from the generating of the emergency generators</li> </ul>	3	4	1	4	32	Moderate
Fire Hazard	<ul style="list-style-type: none"> <li>Poor electrical installations</li> <li>Waste disposed area</li> <li>Raw materials storage</li> </ul>	3	4	2	3	27	Moderate
Solid waste	<ul style="list-style-type: none"> <li>Residual pieces of scarps from the production lines</li> <li>Waste from packaging materials</li> <li>Waste from kitchen, dormitory and office</li> </ul>	3	4	1	4	32	Moderate
Liquid waste	<ul style="list-style-type: none"> <li>Septic system and sewage</li> <li>Domestic liquid waste disposal from office, kitchen and dormitory</li> </ul>	2	4	2	4	32	Moderate
Hazardous waste	<ul style="list-style-type: none"> <li>Engine oil leaks, spill at diesel storage and during fuel refueling</li> <li>Used oil and lubricant discharged from the maintenance of vehicles and machines</li> </ul>	2	4	1	2	14	Very low

Occupational health and safety (accidents, injuries)	<ul style="list-style-type: none"> <li>Accidental cases cause by operating machines</li> <li>Electricity and emergency diesel generators.</li> <li>Unloading, mixing, cutting, pressing and packaging activities.</li> <li>Accidental cases of thermic fluid heater</li> </ul>	3	4	1	4	32	Moderate
Social-economic condition	<ul style="list-style-type: none"> <li>Job opportunities for local people</li> </ul>	-	-	-	-	-	Positive impact
<b>Decommissioning Phase</b>							
Air pollution	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> </ul>	3	1	1	4	20	Low
Water pollution	<ul style="list-style-type: none"> <li>Sewage from decommissioning workers</li> <li>Demolition machinery equipment</li> </ul>	3	1	1	3	15	Low
Soil contamination	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Noise pollution	<ul style="list-style-type: none"> <li>Decommission activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Waste disposal	<ul style="list-style-type: none"> <li>Sewage system</li> <li>Demolished debris such as bricks concrete materials</li> </ul>	3	1	1	3	12	Very Low
Hazardous waste	<ul style="list-style-type: none"> <li>Used lubricants from decommissioning vehicles and machines</li> </ul>	3	1	1	3	12	Very Low
Occupational health and safety (accidents, injuries)	<ul style="list-style-type: none"> <li>Decommission activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	2	3	18	Low
Social-economic condition	<ul style="list-style-type: none"> <li>Temporary job opportunities for local people</li> </ul>	-	-	-	-	-	Positive impact

According to the result of analysis, it can be concluded that most of the project activities have low significance on environment, in all phases. Project activities that can produce solid waste and liquid waste are moderate significance. Moreover, project activities that emit dust and GHGs and accidental cases are moderately significant. Fire hazard potential of the proposed project and noise pollution are highly significant. However, this can be prevented or mitigated a by using the following mitigation measures.

### Environment Management Program

The proposed project of environmental management plan which have to make the Environmental Management System (EMS). In that plan, it includes not only reducing to the environmental and social-economic impact but also includes the environmental management plan and the monitoring plan. In this EMP to implement the health, safety and occupational for the industry they need to create a team and to must be implemented that. The EMP for Win Win Vermicelli Industry Co., Ltd has been prepared to address potential issues based upon discussion with factory

management, workers, local community's view, stakeholder consultation and from the site visit of experts. The EMP is additional to and compliments the factory's safety management system. The following environmental issues that require environmental management plans based upon the potential impacts activities by for Win Win Vermicelli Industry Co., Ltd is as follows:

1. Air Emissions Management
2. Noise Pollution Management
3. Waste Management Plan
4. Solid Waste Management Plan
5. Natural Environmental Management
6. Social Environmental Management
7. Occupational Health and Safety Management
8. Emergency Response Plan
9. Environmental Monitoring and Reporting
10. Corporate Social Responsible (CSR) Plan
11. Budget Plan
12. Grievance Redress Mechanism

### **Public Consulting**

Under the Environmental Monitoring Plan, the project owner must monitor environmental quality, noise, wastewater quality and safety. Records should be carefully archived and submitted to the relevant authorities for reviewing the results of monitoring air quality measurements, water quality measurements and noise measurements. Public consultation and information disclosure the preparation of Environmental Management Plan (EMP) will be conducted face to face by the Green EHSS Co.,Ltd, together with Win Win Vermicelli Industry Co., Ltd, on the background and production process of the project and the production process.

### **Conclusion & Recommendation**

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

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

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

### အကျဉ်းချုပ်အစီရင်ခံစာ

အဆိုပြုလုပ်ငန်းသည် စားသောက်ကုန်လုပ်ငန်း(ကြာဇံထုတ်လုပ်ခြင်း)အတွက် ရင်းနှီးမြှုပ်နှံသော ကုမ္ပဏီဖြစ်ပါသည်။ မြန်မာနိုင်ငံပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ ၂၀၁၂ အရ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် EMP ပြုလုပ်ရန်လိုအပ်ကြောင်း ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ရန်ကုန်တိုင်းဒေသကြီးမှ သဘောထားမှတ်ချက်ရရှိပြီးဖြစ်ပါသည်။ ထို့ကြောင့် EMP အစီရင်ခံစာရေးဆွဲရန် တတိယအဖွဲ့အစည်း ဖြစ်သော Green Environmental, Health, Safety & Social Consultancy Company Limited မှ တာဝန်ယူရေးဆွဲခဲ့ပါသည်။

EMP အစီအစဉ်တွင် Win Win Vermicelli Industry Co., Ltd ၏ စားသောက်ကုန်လုပ်ငန်း (ကြာဇံ ထုတ်လုပ်ခြင်း)စီမံကိန်းအတွက် Green Environmental, Health, Safety & Social Consultancy Company Limitedမှရေးသားပြုစုထားသောပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာဖြစ်ပါသည်။အဆိုပါလေ့လာဆန်းစစ် ခြင်း၏ရည်ရွယ်ချက်များမှာ-

- ✓ သဘာဝပတ်ဝန်းကျင်နှင့်လူမှုပတ်ဝန်းကျင်အပေါ် စီမံကိန်းဆောင်ရွက်ချက်များကြောင့် ထိခိုက်မှု များကိုလေ့လာရန်။
- ✓ ထိုထိခိုက်မှုများကို လျော့ချနိုင်ရန်လျော့နည်းစေမည့်နည်းလမ်းများကိုဖော်ပြရန်။
- ✓ စီမံကိန်းအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အစီရင်ခံစာ လုပ်ဆောင်ရာတွင်လုံလောက်မှုရှိ စေရန်။
- ✓ ဒေသခံများ၏ လူမှုရေးသက်သာချောင်ချိမှုများ တိုးမြှင့်ရန်နှင့်ဒေသတွင်းဖွံ့ဖြိုးတိုးတက်မှုများအတွက် မရှိမဖြစ်အရေးပါသောလူမှုစီးပွားတာဝန်ယူမှုအစီအစဉ်အားအကောင်အထည်ဖော်ရန်တို့ဖြစ်ပါသည်။

အဆိုပြုထားသောစီမံကိန်း၏ရည်ရွယ်ချက်သည်အရည်အသွေးမြင့်မားသောကြာဇံများထုတ်လုပ်ပြီး ပြည်တွင်း၌ ၁၀၀% ဖြန့်ချိရန်ဖြစ်သည်။

### ဥပဒေနှင့်မူဝါဒဆိုင်ရာအချက်အလက်များ

EMP ရေးဆွဲခြင်း၏ရည်ရွယ်ချက်မှာနိုင်ငံတော်နှင့်နိုင်ငံတကာမှချမှတ်ထားသောပတ်ဝန်းကျင်ထိန်းသိမ်းရေး အစီအစဉ်များ၊စည်းမျဉ်းစည်းကမ်းများ၊ဥပဒေနှင့်နည်းဥပဒေများကိုလိုက်နာပြီးပတ်ဝန်းကျင်နှင့်လိုက်ရော ညီထွေရှိသောထိခိုက်မှုလျော့ချရေးအစီအစဉ်များပြုလုပ်ရန်ဖြစ်ပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အစီရင်ခံစာရေးသားပြုစုသူများ၏ ကျွမ်းကျင်မှုနယ်ပယ်ဆိုင်ရာဖော်ပြချက်များကို ရေးသားဖော်ပြထားပါသည်။ ဥပဒေနှင့်နည်းဥပဒေအခန်းတွင်MONREC မှထုတ်ပြန်ထားသည့်ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများ၊ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ် လွှတ်မှု)လမ်းညွှန်ချက်များအပြင် စက်ရုံနှင့်ဆက်စပ်သက်ဆိုင်နေပြီးလိုက်နာရမည့်ဥပဒေနှင့်နည်းဥပဒေများ၊ ဒေသတွင်း သို့မဟုတ်အပြည်ပြည် ဆိုင်ရာသဘာဝပတ်ဝန်းကျင်နှင့်လူမှုပတ်ဝန်းကျင်ဆိုင်ရာမူဝါဒများ၊ဆက်စပ်နေသည့်နိုင်ငံတကာသဘောတူ ညီချက်များကိုအကျဉ်းချုပ်ရေးသားဖော်ပြထားပါသည်။စက်ရုံအတွင်းလိုက်နာဆောင်ရွက်ရမည့်စည်းမျဉ်း စည်းကမ်းများ၊လုပ်ငန်းခွင်အန္တရာယ်ကင်းရှင်းရေးနှင့် ကျန်းမာရေးဆိုင်ရာအခြေခံစည်းမျဉ်းစည်းကမ်းများ လည်းထည့်သွင်းဖော်ပြထားပါသည်။ Win Win Vermicelli Industry Co., Ltd ၏ပတ်ဝန်းကျင်ထိန်း

သိမ်းရေးဆိုင်ရာကတိကဝတ်များအပြင် ပတ်ဝန်းကျင်ထိခိုက်မှုလျှော့ချရေးမူဝါဒများကိုလည်း ထည့်သွင်း ဖော်ပြထားပါသည်။

1. The Constitution Law 2008
2. The Environmental Conservation Law 2012
3. The Environmental Conservation Rule 2014
4. Environmental Impact Assessment Procedure 2015
5. National Myanmar Quality (Emission) Guideline 2015
6. National Myanmar Environmental Policy 2019
7. Foreign Investment Law 2012
8. Foreign Investment Rule 2013
9. Myanmar Investment Rule 2017
10. Myanmar Insurance Law 1993
11. Payment of Wages Law 2016
12. The Payment of Wages Act 1936
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14. The Amended Law for Factories Act 1951(2016)
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27. The Worker's Compensation Act 2013
28. The Leave and Holidays Act 1951 partially reused in 2014
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30. Public Health Law 1972
31. Prevention and Control of Communicable Disease Law 1995 Amendment in 2011
32. Occupational Safety and Health Law 2019
33. The Law on Standardization
34. လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သောသတ္တုပစ္စည်းများဆိုင်ရာဥပဒေ၂၀၁၈

- 35. The Motor Vehicle Law 2015
- 36. The Conservation of Water Resources and River Law 2006
- 37. The Commercial Tax Law 1990 amended 2014
- 38. The Natural Disaster Management Law 2013

အဆိုပြုထားသောစီမံကိန်း	စားသောက်ကုန်လုပ်ငန်း(ကြာဇံထုတ်လုပ်ခြင်း)
ရင်းနှီးမြှုပ်နှံမှုပုံစံ	၁၀၀% နိုင်ငံခြားသားရင်းနှီးမြှုပ်နှံမှု
ကုမ္ပဏီအမည်	Win Win Vermicelli Industry Co., Ltd
လုပ်ငန်းစတင်သည့်ခုနှစ်	၂၃.၉.၂၀၁၄
စုစုပေါင်းမြေကွက်ဧရိယာ	၁ ဧက (၄၀၄၆.၈၆ စတုရန်းမီတာ)
မြေနေရာပုံစံ	စက်မှုဇုန်မြေ
စီမံကိန်းတည်နေရာ	အမှတ်(၂၇)၊ ဦးတရုတ်လမ်း၊ ရွှေပြည်သာစက်မှုဇုန်(၂)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး
ဖုန်းနံပါတ်	၀၉-၄၂၀၀၂၇၁၁၁

အဆိုပြုလုပ်ငန်းအတွက်တည်နေရာနှင့်စက်ရုံအတွင်းပါရှိသည့်ရုံးခန်းအဆောင်များ၊ စားသောက်ဆောင်၊ စတိုအခန်း၊ ပြုပြင်ထိန်းသိမ်းရေးအခန်း၊ မီးဖိုချောင်အစရှိသည့်တို့ကို သီးခြားဖော်ပြထားပါသည်။ ထို့အပြင် ထုတ်လုပ်မှုနည်းလမ်းများ၊ လိုအပ်သည့်ကုန်ကြမ်းများ၊နှစ်စဉ်ထွက်ကုန်များနှင့် စက်ပစ္စည်းများအားဖော်ပြထားပါသည်။အဆိုပြုလုပ်ငန်းအတွက်လိုအပ်သည့်စွမ်းအင်နှင့်အသုံးပြုသည့်ပမာဏများကိုလည်းထည့်သွင်းဖော်ပြထားပါသည်။ ကျန်လုပ်ငန်းသုံးယာဉ်နှင့်ရုံးသုံးပစ္စည်းများကိုပြည်တွင်းမှဝယ်ယူအသုံးပြုပါသည်။ နိုင်ငံသား(ပြည်တွင်း)လုပ်သား(၈၁)ဦးဖြင့်ဆောင်ရွက်သွားမည်ဖြစ်သည်။ ကုန်ထုတ်လုပ်ခြင်းလုပ်ငန်းမှာ Automatic Machine နှင့်လူစွမ်းအားကိုအသုံးပြုသောလုပ်ငန်းမျိုးဖြစ်ပါသည်။ထုတ်လုပ်ပုံအဆင့်ဆင့်ကိုအောက်ဖော်ပြပါပုံပြဇယားတွင်ဖော်ပြထားပါသည်။

**အနီးပတ်ဝန်းကျင်အခြေအနေ**

ကနဦးစစ်တမ်းကောက်ယူခြင်းနှင့်ဒေသဆိုင်ရာမှ အချက်အလက်များရယူခြင်းသည် အလွန်အရေးကြီးပါသည်။ပတ်ဝန်းကျင်အရည်အသွေးတိုင်းတာခြင်းကဲ့သို့သောကနဦးစစ်တမ်းကောက်ယူခြင်းသည်ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာတွင် အရေးပါသောအခန်းအဖြစ်တည်ရှိနေသည်။ ထို့အတွက်စီမံကိန်းသို့ကွင်းဆင်းလေ့လာမှုများကို ၁၀ ရက် ဩဂုတ်လ ၂၀၂၂ ခုနှစ်တွင်လက်တွေ့ကွင်းဆင်းလေ့လာခဲ့ပြီးလိုအပ်သည့် လေအရည်အသွေး၊ ဆူညံမှု၊ အလင်း၊ အပူချိန်နှင့်စိုထိုင်းမှု အစရှိသည့်အချက်အလက်များကိုရယူခဲ့ပါသည်။ ကွင်းဆင်းလေ့လာထားသည့်အချက်အလက်များကိုသက်ဆိုင်ရာ ခေါင်းစဉ်အလိုက်အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေးထုတ်လွှတ်မှုလမ်းညွှန်ချက်များနှင့် နှိုင်းယှဉ်၍ဖော်ပြထားပါသည်။ ထိုနည်းတူ လျှော့ချရမည့်နည်းလမ်းများကိုလည်းထည့်သွင်းဖော်ပြထားပါသည်။စီမံကိန်းတည်ရှိရာဒေသရှိရာသီဥတု၊ မိုးရေချိန်၊လူမှုစီးပွားရေးဆိုင်ရာအချက်အလက်များကိုလည်းဖော်ပြထားပါသည်။

**ပတ်ဝန်းကျင်ထိခိုက်မှုနှင့် လျော့ချရေးအစီအစဉ်**

စီမံကိန်းဆောင်ရွက်ချက်များကြောင့်ပတ်ဝန်းကျင်ဆိုင်ရာအရင်းအမြစ်များ၊ ဂေဟဆိုင်ရာအရင်းအမြစ်များ၊ လူ့စွမ်းအားအရင်းအမြစ်များနှင့် စွန့်ပစ်ပစ္စည်းများစွန့်ပစ်ခြင်း စသည့်ဖြစ်လာနိုင်သည့်ထိခိုက်မှုများကိုခွဲခြားသတ်မှတ်ပြီး ၎င်းတို့၏ရလဒ်များကို ထိခိုက်မှုဆန်းစစ်သည့်နည်းလမ်းများကို အသုံးပြု၍သတ်မှတ်ခဲ့ပါသည်။ စီမံကိန်းအားထိခိုက်မှုများကို အပိုင်းပိုင်းခွဲ၍သတ်မှတ်ထားပါသည်။ အမျိုးအစားမှာ တည်ဆောက်သည့်ကာလ၊ လုပ်ငန်းလည်ပတ်သည့်ကာလနှင့်လုပ်ငန်းဖျက်သိမ်းမည့်ကာလများဖြစ်ပါသည်။ ပတ်ဝန်းကျင်ထိခိုက်မှုလျော့ပါးစေရေးနည်းလမ်းများကိုလည်းထည့်သွင်းဖော်ပြထားပါသည်။ စီမံကိန်းလည်ပတ်စဉ်ကာလအတွက် ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်ကိုအကောင်အထည်ဖော်ဆောင်ရွက်ရန် အသုံးစရိတ်ရန်ပုံငွေကို တစ်နှစ်လျှင်အမေရိကန်ဒေါ်လာ၃၀၀၀ခန့်လျာထားပါသည်။

ပတ်ဝန်းကျင်လက္ခဏာ	လုပ်ငန်းလုပ်ဆောင်မှု	ထိခိုက်မှုအဆင့်	လျော့ချရေးနှင့်ထိန်းချုပ်မှု
တည်ဆောက်ရေးကာလ။ ။ ပတ်ဝန်းကျင်ထိခိုက်မှုလေ့လာချိန်တွင် စက်ရုံတည်ဆောက်ပြီး လုပ်ငန်းလည်ပတ်နေချိန်ဖြစ်သော်ကြောင့် ဤကာလကို ထည့်သွင်းမစဉ်းစားပါ။			
<b>လုပ်ငန်းလည်ပတ်ခြင်းကာလ</b>			
လေထုညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>• သယ်ယူပို့ဆောင်ရေးသုံးမော်တော်ယာဉ်တို့ကြောင့် ဖုန်မှုန့်နှင့်ဖန်လုံအိမ်ဓာတ်ငွေ့ထွက်ခြင်း</li> <li>• လုပ်ငန်းခွင်အတွင်းဖုန်မှုန့်ထွက်ခြင်း</li> <li>• မီးဖိုတိုမီးခိုးထွက်ခြင်း</li> <li>• အရေးပေါ်သုံးမီးစက်မှ စွန့်ထုတ်အနံ့အငွေ့ထွက်ခြင်း</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>• မီးစက်တို့တွင်မီးခိုးခေါင်းတိုင် တပ်ဆင်ခြင်းဖြင့်အနံ့အငွေ့ကြောင့်ပတ်ဝန်းကျင်ထိခိုက်မှုကို လျော့ချခြင်း</li> <li>• စက်ရုံအတွင်းနှင့်အနီးအနားတွင်သစ်ပင်ပန်းမဲစိုက်ပျိုးခြင်းဖြင့် ကာဗွန်ထွက်ရှိမှုကိုလျော့ချပေးခြင်း</li> <li>• NOx ထွက်ရှိမှုနည်းသော နည်းပညာမြင့်စက်ပစ္စည်းများသုံးခြင်း</li> <li>• စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း</li> </ul>
ရေ	<ul style="list-style-type: none"> <li>• မိလ္လာစွန့်ထုတ်ရေ</li> <li>• စက်ပစ္စည်းများ၊မော်တော်ယာဉ်များမှဆီယိုဖိတ်ကျခြင်း</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>• လက်ရှိရေဆိုးစွန့်ပစ်မှုပုံစံဖြစ်သော မိလ္လာစနစ်ကို ပုံမှန်စစ်ဆေးပေးခြင်း</li> <li>• မိလ္လာကန်နှင့်မိလ္လာစနစ်ကိုလူဦးရေနှင့်ရရန်သင့်တင့်သည့် ပမာဏရှိရန်စီစဉ်ထားခြင်း</li> <li>• ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ပေးခြင်း</li> <li>• စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း</li> </ul>

မြေဆီလွှာညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>မတော်တဆစက်ပစ္စည်းများ၊မော်တော်ယာဉ်များမှ ဆီယိုဖိတ်ကျခြင်း</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း</li> <li>မတော်တဆမှုမဖြစ်စေရန်ထိန်းသိမ်းခြင်း</li> </ul>
ဆူညံသံ	<ul style="list-style-type: none"> <li>မီးစက်၊လေမှုတ်စက်နှင့် မော်တော်ယာဉ်အသုံးပြုမှုကြောင့်ပတ်ဝန်းကျင်ဆူညံမှု</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>ဆူညံသံထွက်သောနေရာများကိုအကာအကွယ်ဖြင့်ထားရှိခြင်း</li> <li>စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ပေးခြင်း</li> </ul>
မီးဘေးအန္တရာယ်	<ul style="list-style-type: none"> <li>ကုန်ကြမ်းသိုလှောင်မှုနှင့် လျှပ်စစ်သုံးစွဲမှုပေါ့လျော့ခြင်း</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>ကုန်ကြမ်းများအားသီးသန့်ထားရှိခြင်း</li> <li>လျှပ်စစ်သုံးစွဲမှုများအားစနစ်တကျအသုံးပြုစေခြင်း</li> </ul>
စွန့်ပစ်အမှိုက်	<ul style="list-style-type: none"> <li>ထုတ်လုပ်ရာတွင်ကျန်ရှိသောပိတ်စအပိုင်းအစများ၊မီးဖိုချောင်နှင့်ရုံးတွင်းစွန့်ပစ်ပစ္စည်းများ</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>စွန့်ပစ်အမှိုက်များအားပြန်လည်သုံးစွဲရန်နှင့်စွန့်ပစ်ရန်အဖြစ်သတ်မှတ်ပြီးသီးခြားစွန့်ပစ်စေခြင်း</li> </ul>
စွန့်ပစ်အရည်	<ul style="list-style-type: none"> <li>နေအိမ်၊စားသောက်ဆောင်တို့မှစွန့်ထုတ်ရေ၊မိလ္လာကန်စနစ်</li> </ul>	အသင့်တင့်	<ul style="list-style-type: none"> <li>စွန့်ပစ်အမှိုက်များအားပြန်လည်သုံးစွဲရန်နှင့်စွန့်ပစ်ရန်အဖြစ်သတ်မှတ်ပြီးသီးခြားစွန့်ပစ်စေခြင်း</li> </ul>
အန္တရာယ်ရှိအမှိုက်	<ul style="list-style-type: none"> <li>စက်များမှဆီယိုဖိတ်မှုများ၊ မော်တော်ယာဉ်များ ပြုပြင်ထိန်းသိမ်းမှုမှထွက်ရှိသည့် အမှိုက်များ</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>စက်သုံးဆီများအားစနစ်တကျအသုံးပြုစေခြင်း၊ စနစ်တကျသိုလှောင်ခြင်းနှင့် အန္တရာယ်ရှိပစ္စည်းများအားစနစ်တကျထားရှိစေခြင်း</li> </ul>
လူမှုစီးပွားဘဝ	<ul style="list-style-type: none"> <li>ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင်အခွင့်အလမ်းများရရှိစေခြင်း</li> </ul>	အသင့်တင့်	
<b>လုပ်ငန်းပိတ်သိမ်းခြင်းကာလ</b>			
လေထုညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>အဆောက်အဦများဖြိုချမှုများ</li> <li>ဖြိုချပစ္စည်းများသယ်ယူမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>NOx ထွက်ရှိမှုနည်းသောနည်းပညာဖြင့်စက်ပစ္စည်းများသုံးခြင်း၊</li> <li>စက်ပစ္စည်းများကိုပုံမှန်ထိန်းသိမ်းပေးခြင်း၊</li> </ul>
ရေ	<ul style="list-style-type: none"> <li>ဖြိုမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ပေးခြင်း၊</li> <li>စက်ပစ္စည်းများကိုပုံမှန်ပြုပြင်ထိန်းသိမ်းပေးခြင်း</li> </ul>

မြေဆီလွှာညစ်ညမ်းမှု	<ul style="list-style-type: none"> <li>• အဆောက်အဦနှင့်ဆက်စပ်ပစ္စည်းများ</li> <li>• ဖြိုချပစ္စည်းများသယ်ယူမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>• မတော်တဆမှုမဖြစ်စေရန်ထိန်းသိမ်းခြင်း</li> </ul>
အမှိုက်စွန့်ပစ်မှု	<ul style="list-style-type: none"> <li>• အဆောက်အဦများ</li> <li>• ဖြိုချပစ္စည်းများသယ်ယူမှုများ</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>• စွန့်ပစ်အမှိုက်များအားပြန်လည်သုံးစွဲရန်နှင့်စွန့်ပစ်ရန်အဖြစ်သတ်မှတ်ပြီးသီးခြားစွန့်ပစ်စေခြင်း</li> </ul>
အန္တရာယ်ရှိအမှိုက်	<ul style="list-style-type: none"> <li>• စက်များမှဆီယိုစိမ့်မှုများ၊ မော်တော်ယာဉ်များ ပြုပြင်ထိန်းသိမ်းမှုမှ ထွက်ရှိသည့်အမှိုက်များ</li> <li>• ဖြိုချပစ္စည်းများသယ်ယူမှုများ</li> </ul>	အလွန်နည်း	<ul style="list-style-type: none"> <li>• စက်သုံးဆီများအားစနစ်တကျအသုံးပြုစေခြင်း၊ စနစ်တကျသိုလှောင်ခြင်းနှင့်အန္တရာယ်ရှိပစ္စည်းများအားစနစ်တကျထားရှိစေခြင်း</li> </ul>
မတော်တဆထိခိုက်မှုများ	<ul style="list-style-type: none"> <li>• အဆောက်အဦများဖြိုချမှုများ</li> <li>• ဖြိုချပစ္စည်းများသယ်ယူမှုများ</li> </ul>	အနည်းငယ်	<ul style="list-style-type: none"> <li>• မတော်တဆမှုမဖြစ်စေရန်ထိန်းသိမ်းခြင်း</li> </ul>
လူမှုစီးပွားဘဝ	<ul style="list-style-type: none"> <li>• ဒေသခံပြည်သူများအတွက်အလုပ်အကိုင်</li> </ul>		

အဆိုပြုလုပ်ငန်း၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအတွက် Environmental Management System (EMS) စက်ဝိုင်းဖြင့်အစီအစဉ်တကျပြုလုပ်သွားမည်ဖြစ်ပါသည်။ အစီအစဉ်တွင်စက်ရုံကြောင့်ဖြစ်ပေါ်စေနိုင်သော ပတ်ဝန်းကျင်နှင့် လူမှုဘဝအပေါ်ဆိုးကျိုးသက်ရောက်မှုများကိုလျော့ချရေး၊ စီမံခန့်ခွဲရေးနှင့်စောင့်ကြပ်ကြည့်ရှုရေးအစရှိသည့်အစီအစဉ်များပါဝင်ပါသည်။ ၎င်းEMPအစီအစဉ်များကိုအကောင်အထည်ဖော်ရန်အတွက်စက်ရုံတွင်ကျန်းမာရေး၊ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ပတ်ဝန်းကျင်ဆိုင်ရာအဖွဲ့အစည်းတစ်ခုထားရှိပြီးလျော့ချရေး၊ စီမံခန့်ခွဲရေးနှင့်စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်များကို အကောင်အထည်ဖော်သွားမည်ဖြစ်ပါသည်။ အဆိုပါစက်ရုံ၏ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို ရေရှည်ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်သောပတ်ဝန်းကျင်အဖြစ် အကောင်အထည်ဖော်ဆောင်ရွက်ရန်ဖြစ်ပါသည်။

**ပတ်ဝန်းကျင်ဆိုင်ရာဆိုးကျိုး**

သက်ရောက်မှုများကိုလျော့နည်းစေရန်စီမံခန့်ခွဲမှုအစီအစဉ်များနှင့်စောင့်ကြပ်ကြည့်ရှုရမည့်အစီအစဉ်များကိုအောက်ပါအတိုင်းပတ်ဝန်းကျင်ဆိုင်ရာအကြောင်းအရာတစ်ခုချင်းစီအလိုက်ခွဲခြားမှုပြုလုပ်ထားပါသည်။

- ၁။ ထုတ်လွှတ်အခိုးအငွေ့စီမံခန့်ခွဲမှုစီမံချက်
- ၂။ ဆူညံသံစီမံခန့်ခွဲမှုစီမံချက်
- ၃။ ရေအရည်အသေးစီမံခန့်ခွဲမှုစီမံချက်
- ၄။ အစိုင်အခဲစွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှု
- ၅။ အရေးပေါ်တုန့်ပြန်ရေး အစီအစဉ်
- ၆။ စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်
- ၇။ လူမှုအကျိုးတူပူးပေါင်းပါဝင်မှု အစီအစဉ် CSR Plan

၈။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတွက် ငွေကြေးလျာထားမှု

၉။ မကျေနပ်မှုဖြေရှင်းခြင်းနည်းလမ်း

အဆိုပြုလုပ်ငန်း၏ လူထုအကျိုးပြုပူးပေါင်းပါဝင်မှုများအဖြစ်အကျိုးအမြတ်၏ ၂% ကိုကျန်းမာရေး၊ ပညာရေးနှင့်နယ်ပယ်ဖွံ့ဖြိုးတိုးတက်ရေးများတွင်ထည့်ဝင်လှူဒါန်းသွားမည်ဖြစ်ပါသည်။အဆိုပြုလုပ်ငန်း၏ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးလုပ်ဆောင်ရမည့်လုပ်ငန်းစဉ်များနှင့် ဖြေရှင်းရမည့်နည်းလမ်းများကို လည်းထည့်သွင်းဖော်ပြထားပါသည်။

**သက်ဆိုင်သူများနှင့်တွေ့ဆုံဆွေးနွေးခြင်း**

ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်အရ စီမံကိန်းပိုင်ရှင်သည် ဝန်းကျင်လေထုအရည်အသွေး၊ ဆူညံသံ၊စွန့်ထုတ်ရေအရည်အသွေးနှင့်ဘေးအန္တရာယ်ကင်းရှင်းရေးတို့ကိုစောင့်ကြပ်ကြည့်ရှုရမည်ဖြစ်သည်။ စောင့်ကြပ်ကြည့်ရှုရရှိလာသော လေထုတိုင်းတာရရှိမှုများ၊ရေအရည်အသွေးတိုင်းတာရရှိမှုများနှင့်ဆူညံသံ တိုင်းတာရရှိမှုရလဒ်များကို ပြန်လည်စိစစ်စစ်ဆေးနိုင်ရေးအတွက်မှတ်တမ်းများကို ဖိုင်များဖြင့်သေချာစွာ သိမ်းဆည်းထိန်းသိမ်းထားရန်လိုအပ်ပြီး သက်ဆိုင်ရာတာဝန်ရှိဌာနများသို့တင်ပြအစီရင်ခံရမည်ဖြစ်ပါသည်။ အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးခြင်းနှင့် သတင်းအချက်အလက်များထုတ်ဖော်တင်ပြခြင်း ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ် Environmental Management Plans (EMP) ကိုပြင်ဆင်ရေးဆွဲရာတွင်အကြံပေး အဖွဲ့ Green EHSS သည် Win Win Vermicelli Industry Co., Ltd စက်ရုံရှိတာဝန်ရှိသူများနှင့်အတူ စက်ရုံစီမံကိန်း၏နောက်ခံအကြောင်းအရာနှင့်ကုန်ထုတ်လုပ်သည့်လုပ်ငန်းစဉ်များကိုစက်မှုဇုန်ဥက္ကဋ္ဌနှင့်အနီး ရှိ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးတို့နှင့်တွေ့ဆုံကာ Face to Face Meeting ပြုလုပ်သွားမည်ဖြစ်ပါသည်။

**နိဂုံးချုပ်**

နိဂုံးချုပ်အားဖြင့်ယခုစီမံကိန်းသည် ဆောက်လုပ်ရေးကာလ၊ လုပ်ငန်းလည်ပတ်သည့်ကာလနှင့် လုပ်ငန်း ဖျက်သိမ်းသည့် ကာလသုံးခုလုံးတွင်ဒေသခံပြည်သူများကို အလုပ်အကိုင်အခွင့်အလမ်းများ ဖန်တီးပေးနိုင် သည်။ ကာလသုံးခုလုံးတွင်ဖြစ်ပေါ်လာနိုင်သောထိခိုက်မှုများကိုလျော့ချနိုင်မည့် နည်းလမ်းများနှင့်ပတ်ဝန်း ကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အားအကောင်အထည်ဖော်ခြင်းဖြင့်လျော့ချနိုင်သည်။ ပတ်ဝန်းကျင်စောင့်ကြပ် ကြည့်ရှုမှုအစီအစဉ်အားစီမံကိန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေးကိုစောင့်ကြပ်ကြည့်ရှုရန် မဖြစ်မနေ အကောင်အထည်ဖော်ပေးရမည်။ စီမံကိန်းအကောင်အထည်ဖော်သူသည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာနမှ ယခုအစီရင်ခံစာအားစစ်ဆေးပြီးနောက် ပြန်လည်ပေးပို့လာသောသဘောထားမှတ်ချက်နှင့် အကြံ ပြုချက်များကိုလိုက်နာရမည်။ ထို့ပြင်စီမံကိန်းအကောင်အထည်ဖော်သူသည်မြန်မာနိုင်ငံ၏ ပတ်ဝန်းကျင်နှင့် သက်ဆိုင်သောမူဝါဒများ၊ ဥပဒေများ၊ သတ်မှတ်ချက်များကိုလိုက်နာရန်လိုအပ်ပါသည်။

## 1. INTRODUCTION

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

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

### 1.1 Project Background

The project is investment for manufacturing high quality vermicelli company from local. YRIC notified for the environmental approval and comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC) on the proposed project and had approved the proposal for investment in manufacturing high quality vermicelli under the name of Win Win Vermicelli Industry Co., Ltd.

According to the Myanmar Environmental Conservation Law 2012, it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry of Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD) said project requires an Environmental Management Plan (EMP) to meet the Environmental assessment requirements. Therefore, Win Win Vermicelli Industry Co., Ltd commissioned Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co., Ltd) for EMP report study.

#### 1.1.1 Project Proponent Profile

This is the information of project proponent from the MIC's registration that is describing in below Table 1-1.

**Table 1.1 Information of Investor**

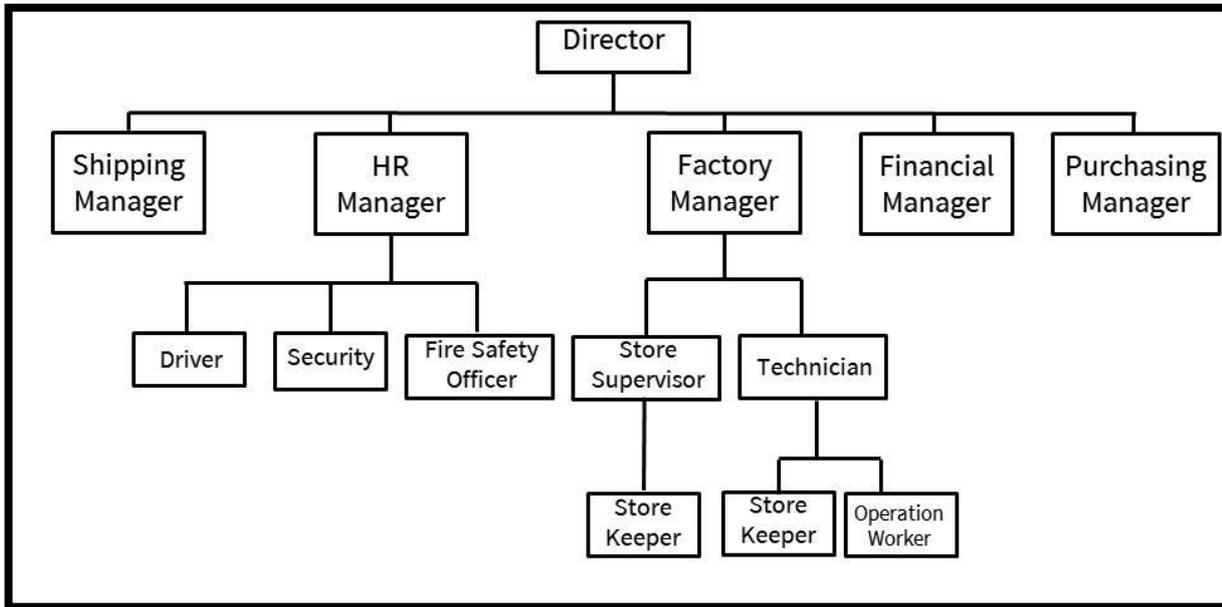
Investor Name	U Soe Myint
Citizenship	Myanmar
ID No	12/LaThaNa(N) 015006

#### 1.1.2 Investment Plan and Salient Features of the Project

Organization chart of Win Win Vermicelli Industry Co., Ltd is presented in Figure 1.1.

**Table 1.2 Salient Features of the Project**

Type of Proposed Business	Manufacturing of high quality vermicelli
Type of Investment	100 % Local Investment
Type of Land	Industrial Land
Type of Land area	1 acre (4046.86 sq meters)
Land Lease Date	15.5.2014
Construction period	6 Months
Address	No (27), U Tayote Street, Shwe Pyi Thar Industrial Zone (2), Shwe Pyi Thar Township, Yangon Region, Myanmar
Contact Person & Number	U Myo Min Naing, 09-420027111



**Figure 1-1 Organization chart of Win Win Vermicelli Industry Co., Ltd**

### 1.2 Environmental Consultant Profile

Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co.,Ltd) prepares the EMP for the proposed project. The field studies were carried out by Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co.,Ltd) experiences in conducting environmental assessments for various types of projects in Myanmar. The Green Environmental, Health, Safety & Social Consultancy Company Limited (Green EHSS Co., Ltd) team conducted field survey, assessment activities and prepared the report. A reconnaissance study was performed on the proposed project site and baseline environmental data were also collected from possible sources using the appropriate measuring devices. Data interpretation and analysis were made based in those collected data for the present and potential future conditions. Suitable measures were proposed for the impacts to be mitigated to reduce to acceptable ones. The environmental study was carried out by the study team and the following is a summary of team member’s responsibilities during the study period.

**Table 1.3 Members of EMP Study Team**

No	Name	Designation	Academic and Professional Qualifications	Years of Experience
1	Catherine Soe Soe Aung	Team Leader, Sr. Environmentalist Certified Environmental Professional, Canada Approved Risk Consultant, MOM, Singapore ADB's Consultant Management	Master in Environmental Engineering, National University of Singapore Master in Zoology, YU Bachelor in Zoology, YU	25
2	Dr. May Thin Swe	Department Head Jivitadanan Sangha Hospital	M.B.B.S(Yangon)	30
3	Dr.Theingi Ye Myint	Waste Management and Water Quality Specialist	PhD(YU) Master in Environmental Engineering, NUS	5

			Master in Industrial Chemistry, YU Bachelor in Industrial Chemistry, YU	
4	Dr. Nyo Nyo Lwin	Biodiversity Specialist, Fauna Team Leader	PhD(YU) Master in Zoology, YU Bachelor in Zoology, YU	15
5	Dr. Thet Thet Mar Win	Biodiversity Specialist, Flora Team Leader	PhD(YU) Master in Botany, YU Bachelor in Botany, YU	15
6	U San Aye	Mapping and GIS Specialist	Bachelor in Maths, Diploma in Mapping, Japan	40
7	Dr. Pwint Thu Aye	Aquatic and Marine Biologist	PhD(YU) Master in Zoology, YU Bachelor in Zoology, YU	6
8	Daw Swe Swe Aung	Social Impact Assessment Specialist	Master in Geography, YU Bachelor in Geography, YU Diploma in GIS, Communication Skill for Business, Singapore Polytechnic	18
9	Daw Mi Mi Soe	Social Impact Assessment Specialist	Master in Public Administration Bachelor in Chemistry Diploma in Computer Science Post-Graduate Diploma In Applied Psychology	24

## 2. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

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

### 2.1 Myanmar Regulatory Framework

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

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

Requirements related to environmental and social impact management for development projects are described in Table 2-1

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

<b>Law and Regulation</b>	<b>Description</b>
National Environmental Policy of Myanmar, (Notification No.26/94 dated 5 December 1994)	To achieve harmony and balance between socioeconomic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all citizens.
<b>Constitution 2008</b>	
Section 37 (a)	The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in atmosphere in the Union.
Section 37 (b)	The Union shall permit citizen rights of property, right of inheritance, right of private initiative and patent in accord with the laws.
Section 372	The Union guarantees the right to ownership, the use of property and the right to private invention and patent in the conducting of business if it is not contrary to the provisions of this Constitution and the existing laws.
Sec.45	The Union shall protect and conserve natural environment.
Sec.390 (a) (b) (c) (d)	Every citizen has the duty to assist the Union in preserving and safeguarding the cultural heritage, conserving the environment, striving for the development of human resources and protecting and preserving the public property.
<b>Environmental Conservation Law, 30 March 2012</b>	
Objectives	To contract a healthy and clean environmental and to conserve natural and cultural heritage for the benefit of present and future generations, to maintain the sustainable development through effective management of natural resources and to enable to promote international , regional and bilateral cooperation in the matters of environmental conservation.
Section 3	© to enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations; (d) to reclaim ecosystems as may be possible which are starting to degenerate and disappear; © to enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially.
Provision of Duties and Powers relating to the Environmental Conservation of the Ministry Section 7	(c) To specify categories and classes of hazardous waste generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture, mineral production, sanitation and other activities; (b) To prescribe categories of hazardous substances that may affect signification at present or in the long run on the environment;

	<p>© To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances;</p> <p>(j) To prescribe the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms;</p> <p>(m) To lay down and carry out a system of EIA and SIA as to whether or not a project or activity to be undertaken by any Government department, organization or person may cause a significant impact on the environment;</p> <p>(o) To manage to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works.</p>
Chapter VI Environmental Quality Standards Section 10	<p>The Ministry may, with the approval of the Union Government and the committee, stipulate the following environmental quality standards:</p> <p>(a) Suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public;</p> <p>(b) water quality standards for coastal and estuarine areas;</p> <p>© underground water quality standards;</p> <p>(d) atmospheric quality standards;</p> <p>© noise and vibration standards;</p> <p>(f) emissions standards;</p> <p>(g) effluent standards;</p> <p>(h) solid wastes standards;</p> <p>(i) other environmental quality standards stipulated by the Union Government.</p>
Section 14	A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulate environmental quality standards.
Section 15	The owner or occupier of any business, material or palace which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.
Section 16	<p>A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry:</p> <p>(a) is responsible to carry out by contribution the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste;</p> <p>(b) shall contribute the stipulated users' charges or management fee for the environmental conservation according to the relevant industrial estate, SEZ and business organization;</p> <p>© shall comply with the directives issued for environmental conservation according to the relevant industrial estate, SEZ or business.</p>
Section 24	The project proponent has to allow relevant governmental organization or department to inspect whether performing is conformity with the terms and condition include in prior permission, stipulated by the ministry or not.
Section 25	The project proponent has to comply with the terms and conditions include in prior permission.
Section 24	The project proponent has to abide by the stipulations included in the rules, regulation, by law, order, notification and procedure which are issued by said law.
<b>Environmental Conservation Rules, 2014</b>	
Rules 58	The Ministry shall form the EIA Report Review Body with the experts from the relevant Government departments, organizations.

Rules 59	The Ministry may assign duty to the Department to Scrutinize the report of EIA prepared and submitted by any organization or person relating to EIA and report through the EIA Report Review Body.
Rule 61	The ministry may approve and reply on the EIA report or IEE or EMP with the guidance of the Committee.
Sub rule (a) of rule 68	The project proponent has to avoid emit, discharge or dispose the materials which can pollute to environment or hazardous waste or hazardous material prescribed by notification in the place where directly or indirectly injure to public.
Sub rule (b) of rule 68	The project proponent has to avoid performing to damage to ecosystem and the environment generated by said ecosystem.
<b>Environmental Impact Assessment Procedure (December 2015)</b>	
Objectives	<p>The project proponent has to be liable for all adverse impacts caused by doing or emitting of project owner or contractor, sub-contractor, officer, employee, representative or consultant who is appointed or hired to perform on behalf of project owner, under sub-paragraph 102.</p> <p>The project proponent has to support after consulting with effected persons by project relevant government organization, government department and other related persons to resettlement and rehabilitation for livelihood until the effected persons by the project receiving the stable socio-economy which is not lower than the status in pre-project, under sub-paragraph (b) of paragraph 102.</p> <p>The project proponent has to fully implement all commitments of project and conditions included in EMP. Moreover, the project proponent has to be liable for contractor and sub-contractor who perform on behalf of him/her have to fully abide by the relevant laws, rules, this procedure EMP and all conditions, under paragraph 103.</p> <p>The project proponent has to be liable and fully &amp; effectively implement all requirements included in ECC, relevant laws and rules, this procedure and standards under rule 104.</p> <p>The project proponent has to inform the completed information, after specifying the adverse impacts caused by the project, from time to time, under paragraph 105.</p> <p>The project proponent has to continuously monitor all adverse impacts in the pre-construction phrase, construction phrase, operation phrase, suspension phrase, closure phrase and post-closure phrase, moreover has to implement the EMP with abiding the all conditions included in ECC, relevant laws &amp; rules and this procedure, under paragraph 106.</p> <p>The project proponent has to submit, as soon as possible, the failures of his or her responsibility other implementation, ECC or EMP. If dangerous impact caused by this failure or failure should be known by the Ministry the project proponent has to submit within 24 hours and other than this situation has to submit within 7 days from knowing it, under paragraph 107.</p> <p>The project proponent has to submit the monitoring report dually or prescribed time by Ministry in line with the schedule of EMP, under paragraph 108.</p> <p>The project proponent has to prepare the monitoring report in accord with the rule 109.</p> <p>The project proponent has to show this monitoring report in public palace such as library, hall and website and office of project for the purpose to know this report by public within 10 days from the date which the report is submitted to the Ministry. Moreover, has to give the copy or this report by email or other way which agreed with the asked person, to any asked person or organization, under paragraph 110.</p> <p>The project proponent has to allow inspector to enter and inspect in working time and if it is needed by Ministry has to allow inspector to enter and inspect in the office and work place to this project in any time, under paragraph 113.</p> <p>The project proponent has to allow inspector to immediately enter and inspect in any time if it is emergency or failure to implement the requirement related to social or environment or caused to it, under paragraph 115.</p>

	The project proponent has to allow inspector to inspect the contractor and sub0contractor who implement on behalf of project, under paragraph 117.
Screening: Section 23	<p>a) The project proponent shall submit the Project Proposal to the Ministry for Screening</p> <p>b) The Ministry will send the Project Proposal to the Environmental Conservation Department to determine the need for environmental assessment.</p> <p>c) Following the preliminary Screening and verification that the Project Proposal contains all required documents and related materials, subject to Articles 8, 9, 10, 11, 26 and 27 the Department shall make a determination in accordance with Annex 1= Categorization of Economic Activities for Assessment Purposes’, taking into account Article 28 in order to designate the Project as one of the following, and then submit it to the Ministry:</p> <p>i) An EIA Type Project, or</p> <p>ii) An IEE Type Project, or</p> <p>iii) A Non IEE or EIA Type, and therefore not required to</p>
<b>National Environmental Quality (Emission) Guidelines (NEQG) (December 2015)</b>	
Objectives	To provide the basis for regulation and control of noise and vibration, air emissions, and liquid discharge from various sources in order to prevent pollution for purpose of protection of human and ecosystem health.
<b>National Environmental Policy of Myanmar (2019)</b>	
National Environmental Policy Vision & Mission	<p>Vision A clean environment, with healthy and functioning ecosystem, that ensures includes development and wellbeing for all people in Myanmar.</p> <p>Mission To establish national environmental policy principle for guiding environmental protection and sustainable development and for mainstreaming environmental consideration into all policies, laws, regulation, plans, strategic, programs and projects in Myanmar.</p>
<b>Foreign Investment Law, 2012</b>	
Section 8	<p>(a) To support the primary objectives of the national economic development plan, and for business that cannot yet be run by the State and citizens or businesses that have insufficient funds and technology.</p> <p>(b) Development of employment activities</p> <p>(l) Protection and conservation of the environment.</p> <p>(q) Appearing the required modern services for the Unions and citizens.</p>

Section 17	(a) To abide by the existing laws of the Republic of the Union of Myanmar. (b) To carry out the business by forming a company under the existing laws of Myanmar by the investor. (h) To carry out not to cause environmental pollution or damage in accord with existing laws in respect of investment business. (k) To carry out the systematic transfer of high technology relating to the business which are carried out by the investor to the relevant enterprises, departments or organizations in accord with the contract.
<b>Foreign Investment Law, 2013</b>	
Rule 54	The promoter or investor shall. (a) comply with Environmental Protection Law in dealing with environmental protection matters related to the business; (b) shall carry out socially responsible investment in the interest of the Union and its people; (c) shall co-operate with authorities for occasional or mandatory inspection; (d) shall exercise due diligence to be in conformity and harmony with norms and standards prescribed by relevant Union Ministry in conducting construction of factories, workshop, buildings and other activities; (e) shall enforce Safety and Health
<b>Myanmar Investment Rules 2017</b>	
Rule 202	The project proponent has to comply with the conditions of the permit issued by the MIC and applicable laws when making the investment.
Rule 203	The project proponent has to fully assist while negotiating with the authority for settling the grievance of the local community which has been affected due to investment.
Rule 206	The project proponent has to submit the passport, export evidence or document of degree and profile to the MIC office for approval if decide to appoint a foreigner as senior management, technician expert or consultant according to subsection (a) of section 51 of Myanmar Investment Law.
Myanmar Insurance Law 1993	Section 15- If the project proponent uses the owned vehicles the project owner has to ensure the insurance for the injured person. Section 16 – The project proponent has to ensure insurance to compensate for general damages because the project may cause damages to the environment and injury to the public.
<b>Payment of Wages Law 2016</b>	
Section 3 & 4	The project proponent has to pay the wages in accord with section 1 and 4 of said law
Section 5	The project proponent has to submit with the agreements of employees & reasonable ground to the department if it is difficult to pay because of force majeure included in a natural disaster.
Section 7-13	The project proponent has to abide by the provisions of section 7 to 13 in the chapter (3) in respect of deduction from wages,
Section 14	The project proponent has to pay the overtime fees, prescribed by law, to the employees who work over working hours.
<b>Yangon City Development Committed Law 2018</b>	
Section 317	The proponent shall not block the natural river channel, change the course and disrupt the water channel, filling with soil within the city boundaries without the consent of the Committee.
Section 318	The project proponent shall not construct buildings, factories and industries without sewage, toilet, septic tanks and wastewater treatment system.

Section 322	The project proponent is not allowed to make activities that will produce noise pollution, water pollution, air pollution and soil pollution to impact the environment within the city's boundaries.
<b>The Amended Law for Factories Act, 1951 (2016)</b>	
Hygiene in Working Environment: Section 3	Mentions responsibilities of employer and manager regarding waste disposal, ventilation, extreme temperature, dust and gas generation, minimum space for each worker, lighting, portable drinking water and toilets for employees.
Safety in Working Environment: Section 4	States responsibilities of employer and manager concerning with machine guarding, personal protective equipment, housekeeping, aisles and exists, chemical storage and fire protection system to avoid accident.
<b>The Private Industrial Enterprise Law, 1990</b>	
Basic Principle: Section 3	Private Industrial Enterprise shall be conducted in accordance with the following basic principles:- (a) to enhance the higher proportion of the manufacturing value added in the gross national product and value of services, and to increase the production of the respective economic enterprises which are related to the industrial enterprise; (b) to acquire modern technical know-how for raising the efficiency of industrial enterprises and to established the sale of finished goods produced by the industrial enterprise not only in the local market, but also in the foreign market; (d) to cause narrowing down of the gap between rural development and urban development by causing the development and improvement of industrial enterprises; (e) to cause opening up of more employment opportunities; (f) to cause avoidance of or reduction of the use of technical know-how which cause environmental pollution; (g) to cause the use of energy in the most economical manner.
<b>The Export and Import Law (2012)</b>	
Objectives	The objectives of this law are as follow: a) To enable to implement the economic principles of the State successfully. b) To enable to lay down the policies relating to export and import that supports the development of the state. c) To cause the policies relating to export and import of the State and activities are to be in conformity with the national trade standards. d) To cause to be streamlined and speedy in carrying out the matters relating to export and import.
Prohibitions: Section 5	No persons shall export or import restricted, prohibited and banned goods.
Prohibitions: Section 6	Without obtaining license, no person shall export or import the specified goods which are to obtain permission.
Prohibitions: Section 5	A person who obtained any license shall not violate the conditions contained in the license.
<b>The prevention of Hazard from Chemical and Related Substances Law, 2013</b>	
This law was enacted with the objectives of: a. To protect from being damaged the natural environment resources and being hazardous any living beings by chemical and related substances; b. To supervise systemically in performing the chemical and related substances business with permission for being safety; c. To perform the system of obtaining information and to perform widely educative and research for using the chemical and related substance systematically; d. To perform the sustainable development for the occupational safety, health and environment conservation. Regarding the chemical management and storage, currently, regulations governing chemical management are divided between various Acts, mostly dating from colonial times; hence the legislation is in many respects related to the British framework. The Factory Act and the Public Health Act contain the provisions for chemicals management and storage. Some chemicals are likely to require permits.	

<b>Underground Water Act</b>	
<p>The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to converse and protect underground sources of water supply in the Union of Burma. This act prohibits sinking of a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township officer or sub-divisional officer had power to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recovered from the owner of the tube as if it were an arrear of land revenue.</p>	
<b>Myanmar Fire Brigade Law (2015)</b>	
<p>The Pyidaungsu Hluttaw enacted this law by Law No 11/2015 on the date of 17th march 2015 with the following objectives.</p> <p>(a)to take precautionary and preventive measures and loss of state own property, private property, cultural heritage and the live and property of public due to fire and other natural disasters</p> <p>(b)to organize fire brigade systemically and to train the fire brigade</p> <p>(c)to prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs</p> <p>(d)to educate, organize and inside extensively so as to achieve public corporation</p> <p>(e)to participate if in need for national security, peace for the citizens and law and order</p>	
<b>Section 8 Fire safety Procedures</b>	
Rule 17	<p>The relevant Government Department or organization shall for the purpose of precaution and prevention obtain the approval of the Fire force Department before granting permission for the following cases.</p> <ol style="list-style-type: none"> <li>a. Constructing three-storied and above buildings market and condominium buildings</li> <li>b. Operating hotel, motel, guest house enterprise</li> <li>c. Constructing factory, workshop storage facilities and warehouse</li> <li>d. Operating business expose to fire hazard by using in inflammable materials or explosive materials</li> <li>e. Producing and selling fire-extinguishing apparatuses</li> <li>f. Doing transport business, public utility vehicles train, airplane, helicopter, vessel, ship. Tonkin tug</li> </ol>
Rule 18	<p>The relevant government department or organization shall obtain the opinion of the fire services department for the purpose of fire precaution and prevention when laying down plans for construction for town, village and downtown or village development plans</p>
<b>The Electricity law 2014</b>	
<p>In 2014, the new electricity law a comprehensive piece of legislation covering licensing a new regulatory commission, standards, inspection, tariff and restrictions replaced the electricity law of 1984. The electricity law divides projects into small (up to 10 MW), medium (between 10 MW to 30 MW) and large (upwards of 30MW), the states and regions can issues permits for small and medium power plants. In case these plants are not connected to the national grid, the Union Government Ministry is not the primary authority involved. The authorities have a legal right to use land for the purpose of power plants under the electricity law and have the right to expand and maintain their facilities. The law also provides that the authorities can build transmission lines in accordance with existing laws.</p>	
<b>Boiler Law 2015</b>	
Chapter 2 Objective	<p>The objectives of this law are as follows:</p> <ol style="list-style-type: none"> <li>(a)To obtain boilers in compliance with Myanmar Standards or International Standards</li> <li>(b)To prevent the country and citizens from hazards caused by boiler accidents</li> <li>(c)To use boilers sin compliance with Myanmar Standards or International Standards within the factory</li> <li>(d)To develop boiler technology and to produce experts capable of manufacturing, handling, repair and maintenance of boilers</li> <li>(e)To optimize the use of boilers through effective utilization of fuel energy</li> <li>(f)To reduce the environmental, social and health impacts through long-lasting use of boilers.</li> </ol>
Chapter 3 4. Within the permission of the Ministry, the	<p>(a)Notify the inspection methods and instructions according to the national or international standards for safe operations of boilers in line with this law, procedures and instructions</p>

inspector general can:	(b)Only the results obtained from the prescribed boiler standards and inspection methods will be approved
Chapter 4 Boiler Registration	5.Anybody who would like to use a boiler in any kind of business should be registered 6.Boiler should be manufactured according to Myanmar Standards or International Standards 7.Those who would like to apply for boiler registration according to Section 5 should apply to the inspector with the application, documents and vouchers related to boiler 8.If the application regarding registration of boiler according to Section 7, the Registration officer should conduct necessary inspection and submit results of the findings to the inspector General. 9.The inspector general should assess and inspect the submission of the Registration Officer according to Section 8 and could allow or reject for registration of the boiler 10.The inspector general shall define boiler size according to heated surface area in accordance with adopted procedures
Chapter Prohibitions 13	59.According to Section 21, nobody must alter, change, deface, deform or make embossed registration unnoticeable illegitimately 60.Nobody is allowed to repair a boiler without boiler repair certificate 61.Nobody is allowed to maintain a boiler without boiler maintenance certificate 62.Nobody must after safety relief value in order to exceed the allowable pressure due to his consent or direction given by the owner 63.Nobody must manufacture boilers against Section 25, Subsection 25(a) and (b) enacted
<b>Labor Dispute Settlement Law 28 March 2012 replacing 1929 Version</b>	
The Pyidaungsu Hluttaw hereby enacts this law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by setting the dispute of employer and worker justly.	
<b>The Social Security Law 2012</b>	
The Social Security Law enacted in 2012 was amended the social Security Act in 1954. It stipulates the formation and implementation of social security systems	
Section 53(a)	The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment
<b>Labor Dispute Settlement Law 28 March 2012 replacing 1929 Version</b>	
This law enacted for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by setting the dispute of employer and worker justly. It stipulates that employer in which more than 30 workers are employed shall from the workplace coordinating committee consisting of the representatives of workers and the representatives of employer.	
Section 23	A party, employer or worker may complain individual dispute relating to his grievance to the Conciliation Body and if he is not satisfied with the conciliation of such body in accord body in accord with stipulated manners may apply to the competent court in person or by the legal representative
Section 24	The relevant Conciliation Body shall respect of the collective dispute known or received by the complaint of either party, employer or worker in respect of the dispute information sent by the Minister or The Region or State Government or any other means carry out as follows(a)Conciliating so as to be settled within three days not including the official holidays from the day of knowing or receipt of such dispute (b)Concluding mutual agreement if the settlement is reached in Conciliating under sub-section (a) before the Conciliation Body.
Section 25	The Conciliation Body shall refer the collective dispute which does not reach settlement to the relevant Arbitration Body and inform the persons relating to the dispute

Section 38	No employer shall fail to negotiate and coordinate in respect of the compliant within the prescribed period without sufficient cause.
Section 39	No employer shall after the conditions of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under investigation of the dispute before Arbitration Body or Tribunal to affect the interest of such workers immediately.
Section 46	The project proponent has to not close the work without negotiation, discussion on dispute in accord with this law, discussion by Tribunal
Section 51	The project proponent has to pay the compensation decided by Tribunal violates any act or any emission to omission to damage the interest of labour by reducing of product without efficient cause.
Section 46	Any Employer who violates ant prohibition contained in Section 38 and 39 shall on conviction be punished with a fine for a minimum of one-lakh kyats.
<b>The Employment and Skill Development (2013)</b>	
This law enacted for safeguarding the right of workers or having skillful of workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by setting the dispute of employer and worker justly. Employer shall conduct occupational training to enhance the skills of workers.	
Section 14	Employer shall conduct occupational training to enhance the skills of workers who are to be employed as well as workers who are presently employed in accordance with the requirements of the enterprise and the policy of the Skills Development Agency.
The Worker's Compensation Act 1923	It stipulates that employer is required to make payments to employees who become injured or who die in any accidents arising during and in consequence of their employment. Such compensation also must be made for diseases which arise as a direct consequence of employment such as carpal tunnel syndrome.
The payment of Wages Act 1936	The payment of Wages Act defines the payment obligation to the workers employed in the factories or railway administration. It stipulates the method of payment stating that the payment should be made in cash on a regular payday and allows legal action against delayed payment or un-agreeable deduction.
The Leave and Holidays Act 1951 partially revised in 2014	This act has been used as the basic framework for leaves and holidays for workers with minor amendment in 2006 and 2014. This defines the public holidays that every employee shall be granted with full payment. It also defines the rules of leaves for workers including medical leave, earned leave and maternity leave.
<b>The Minimum Wage Law 2013</b>	The minimum wage law passed in March 2013 was replaced the 1949 Minimum Wage Act. The Law provides a framework for minimum wage determination the presidential office establishing a tripartite minimum wage committee shall decide minimum wage with industrial variation based on a survey on living costs of workers possibly every two years. This also stipulates equal payment.
<b>Public Health Law 1972</b>	<b>Chapter 2 Prevention of Public Health</b>
Objectives	To ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. This law focuses as follows The project owner has to cooperate with the authorized person or organization in line with the section 3 and 5 of said law. The project proponent has to abide by any instruction or stipulation for public health under the section 3 of said law. The project proponent has to allow any inspection, anytime, anywhere if it is needed under the section 5 of said law.
<b>Prevention and Control of Communicable Disease Law 1995 (Amendment in 2011)</b>	
Chapter 2 Prevention	4. When a Principal Epidemic Disease of a Modifiable Disease occurs; Immunization and other necessary measures shall be undertaken by the Department of Health in order to control the spread thereof; The public shall abide by measures undertaken by the Department of Health under sub-section (a).

Chapter 4 Environmental Sanitation	For prevention of the outbreak of Communicable Disease and effective control of Communicable Disease when it occurs, the public shall under the supervision and guidance of the Health Officer of the relevant area, undertaken the responsibility of carrying out the following environmental sanitation measures; Indoor, outdoor sanitation or inside the fence outside the fence sanitation; Well, ponds and drainage sanitation; Proper disposal refuse and destruction thereof by fire; Construction and use of sanitary latrines Other necessary environmental sanitation measures
<b>Occupational Safety and Health Law 2019</b>	
Purpose	To effectively implement measures related to safety and health in every industry and to set occupational safety and health standards
Section 26 Sub-section (e)	The project proponent has to provide adequate and relevant personal protective equipment to workers free of charge and make them wear it during work so as not to expose workers to any serious occupational diseases or hazards.
Section 26 Sub-section (1)	The project proponent has to arrange and display occupational safety and health instructions, warning signs, notices, posters and signboards.
Section 30 Sub-section (a)	The worker shall wear or use at all times any protective clothes, equipment and tools provided by the employer for the propose of safety and health.
Section 30 Sub-section (d)	The worker shall proper and systematic use any equipment and tools machines, any parts of the machines, vehicles, electricity and other substances being used at the workplace.
Section 30 Sub-section (e)	The worker shall take reasonable care for the safety and health of himself/ herself and of other persons who may be affected by his/her acts or omissions at work.
<b>The law on Standardization</b>	
Objectives	The objectives of this law are as follow as To enable to determine Myanmar Standard To enable to support export promotion by enhancing quality of production organizations and their product, production processes and services To enable to protect the consumers and user by guaranteeing imports and products are not lower than prescribed standard and safe from health hazards To enable to support protection of environment related to products, production process and services from import and conservation of natural resources To enable to protect manufacturing, distributing and importing the disqualified goods which do not meet the prescribed standard and those which are not safe and endangered to the environment To support on establishing the ASEAN Free Trade Area and to enable to reduce technical barriers to trade To facilitate technological transfer and innovation by using the standards for the development of national economic and social activities in accordance with the national development programme
Chapter 7 Taking action by Committee No 19	The committee may if it is found out that holder of certificate of certification violate any term or condition contained in the relevant recommendation, pass any of the following administrative order. Warning Suspending the certificate of certification for limited period cancelling the certificate of certification
<b>လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သောဝတ္ထုပစ္စည်းများဆိုင်ရာဥပဒေ ၂၀၁၈</b>	
ရည်ရွယ်ချက်	လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သောဝတ္ထုပစ္စည်းများကို စနစ်တကျ ပြုလုပ်ခြင်း၊ တင်သွင်းခြင်း၊ သယ်ယူခြင်း၊ သိုလှောင်ခြင်းနှင့် သုံးစွဲခြင်းတို့ပြုနိုင်ရန်၊ ယမ်းဘီလူးနှင့် ဆက်စပ်သုံးပစ္စည်းများအသုံးပြုသည့်လုပ်ငန်းခွင်လေးအန္တရာယ်ရှင်း၍ လုံခြုံမှုရှိစေရန်၊ လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သောပစ္စည်းများပြုလုပ်သုံးစွဲမှုများကို စနစ်တကျကြီးကြပ်နိုင်ရန်၊

အခန်း ၇ တားမြစ်ချက်များ အမှတ် ၁၈	လိုင်စင်ရရှိသူနှင့် ခွင့်ပြုချက်ရရှိသူ မည်သူမျှစစ်ဆေးရေးအရာရှိချုပ် သို့မဟုတ် စစ်ဆေးရေးအရာရှိ၏စစ်ဆေးခြင်းကို ခံယူရန်ငြင်းပယ်ခြင်းမပြုရ။
အမှတ် ၁၉ ခ	ပုဒ်မ ၈ အရ ကာကွယ်ရေးဦးစီးဌာန ကောင်စီအမှုဆောင်အဖွဲ့၏ အတည်ပြုချက် မရရှိဘဲ လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သော ဝတ္တုပစ္စည်းများကို ဖျက်ဆီးခြင်း မပြုရ။
အမှတ် ၁၉ ဂ	ဤဥပဒေအရထုတ်ပြန်ထားသည့်နည်းဥပဒေစည်းမျဉ်းစည်းကမ်းအမိန့်ကြော်ငြာစာ၊ အမိန့်နှင့်ညွှန်ကြားချက်များနှင့်အညီ ဆောင်ရွက်ရန် ပျက်ကွက်ခြင်းမရှိစေရ။
<b>The Motor Vehicles Law 2015</b>	
Objectives	When the constructions periods and if it is needed in operation and production period for all vehicles The project proponent has to promise to abide by the nearly all provisions of said law and rules, especially the provisions related to air pollution, noise pollution and life safety
<b>The Conservation of Water Resources and Rivers Law 2006</b>	
Aims	The aims of this law are as follows, (a)to conserve protect the water resources and rivers system for beneficial utilization by the public (b)to smooth and safety waterways navigation along economy through improving water resources and river system (c) to contribute to the development of state economy through improving water resources and river system (d) to protect environmental impact
Chapter (5) Prohibitions No 8	No person shall (a)carry put any act or channel shifting with the aim to ruin the water resources and rivers and creeks (b)cause the wastage of water resources willfully
No 10	No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks
No 11 (a)	No person shall dispose of engine oil, chemicals, poisonous material and other materials which any cause environmental damage, or dispose of explosive from the bank or from a vessel which is plying, vessel which has berthed, anchored, standard or sunk.
No 12	No person shall carry out growing garden, digging, filling, silt trapping, closing pond, dyke building or erecting spur in the river-creek boundary, bank boundary and waterfront boundary without the permission of the relevant government department and organization
No 15	No person shall carry out the construction of switch back, dockyard, wet dockyard, water tight dockyard, building of jetty, pier, landing stage or vessel landing drainage in the river-creek boundary and water front boundary without the permission of the Directorate.
<b>The Commercial Tax Law 1990 Amended 2014</b>	
Chapter 5 Registration and Intimation of Commencement of Enterprise 11 (b)	Any person who commences operation of a goods production enterprise or service enterprise shall furnish letter of intimidation on the commencement of the operations such to the relevant Township Revenue Officer as stipulated by regulations.
Chapter 6 Monthly payment of Tax and Sending of Three-Monthly Return 12(a)	Any person who has taxable proceed of sale or receipt from service within a year, shall pay due monthly tax within ten days after the end of the relevant month. Moreover, a three-monthly return shall be furnished to the relevant Township Revenue Officer within one month after the end of relevant three-month.

12(b)	The Township Revenue Officer may intimate any person to pay due monthly tax and send three-monthly return if three is cause to consider that he has taxable proceed of sale or receipt from service within a year.
12(c)	If it is failed to pay tax under sub-section (a) or (b), or if there is cause to consider that the tax paid is less than the tax payable, the Township Revenue Officer may based on the information received, estimate and claim the tax payable or the additional tax payable.
12 (e)	The tax payable on goods imported under sub-section (c) of section 4 of the law shall be collected together with the customs duties by the Customs Department in accord with the manner of collecting customs duties.
<b>The Natural Disaster Management Law 2013</b>	The objectives of this Law are as follow: (a) to implement natural disaster management programmes systematically and expeditiously in order to reduce disaster risks (b) to form the National Committee and Local Bodies in order to implement natural disaster management programmes systematically and expeditiously (c) to coordinate with domestic and foreign government departments and organizations, social organizations, other non-government organizations or international organizations and foreign regional organizations in carrying out natural disaster management activities (d) to conserve and restore the environment affected by natural disasters (e) to provide health, education, social and livelihood programmes in order to bring about better living conditions for victims

## 2.2 International Guidelines

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

### Air Quality Guideline/ Standard

Parameters	Guideline value	Unit	Organization	Period
CO <sub>2</sub>	345	ppm	WHO	8 Hrs
CO	9	ppm	Air NEPM	8 Hrs
NO <sub>2</sub>	200	µg/m <sup>3</sup>	MONREC	8 Hrs
SO <sub>2</sub>	20	µg/m <sup>3</sup>	MONREC	8 Hrs
PM <sub>10</sub>	50	µg/m <sup>3</sup>	MONREC	8 Hrs
PM <sub>2.5</sub>	25	µg/m <sup>3</sup>	MONREC	8 Hrs

### Noise Level Standard

Receptor	One Hour LAeq (dBA) <sup>a</sup>	
	Daytime 07:00-22:00 (10:00-22:00 for Public holidays)	Nighttime 22:00-07:00 (22:00-10:00 for Public holidays)
Residential, Institutional, educational	55	45
Industrial, commercial	70	70

### Recommended Illumination and Limiting Glare Index based on IES code 1968

Visual test	Illumination (LUX)	Glare index
Casual seeing	100	28

Rough task with large detail	200	25-28
Ordinary task medium detail	400	25
Fairly severe task, small detail (eg. drawing office, sewing)	600	19-22
Severe prolonged task, very small detail (eg-fine assembly, hand tailoring)	900	16-22
Very severe, prolonged task, very small detail (eg-gem cutting, hosiery mending, gauging very small parts)	1,300-2,000	13-16

### Water Quality Guideline/ Standard

No	Parameter	Unit	standard
1	pH	pH	6.5-8.5
2	Colour	TCU	15 TCU
3	Turbidity	NTU	5 NTU
4	Conductivity	Micro S/cm	
5	Total Hardness	Mg/l as Ca Co <sub>3</sub>	500 Mg/l as Ca Co <sub>3</sub>
6	Calcium Hardness	Mg/l as Ca Co <sub>3</sub>	
7	Magnesium Hardness	Mg/l as Ca Co <sub>3</sub>	
8	Total Alkalinity	Mg/l as Ca Co <sub>3</sub>	
9	Phenolphthalein Alkalinity	Mg/l as Ca Co <sub>3</sub>	
10	Carbonate (CaCO <sub>3</sub> )	Mg/l as Ca Co <sub>3</sub>	
11	Bicarbonate (HCO <sub>3</sub> )	Mg/l as Ca Co <sub>3</sub>	
12	Iron	Mg/l	0.3 Mg/l
13	Chloride (as CL)	Mg/l	250 Mg/l
14	Sodium chloride as NaCL	Mg/l	
15	Sulphate as SO <sub>4</sub>	Mg/l	500 Mg/l
16	Total solid	Mg/l	1500 Mg/l
17	Total suspended solids	Mg/l	
18	Total dissolved solids	Mg/l	1000 Mg/l
19	Manganese	Mg/l	0.05 Mg/l
20	Phosphate	Mg/l	
21	Phenolphthalein Acidity	Mg/l	
22	Methyl orange acidity	Mg/l	
23	Salinity	ppt	
24	Biological Oxygen Demand (BOD)(5 Days at 20°C)	Mg/l	200 Mg/l
25	Chemical Oxygen Demand (COD)	Mg/l	15 TCU
26	Total solid	Mg/l	1500 Mg/l
27	Total suspended solids	Mg/l	
28	Total dissolved solids	Mg/l	1000 Mg/l
29	Nitrate (NO <sub>3</sub> )	Mg/l	10 Mg/l
30	Ammonium Nitrogen (NH <sub>4</sub> )	Mg/l	
31	Phosphate	Mg/l	6.1 Mg/l

### 2.3 Commitment of Win Win Vermicelli Industry Co., Ltd

Win Win Vermicelli Industry Co., Ltd has made the commitments and responsible for the preservation of the environment at and around the area of project site. In addition to this, it shall carry out as per instructions made by Ministry of MONREC in which to conduct an EMP which describe the measure to be taken for preventing, mitigation and monitoring significant environment impacts

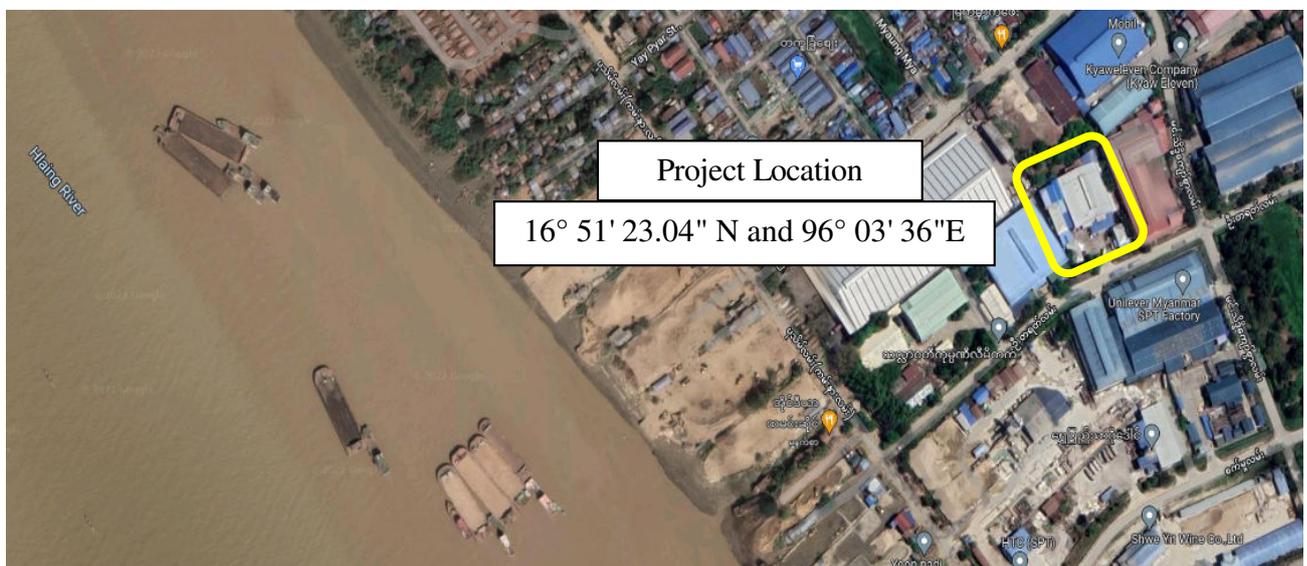
resulting from the implementation and operation of proposed project or business or activity has to be prepared and submitted and to perform activities in accordance with this EMP and be abided by the environment policy, Environmental Conservation Law and other environmental related rules and procedures.

- Monitoring the factory area operations according to EMP and Environmental Monitoring Plan (EMP)
- Submitting environmental monitoring reports to ECD
- Planning and implementation of CSR activities
- To set up welfare plan such as staff medical checkup, training program and Public talk for getting knowledge, risk prevention, bonus and social security service
- To carry out fire safety assessment and ensure adequate and appropriate fire safety measures for employees

### 3. PROJECT DESCRIPTION

#### 3.1 Location Proposed Project

The proposed project is located at 16° 51' 23.04" N and 96° 03' 36"E, at No (27), U Tayote Street, Shwe Pyi Thar Industrial Zone (2), Shwe Pyi Thar Township, Yangon Region. The location map if the proposed project site is shown in Figure 3-1.



**Figure 3-1 Location (Satellite) Map of the Factory**

#### 3.2 Objectives of Proposed Project

The objective of Win Win Vermicelli Industry Co., Ltd is to manufacture high quality vermicelli for 100% local distribution and to offer our clients the best required quality products in the required qualities, at the precise time.

##### 3.2.1 Site Description of Project Site

The total land area is 1 acre (4046.86 sq meters) and build main factory buildings, warehouse, kitchen, canteen and production area. Generator room is separated by main factory building structure.

#### 3.3 Salient Features of the Factory

The salient features of the company are mentioned below.

Name of Company : Win Win Vermicelli Industry Co., Ltd  
Address : No (27), U Tayote Street, Shwe Pyi Thar Industrial Zone (2), Shwe Pyi Thar Township, Myanmar

Type of Business : Manufacturing of high quality vermicelli  
 Name of Principal Organization : Win Win Vermicelli Industry Co., Ltd  
 Type of Investment : 100% Local Investment  
 System of Sales : 100% Local  
 Type of Land : Industrial Zone  
 Contact Person : U Myo Min Naing  
 Contact Phone : 09-420027111

### 3.4 Annual Raw Materials Requirement

The main raw materials are corn starch, cargo starch and tapioca. Corn starch and tapioca get from local and cargo starch is imported from Malaysia and distributed in local. Annually raw materials require for product is described in Table (3.1).

**Table 3-1 Annual Raw Material**

Year	Particulars	Opening Balance( Bag )	Purchase	Issue	Closing Balance (Bag )
2019	Broken Rice ( 49kgs )	6635	48699	48118	7216
	Tapioca Starch ( 25 Kgs )	2000	600	2002	598
	Tapioca Starch ( 50 Kgs )	213	1850	1522	541
	Corn Starch ( 25 Kgs )	540	2102	2361	281
	Sago Starch ( 50 Kgs )	830	1100	1467	463
2020	Broken Rice ( 49kgs )	7216	38510.872	41484.87	4242
	Broken Rice ( 50kgs )	0	8946	5773	3173
	Tapioca Starch ( 25 Kgs )	598	0	598	0
	Tapioca Starch ( 50 Kgs )	541	1300	1638	203
	Corn Starch ( 25 Kgs )	281	2920	2903	298
	Sago Starch ( 50 Kgs )	463	1850	1853	460
2021	Broken Rice ( 49kgs )	4242	38245	34178	8309
	Broken Rice ( 50kgs )	3173	13076	16249	0
	Broken Rice ( 45.45kgs )	0	259	259	0
	Tapioca Starch ( 49 Kgs )	0	900	673	227
	Tapioca Starch ( 50 Kgs )	203	500	0	703
	Corn Starch ( 25 Kgs )	298	3101	2917	482
	Sago Starch ( 50 Kgs )	460	1380	1239	601

### 3.5 Machinery and Equipment

Lists of machinery and equipment required for the Win Win Vermicelli Industry Co., Ltd is following in Table 3.2. The list presented here represents the list currently in use at the factory.

**Table 3-2 Lists of Machinery**

No	Name	No. of unit
1	Rice Cleaning Machine	1
2	Rice Grinding Machine	1
3	Splitting Machine	1
4	Mixing Machine	1

5	Making Filigree Machine	1
6	Cutting Machine	1
7	Drying Machine	1
8	Generator (315 KVA )	2
9	Boiler	1



**Figure 3-2 Photo of Rice Cleaning Machine**



**Figure 3-3 Photo of Rice Grinding Machine**



**Figure 3-4 Photo of Splitting Machine**



**Figure 3-5 Photo of Mixing Machine**



**Figure 3-6 Photo of Making Filigree Machine**



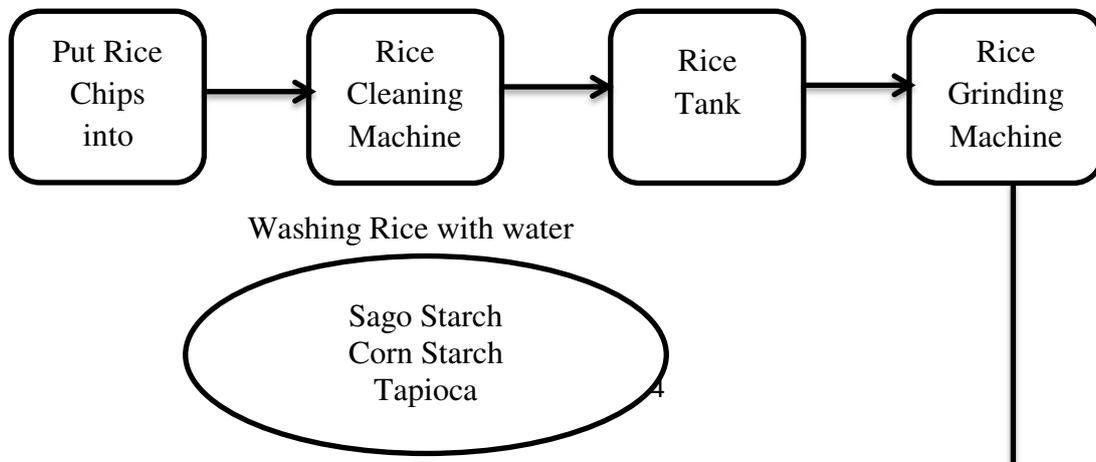
Figure 3-7 Photo of Cutting Machine

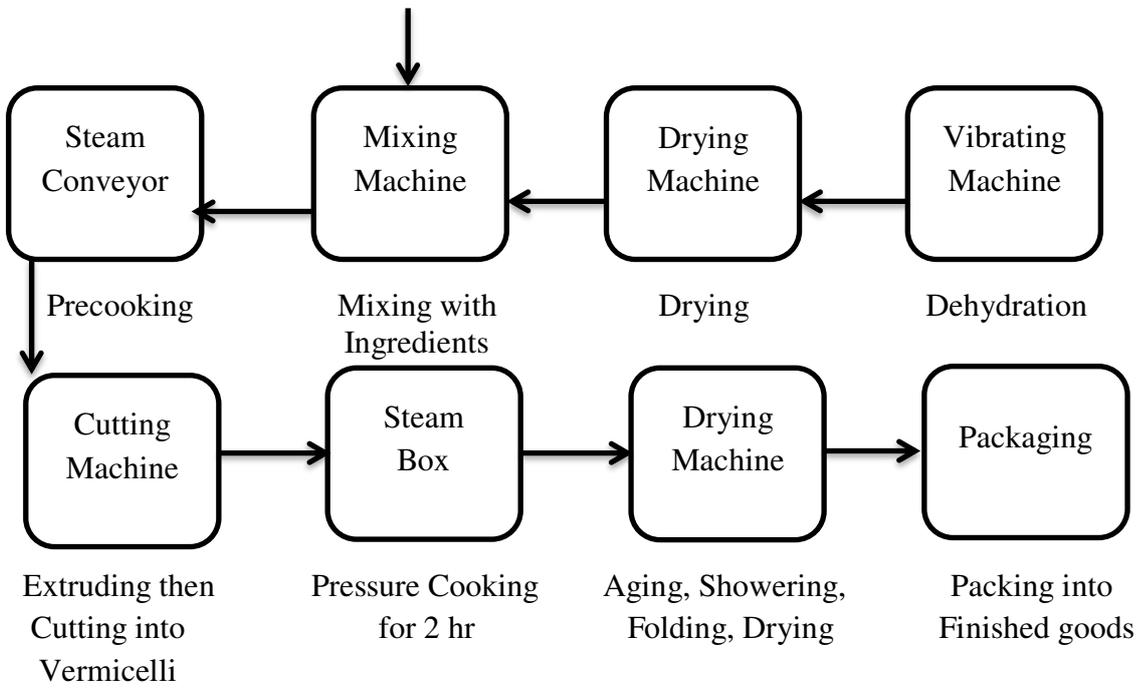


Figure 3-8 Photo of Drying Machine

### 3.6 Production Activity

Broken rice are produced by following step by step washing, grinding, dehydration, drying, mixing with ingredients, precooking, extruding then cutting into vermicelli, pressure cooking for 2hr, aging, showering, folding, drying and packing into finished goods. And then they are exported to local.





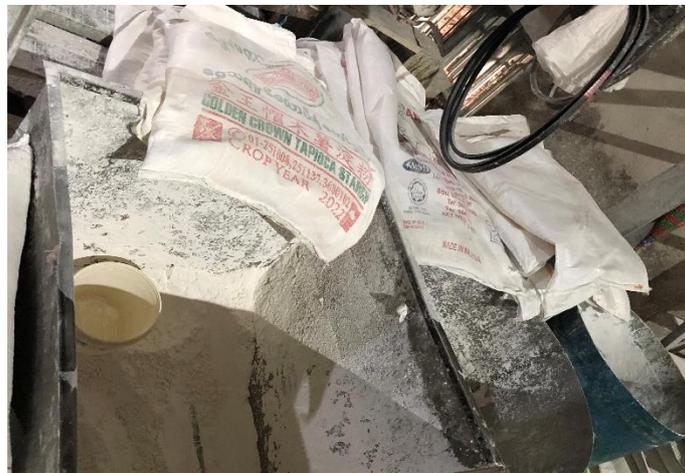
**Process Flow**



**Figure 3-9 Photo of Raw Materials Storage Area**



**Figure 3-10 Photo of Rice Cleaning Area**



**Figure 3-11 Photo of Mixing Area**





**Figure 3-12 Photos of Steaming Area**



**Figure 3-13 Photo of Drying Area**



**Figure 3-14 Photos of Packing Area**



**Figure 3-15 Photo of Products**

### 3.7 Resource Requirement

#### 3.7.1 Human Resource of Requirement

Win Win Vermicelli Industry Co., Ltd composes of well-trained staffs and local people from nearby Shwe Pyi Thar Township. During the project assessment process 81 employees are local people. Local employment is the main socio-economic benefit that the project can directly bring to people living in the community nearest to the Plant.

#### List of Local and Foreign Employee

No	Type of Employee	Total
1	Male	40
2	Female	41
	Total	81

#### 3.7.2 Working Hour

Normally, there are twenty-six (26) working days per month.

Monday to Friday:	Working time	8:00 am to 4:30 pm
	Lunch Time	12:00 am to 12:30 pm
	Saturday	8:00 am to 12:00 am
	Over Time (if required)	
	Sunday	: OFF

### 3.8 Products and Production Activity

The products of Win Win Vermicelli Industry Co., Ltd is high quality vermicelli. Annual production is approximately 180,000 bags.

**Table 3-3 Finish Goods**

Year	Finish Goods		Total ( Bags )
	Biho ( Bags )	Chilli ( Bags )	
2019	160055	32844	192899
2020	138258	39550	177808
2021	121234	59937	181171
	<b>419547</b>	<b>132331</b>	<b>551878</b>

#### 3.8.1 Sale System

Sale system is 100% Local.

### 3.9 Project Facilities

#### 3.9.1 Electricity

The project use electricity supply from Yangon Electricity Supply Corporation (YESC) by 315 KVA transformer and two sets of generators 300 KVA and 325 KVA are used for not only production but also the whole factory. In this factory, generators are put on separating. Diesel are used for these generators 100 gal/day, 3000 gal/month and 36000 gal/year. The amount of energy from two sets of generators have the ability to fulfill the entire period of operation. Annual electricity demand is 50000 units. Generators are also installed in accordance with the safety methods. On the other side, there is a separate window, fire alarms and fire extinguishers are readily available in case of danger. The diesel fuel is kept in a separate compartment next to the generator room.

Company Limited practices energy saving methods by using LED tube and installs electrical switch boards for each department. Apart from specially designated equipment all staff switches off all electrical equipment when not in use or when not using for any prolonged periods.



Figure 3-16 Photos of Two Sets of 300 KVA and 325 KVA Generators



Figure 3-17 Photo of 315 KVA Transformer



Figure 3-18 Photo of Diesel (for Generators) Storage Area

### 3.9.2 Water Supply

The production water sources are from on-site tube wells. The factory gets water from the three tube wells located in the factory compound. Location of three tube wells are Latitude 16.8531, Longitude 96.0582, Latitude 16.85304 Longitude 96.05857 and Latitude 16.85308 Longitude 96.05844. After pumping the groundwater, the water is stored in the ground storage tank and then pumped into the overhead water tank. Factory have three overhead tanks (800 gal/tank) for purified water and a ground tank for fire. Water for firefighting is stored in a concrete tank of 4000 gallons capacity in the compound. Three pumps and distribution pipes are installed to supply water for factory use and for water ventilation cooling system. Water purifier is installed to supply purified drinking water for employee. These three tube wells are capable of supplying the required amount of water for the entire operation.

Domestic wastewater generated by maximum amount of 81 persons with assumption rate 8.1 m<sup>3</sup>/day (243 m<sup>3</sup>/month and 2916 m<sup>3</sup>/year) was calculated based on domestic wastewater generated rate of 0.1m<sup>3</sup>/person/day. This water will be released in operation hour discharge to septic tank or factory drainage.



Figure 3-19 Photos of Water Supply

### 3.9.3 Waste Water Treatment Tank

Waste water treatment process is physical treatment. Factory have five sedimentation tanks.

Dimensions of these tanks are length 8 feet, breadth 4 feet and high 4 feet. Sludge from the sedimentation tank is sold as animal food. Annual waste water is 100 m<sup>3</sup>/day and its temperature is 35°C.

#### **3.9.4 Boiler**

The factory is used wood boiler. The amount of wood used in the boiler is 5 ton/day, 150 ton/month and 1800 ton/year. Using wood in boiler is harmful to the environment, in the future the factory will use chaff instead of wood. Cyclone system is installed to measure particles emissions. Chimney high is 60 feet long and type of chimney is metal.



**Figure 3-20 Photos of Boiler and Boiler Fuel Storage Area**

#### **3.9.5 Drainage**

In the factory compound, there are drainage systems for storms water and domestic system. The existing drainage system includes internal and external drainage system. Both drainage systems are provided with proper concrete. The water from the project is discharged to industrial drainage system located in front of the factory.



**Figure 3-21 Photo of Drainage**

### **3.9.6 Garbage Tank**

A storage room for factory normal waste is installed in front of the building, domestic waste from office and canteen are collected first at the garbage room. The factory practices waste segregation system. Pieces of vermicelli are sold as animal food from the company. Domestic waste from office and canteen are disposed every other day to YCDC waste dumping site by third party collector. As it is a garment factory, no hazardous waste is produced.

The number of staff and workers required in the day shift for the factory is maximum 81 persons during operation. Solid waste generated from maximum amount of operations and office staffs with assumption of waste generation rate at 31.59 kg/day (660 L/ two weeks) was calculated based on solid waste generation rate of 0.39 kg/person/day.



**Figure 3-22 Photo of Garbage Bin**

### **3.9.7 Ventilation**

All habitable inner spaces shall be provided with natural ventilation or mechanical ventilation. Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors in the office room. The operating mechanism for openings shall be provided with

ready access so that the openings are readily controlled by the building occupants. The factory has good ventilation due to the height of the ceiling. Exhaust fans are used to exhaust to fumes and odors.



**Figure 3-23 Photos of Ventilation**

#### **4. BASELINE ENVIRONMENTAL QUALITY**

The following section provides a description of the baseline environmental quality. Mitigation measures for the environmental impact are described in Section 7.0. (ref: from [https://en.wikipedia.org/wiki/ShwePyiThar\\_Township](https://en.wikipedia.org/wiki/ShwePyiThar_Township)).

##### **4.1 Physical Environment Around the Project**

#### 4.1.1 Topography

The surrounding terrain is mostly flat land, the elevation approximately ranges from +14 ft (4.26 m) to +26 ft (7.9m). The ground elevation around the factory approximately ranges from +20 ft (6.0 m) to +23 ft (7.0m). The counter map of the area shows most gentle relief. The soil type of Shwe Pyi Thar Township is Meadow and Meadow alluvial soil.

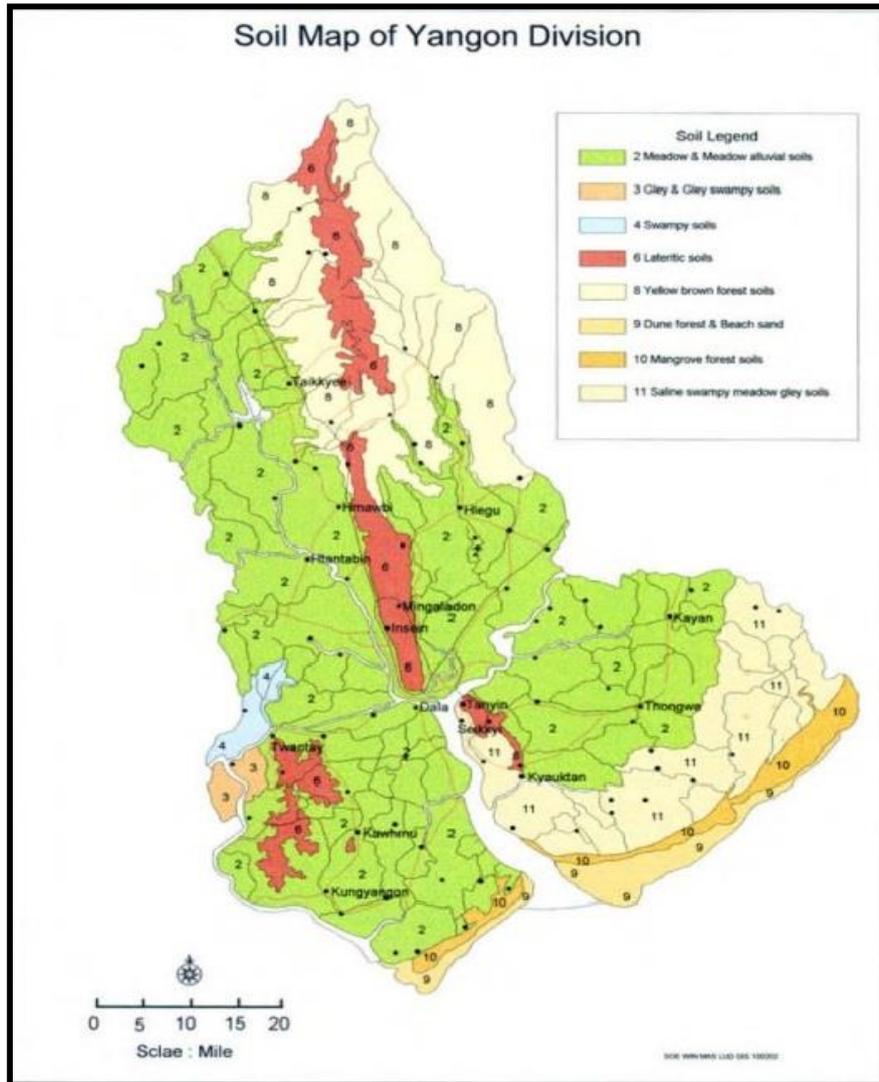


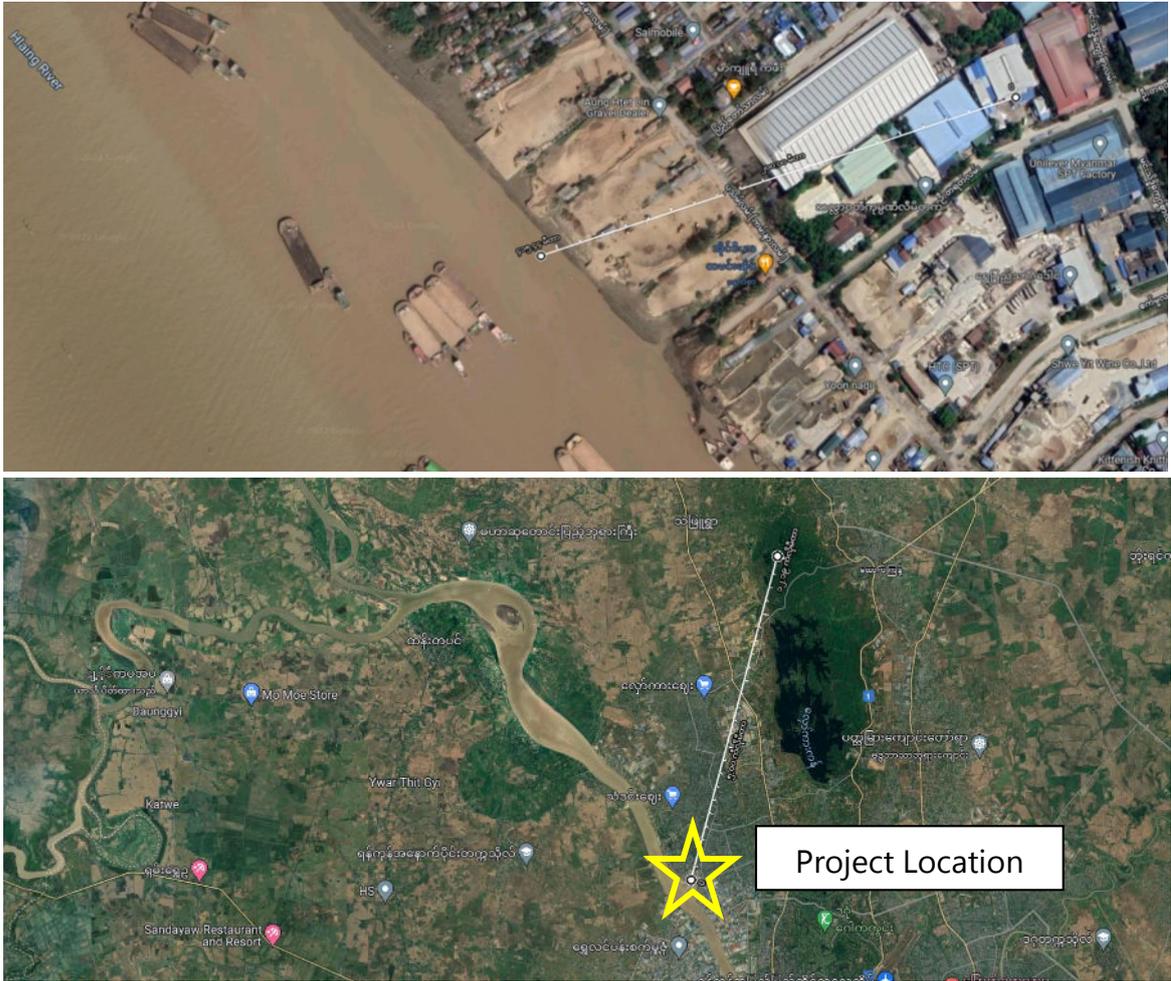
Figure 4-1 Soil Map of Yangon Region

#### 4.1.2 Climate

Climate in Shwe Pyi Thar Township can be characterized by climate of Yangon. Yangon has a tropical monsoon climate under the Koppen climate classification system. The city features a lengthy rainy season from May through October where a substantial amount of rainfall is received and a dry season from November through April where little rainfall is seen. It's primarily due to the heavy precipitation received during the rainy season that Yangon falls under the tropical monsoon climate category. During the course of the year, average temperatures show little variance with average maximum ranging from 29° to 36° C (84° to 97° F) and average lows ranging from 18° to 25° C (64° to 77° F). Average annual rainfall in Yangon is approximately 2,900 mm.

#### 4.1.3 Water Body

The nearest creek is the Hlaing River which is a little bit far from the project vicinity and Pun Hlaing River is 415.44 meter south west direction of the project site. The nearest protected areas is Hlaw Gar Park which is located 12.19 km North East of the factory.



**Figure 4-2 Project Location and the Nearest Creeks**

#### **4.1.4 Land Use**

The total area is approximately 1 acre (4046.86 sq meters). Win Win Vermicelli Industry Co., Ltd is situated in Shwe Pyi Thar Industrial Zone and current land use is industrial land use. Being situated in industry zone the nearby land use is industrial land use and factories are situated in the area with moderate density. The existing land use around the project site is as follows:

Surrounding Factory- Unilever Myanmar SPT Factory

Lin Pea Refining

#### **4.1.5 Archaeological Land and Cultural Resources**

There is no archaeological site or recreational area within the project vicinity. Consequently non impacts to cultural heritage are anticipated.

#### **4.2 Baseline Environmental Monitoring of the Project**

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

##### **4.2.1 Air Quality**

To determine the existing baseline ambient air quality status within the project site on 10, August 2022, 8-hours of working period air pollutants level, which include dust (PM10 and PM2.5) and gases (CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>2</sub>) were measured at the selected site during the HAZSCANNER air monitoring station. To reveal the existing status of baseline air quality, the average ambient air qualities measured were compared with National Environmental Quality (Emission) Guideline and international ambient air quality standard (NAAQS, ACGIH) guidelines. The measurement location point is situated at latitude 16°56'24.4"N and longitude 96°04'10.3"E. Air quality impact on the environment due to the operation of the air measurement site is generally adequate. Because of air quality monitoring is mainly measured in the area where operating area and production area where air pollution may occur.

It was observed that the air quality of CO<sub>2</sub> concentration level is within the limit of WHO Guideline, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> levels are within the limit of MONREC Guideline. The possible emission sources of CH<sub>4</sub> (methane) are expected from combustion of fuel burning facilities of nearby factories (such as boilers, furnaces, generators, industrial-use vehicles such as trucks., etc) sources which use coal or wood as fuel in their operation processes in Shwe Pyi Thar Industrial Zone (2) and other transportation vehicles.

**Table 4.1 Observed Air Quality Results**

Parameters	Observed value	Guideline value	Unit	Organization	Period
CO <sub>2</sub>	103.7	345	ppm	WHO	8 Hrs
CO	5.07	9	ppm	Air NEPM	8 Hrs
NO <sub>2</sub>	51.65	200	µg/m <sup>3</sup>	MONREC	8 Hrs
SO <sub>2</sub>	18.3	20	µg/m <sup>3</sup>	MONREC	8 Hrs
PM <sub>10</sub>	19.1	50	µg/m <sup>3</sup>	MONREC	8 Hrs
PM <sub>2.5</sub>	17.9	25	µg/m <sup>3</sup>	MONREC	8 Hrs
CH <sub>4</sub>	225.3	160	ppm	WHO	8 Hrs

NAAQS = National Environmental Quality (Emission) Guideline

NEQG = National Ambient Air Quality Standards were developed by the U.S EPA

ACGIH = the American Council of Governmental Industrial Hygienists Recommends

#### 4.2.2 Noise

The Noise level was measured by using Digital Sound Level Meter (5T436355) for working hours on 10, August 2022. The main sources of noise during the operation period are from maintenance of engineering department and from the production activities and functions. Therefore, the objectives of acoustic environment management during operation period are to decrease the noise level, adopt the measures such as sound insulation, sound absorption, and any buffer system etc. so as to reduce the impact on the surrounding environment. MONREC has issued National Environmental Quality (Emission) Guidelines to provide the basis for regulation and control of noise level. The project area is located in an industrial zone, so it is measured by Industrial, commercial.

#### Noise Level Standard

Receptor	One Hour LAeq (dBA) <sup>a</sup>	
	Daytime 07:00-22:00 (10:00-22:00 for Public holidays)	Nighttime 22:00-07:00 (22:00-10:00 for Public holidays)
Residential, Institutional, educational	55	45
Industrial, commercial	70	70

**Table 4.2 Noise level measurement result**

No.	Location	Measured Value (dBA)
1	Boiler	113.5
2	Steaming Area	83
3	Production Area	84
4	Drying Area	86
5	Packing Area	59

#### 4.2.3 Lightening and Temperature

Lighting is important for the work place. Activities of the workers in the factory are highly dependent on the quality of light and temperature. Win Win Vermicelli Industry Co., Ltd uses natural day light during daytime. The factory arranges to have good quality of light at office and warehouse. Staffs adjust ambient air temperatures by using fans and air condition with appropriate ventilation fan speeds to maintain air freshness and comfort levels. Lighting and air conditioning are switched off whenever it is not required, with due to allowance for safety and hygiene considerations. According to the result of light measurement at operation area (inside the production sector) is in good condition and at the acceptable level of standard.

**Table 4.3 Recommended Illumination and Limiting Glare Index based on IES code 1968**

Visual test	Illumination (LUX)	Glare index
Casual seeing	100	28
Rough task with large detail	200	25-28
Ordinary task medium detail	400	25
Fairly severe task, small detail (eg. drawing office, sewing)	600	19-22
Severe prolonged task, very small detail (eg- fine assembly, hand tailoring)	900	16-22
Very severe, prolonged task, very small detail (eg-gem cutting, hosiery mending, gauging very small parts)	1,300-2,000	13-16

**Table 4.4 Monitoring Measurement of Light (lux)**

No.	Location	Measured Value (lux)	Standard
1	Steaming Area	650	500
2	Production Area	651	1000
3	Drying Area	648	400
4	Packing Area	758	600

#### 4.2.4 Water Quality

##### 4.2.4.1 Ground Water Quality

Water supply during operation is extracted from the tube well. Domestic wastewater from the office staff, bathrooms and toilets are disposed through the factory compound to industrial zone drainage system. Waste water analysis results is attached.

**Table 4.5 Water Quality Guidelines**

No	Parameter	Unit	standard
1	pH	pH	6.5-8.5
2	Colour	TCU	15 TCU
3	Turbidity	NTU	5 NTU
4	Conductivity	Micro S/cm	
5	Total Hardness	Mg/l as Ca Co <sub>3</sub>	500 Mg/l as Ca Co <sub>3</sub>
6	Calcium Hardness	Mg/l as Ca Co <sub>3</sub>	

7	Magnesium Hardness	Mg/l as Ca Co3	
8	Total Alkalinity	Mg/l as Ca Co3	
9	Phenolphthalein Alkalinity	Mg/l as Ca Co3	
10	Carbonate (CaCO3)	Mg/l as Ca Co3	
11	Bicarbonate (HCO3)	Mg/l as Ca Co3	
12	Iron	Mg/l	0.3 Mg/l
13	Chloride (as CL)	Mg/l	250 Mg/l
14	Sodium chloride as NaCL	Mg/l	
15	Sulphate as SO4	Mg/l	500 Mg/l
16	Total solid	Mg/l	1500 Mg/l
17	Total suspended solids	Mg/l	
18	Total dissolved solids	Mg/l	1000 Mg/l
19	Manganese	Mg/l	0.05 Mg/l
20	Phosphate	Mg/l	
21	Phenolphthalein Acidity	Mg/l	
22	Methyl orange acidity	Mg/l	
23	Salinity	ppt	
24	Biological Oxygen Demand (BOD)(5 Days at 20°C)	Mg/l	200 Mg/l
25	Chemical Oxygen Demand (COD)	Mg/l	15 TCU
26	Total solid	Mg/l	1500 Mg/l
27	Total suspended solids	Mg/l	
28	Total dissolved solids	Mg/l	1000 Mg/l
29	Nitrate (NO <sub>3</sub> )	Mg/l	10 Mg/l
30	Ammonium Nitrogen (NH <sub>4</sub> )	Mg/l	
31	Phosphate	Mg/l	6.1 Mg/l

### 4.3 Solid Waste

During the construction and decommissioning phase, various kinds of solid wastes will be generated. These wastes will be collected and clean every day to avoid any undesirable working condition and environmental impacts. Based on their types (glass, metal, plastic, wood, cement residues, oil spills and paper based), these solid wastes will be collected separately in rubbish bins and regular and proper disposal will be done in accordance with YCDC guidelines.

In the operation phase, major solid waste of the proposed garment factory may be generated from production lines, cutting and packaging. Factory shall use textile, thread and carton box as raw materials. In addition to factory solid waste, canteen, kitchen and dormitory will produce solid waste mainly personal remnants, household wastes and food residues.

If solid waste is not managed properly it can impose great danger to the environment & community, which are; poorly disposed waste system yarn, waste paper & especially plastic waste can block drainage, empty chemical drums & containers if not disposed properly can pollute soil & water of the receiving environment; odor emanating from degradable waste especially kitchen waste can pollute local ambient air; poorly managed and disposed kitchen waste can attract disease vectors; decomposing kitchen waste can pollute local ambient condition; poorly managed electrical, mechanical and chemical wastes can pollute soil, water and air, etc.

Some of the components of waste have beneficial value and can be recycled once correctly recovered. Proper management of waste can be reduced the negative impacts on environment and society.

Win Win Vermicelli Industry Co., Ltd develops a comprehensive waste control and management system for production process. Win Win Vermicelli Industry Co., Ltd provides a bin for each sewing machine and waste bins are kept at various locations in offices and plant.

**Hazardous solid waste** includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amount of machinery maintenance materials, such as oily rags, used oil filters, used oils. All hazardous wastes should be handling in a way that meets the

requirements of the hazardous waste section of the Environmental Management Plan and hazardous waste should not be disposed of with general waste.

Other **non-hazardous solid** wastes include office, kitchen and dormitory wastes. Waste from canteen and dormitory and sanitary wastes from office are disposed of at bins. In order to prevent contamination to the underground water, frequent cleaning and pumping out of septic tank are done.

For disposing some domestic waste such as plastic bags, plastic water bottles, papers, packing paper and putrid foods and other wastes from factory, they are transported by the third party collector to the destined and disposing is made under guidance of YCDC. The final sludge wastes are disposed by Water and Sanitary Department of YCDC.

In general, environmental impacts from disposing of production and domestic wastes are considerably low as most of textile wastes are reused and recycled.

#### 4.4 Biological Environment

From the environmental impact point of view, biological resources are not relevant to the project as it is located in the Industrial Zone. In addition, within the factory area, there are no forests and protected.

**Table 4.6 Existing Condition of Ecological Resources**

<b>Ecological Resources</b>	<b>Existing condition</b>
Fisheries, aquatic biology	The nearest river is Hlaing River. Fresh water fish species are residing in the River.
Wildlife	Non existence
Forests	Non existence
Rare or endangered species	Non existence
Protect area	The nearest protected areas is Hlaw Gar Park which is located about 12.19km north of the factory.
Coastal resources	A few mangrove species observed at the river banks of Hlaing.

#### 4.5 Socio-Economic Environment

Shwe Pyi Thar Industrial Zone is located within Shwe Pyi Thar Township. Shwe Pyi Thar Township has a total area of 39.4 km<sup>2</sup> (15.21 sq mi) and a total population of 343,526 comprising 164,264 male and 179,262 female. The township has 46 primary schools, 15 middle schools, 4 high schools and 2 universities.

## 5.0 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### 5.1 Overview of Impacts

The garment manufacturing is unlikely to cause any major negative environmental and social impacts. The project operation would create potential environmental issues and proper management is pertinent to minimize the environmental impacts. The impacts specific to the project operation phase will be (a) Air pollution, (b) Solid Waste, (c) Safety. With timely and proper implementation of this EMP and application of appropriate mitigation measures, most if not all the potential negative impacts can be prevented or minimized. The social outcomes of the factory are expected to be positive by creating employment opportunity.

## 5.2 Impact Prediction Methodologies

To identify impacts, the methods of description of the environment likely to be affected and description of the likely significant effects are used.

In terms of impact analysis, the following considerations have been applied.

### a. Severity

- Magnitude (severity) of impact (will the impact be of high, moderate or low severity?); and
- Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

**Table 5.1 Evaluation of Severity/Magnitude of Impacts**

Environmental Aspects	Environmental Impact							
	Scale of Impact	Score	Scale of Impact	Score	Scale of Impact	Score	Scale of Impact	Score
	Low	1	Medium	2	Critical	3	High	4
Reversible/ Irreversible	Reversible		Reversible		Irreversible		Irreversible	
Extent	Site		Local		Regional		National	
Duration	Short Term		Medium Term		Long Term		Permanent	
Effluent	Non-toxic pollutant, easily biodegradable (ex; treated domestic waters, clean drainage effluents)		Low toxicity pollutant (e.g., treated production waters)		Toxic pollutant, production waters with chemical content and poor treatment.		High toxicity pollutant	
Gaseous emissions (abnormal situation)	Gas pollutant (PM, NO <sub>x</sub> , SO <sub>2</sub> , SO <sub>3</sub> ,CO <sub>2</sub> )		Gas <1 kg of pollutant. Flaring rate increase of 100000 m <sup>3</sup> per day)		Gas 1kg to 300kg of pollutant Flaring rate increase: 100000 m <sup>3</sup> /d to 3M m <sup>3</sup> /d		Gas >300 kg of pollutant. Increase of flaring rate >3M m <sup>3</sup> /d	
Waste Production	Easily recyclable wastes		Inert wastes		Industrial wastes low toxicity, available local treatment		Industrial toxic wastes are required specific treatment.	
Hazardous wastes discharge	Low Quantity and Low effect on environment		Average quantity spilled and/or low effect on environment (pollution of soils and surface waters)		Important quantity and impact on environment		Very important quantity and impact on environment (soils and water table pollution)	
Soil pollution	Low effect on environment, no remediation required.		Moderate effect on environment		Major damage on land requiring mitigation and remediation		Immediate planning and action required.	

Land Use	Affective use of lands	Somewhat benefit to the locals	Only benefit to the project owner and no benefit to locals	Benefit to no party
<u>Use of natural resources:</u> Water, energy, raw materials	Use of renewable resources, use of recyclable resources.	Use of resources with sustainable practices Less significant effect of a critical asset	Significant effect of a high asset.	Significant loss of critical assets and resources
Impacts on biodiversity	Very small population of non-significant fauna and flora may be affected.	Significant loss of species and vegetation at local level	Major damage on High environmental sensitive areas such as primary forest, endangered flora and fauna species.	Loss of Ecosystem Extinction of endangered species regionally
<u>Other impacts on ecosystems:</u> noise, vibration, etc.	Insignificant short term disturbance with no environmental scarring or injuries.	Moderately environmental damages and injuries that can be readily absorbed but management effort is still required to minimize the Impact.	Severe damage resulting from a significant event that can be managed under normal procedures.	Catastrophic damage with potential long term consequences affecting the environmental integrity and livelihood of the area.
Public Health & Safety	No nuisance or health effect and safety hazards to human.	Acute or Chronic effect of some sensitive human.	Chronic effect of human health	Serious Health impacts or death of a person or people

**b. Probability of Occurrence (O)**

- Probability of occurrence (how likely is it that the impact may occur?); and
- Duration of occurrence (how long may it last?)

This criterion is corresponding to the frequency of the impact occurrence.

**Table 5.2 Evaluation of Probability of Occurrence**

Probability of Occurrence	<b>1</b>	<b>Annual frequency or never occurred</b>
	<b>2</b>	<b>Monthly Frequency</b>
	<b>3</b>	<b>Weekly Frequency</b>
	<b>4</b>	<b>Daily frequency or chronicle</b>

**c. Control (C)**

This criterion is used to evaluate the level of control of the aspect, depending on the detection available means, the operating procedures and the precautions taken.

**Table 5.3 Evaluation of Level of Existing Controls**

	<b>1</b>	<b>Highly Control</b>	Easy detection and control with operating procedures regularly checked and/or important precautions taken to lower impact.
<b>Level of Control</b>	<b>2</b>	<b>Medium Control</b>	Detection and control with operation procedures not regularly checked and/or average precautions taken to lower impact.
	<b>3</b>	<b>Low Control</b>	Detection without control (operation procedures not adapted) and/or few precautions taken to lower impact.
	<b>4</b>	<b>No Control</b>	No detection and/or no precaution taken to lower impact.

**Table 5.4 Matrix of Significant Level of Environmental Risks**

a. Severity (S)	b. Occurrence (O)	c. Control (C)	Significant level (S × O × C)	Addition Control
4	4	4	64	Provide alternative
	3	3	36	Must be implemented
	2	2		Should be implemented
	1	1		Regular Review
3	4	4	48	Must be implemented
	3	3	27	Should be implemented
	2	2		Regular Review
	1	1		Regular Review
2	4	4	32	Should be implemented
	3	3	13	Should be implemented
	2	2		Regular Review
	1	1		Regular Review
1	4	4	16	Should be implemented
	3	3		Regular Review
	2	2		Regular Review
	1	1		Regular Review

**Table 5.5 Score Evaluation**

Risk Score	Significance of Impact	Significance Description	Remark
1- 15	Low	No significant	No additional risk control, however, require frequent review.
16-32	Moderate	Light impact, try to improve	Require additional risk control measures and regular review.
33-48	High	Significant impact, real necessity to improve	Must provide appropriate risk control measures and continuous monitoring the effectiveness of improvement.
49-64	Very High	Unsustainable situation	Require alternative for the impact defined.

### 5.3 Summary of Potential Impact

The Environmental risk assessment has been developed through assessing Severity/Magnitude of the impact(s), Occurrence/Probability of the impact(s) and existing control measures. Table 5.6 stated summary of environmental risks related to the plant operation and decommission phases (construction phase is completed).

**Table 5.6 Environmental and Social Risk Assessment**

Environmental Impact	Project Activities	Significant of Potential Impacts					Impact Significance
		M	D	E	P	SP	
Construction Phase; It is not assessed in this phase because of construction is already completed during EMP preparation.							
<b>Operation Phase</b>							
Air Pollution	<ul style="list-style-type: none"> <li>Dust and GHGs emission from vehicles used for transporting</li> </ul>	3	4	2	4	36	Moderate

	<p>raw materials and final products</p> <ul style="list-style-type: none"> <li>• Particulate matters emission from the activities of production process</li> <li>• Emission of smoke from (rice briquettes) and kitchen</li> <li>• Emission from emergency diesel generator</li> </ul>						
Water Pollution	<ul style="list-style-type: none"> <li>• Sewage disposed of from the toilets</li> <li>• Oil spill and grease leaks from transporting vehicles and machinery equipment used in operation phase</li> </ul>	2	4	2	3	24	Low
Soil contamination	<ul style="list-style-type: none"> <li>• Accidental spillage of oil used by vehicles operating</li> </ul>	1	4	1	2	12	Very low
Noise pollution	<ul style="list-style-type: none"> <li>• Generating noise from the production machinery</li> <li>• Noise from the generating of the emergency generators</li> </ul>	3	4	1	4	32	Moderate
Fire Hazard	<ul style="list-style-type: none"> <li>• Poor electrical installations</li> <li>• Waste disposed area</li> <li>• Raw materials storage</li> </ul>	3	4	2	3	27	Moderate
Solid waste	<ul style="list-style-type: none"> <li>• Residual pieces of scraps from the production lines</li> <li>• Waste from packaging materials</li> <li>• Waste from kitchen, dormitory and office</li> </ul>	3	4	1	4	32	Moderate
Liquid waste	<ul style="list-style-type: none"> <li>• Septic system and sewage</li> <li>• Domestic liquid waste disposal from office, kitchen and dormitory</li> </ul>	2	4	2	4	32	Moderate
Hazardous waste	<ul style="list-style-type: none"> <li>• Engine oil leaks, spill at diesel storage and during fuel refueling</li> <li>• Used oil and lubricant discharged from the maintenance of vehicles and machines</li> </ul>	2	4	1	2	14	Very low

Occupational health and safety (accidents, injuries)	<ul style="list-style-type: none"> <li>Accidental cases cause by operating machines</li> <li>Electricity and emergency diesel generators.</li> <li>Unloading, mixing, cutting, pressing and packaging activities.</li> <li>Accidental cases of thermic fluid heater</li> </ul>	3	4	1	4	32	Moderate
Social-economic condition	<ul style="list-style-type: none"> <li>Job opportunities for local people</li> </ul>	-	-	-	-	-	Positive impact
<b>Decommissioning Phase</b>							
Air pollution	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> </ul>	3	1	1	4	20	Low
Water pollution	<ul style="list-style-type: none"> <li>Sewage from decommissioning workers</li> <li>Demolition machinery equipment</li> </ul>	3	1	1	3	15	Low
Soil contamination	<ul style="list-style-type: none"> <li>Decommissioning of buildings and related materials</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Noise pollution	<ul style="list-style-type: none"> <li>Decommission activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	1	3	15	Low
Waste disposal	<ul style="list-style-type: none"> <li>Sewage system</li> <li>Demolished debris such as bricks concrete materials</li> </ul>	3	1	1	3	12	Very Low
Hazardous waste	<ul style="list-style-type: none"> <li>Used lubricants from decommissioning vehicles and machines</li> </ul>	3	1	1	3	12	Very Low
Occupational health and safety (accidents, injuries)	<ul style="list-style-type: none"> <li>Decommission activities</li> <li>Transportation of demolished materials</li> </ul>	3	1	2	3	18	Low
Social-economic condition	<ul style="list-style-type: none"> <li>Temporary job opportunities for local people</li> </ul>	-	-	-	-	-	Positive impact

**Table 5.7 Mitigation Measures Method**

Environmental Impact	Mitigation Measures
<ul style="list-style-type: none"> <li>Air Pollution</li> </ul>	<ul style="list-style-type: none"> <li>Installation of sufficient exhaust fan ventilation units.</li> <li>Regular change the ventilation filters.</li> <li>Heating, ventilation and air condition systems must be cleaned and maintained regularly.</li> </ul>

	<ul style="list-style-type: none"> <li>• More comprehensive cleaning should be carried out as often as necessary. This cleaning should also include walls, ceiling, storage racks and other areas where dust accumulates.</li> <li>• Scrap materials must clean up daily often enough to prevent them from collecting on floors, tabletops in aisle ways or other area.</li> <li>• Spraying water on the floor before sweeping will avoid dust remaining air bone. More effective protective methods of controlling dust include using a vacuum cleaner or a wet mop.</li> <li>• Provide personal protective equipment at the work place such as dust masks of respirators and caps if necessary.</li> </ul>
<ul style="list-style-type: none"> <li>• Water Pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Regular cleaning and checking.</li> <li>• Ensure the factory compound with well spread with concrete for traffic</li> <li>• Immediate clean for leakage and spillage.</li> <li>• Use oil spill clean-up materials.</li> <li>• All sewers should be disposed of through septic tanks.</li> <li>• Discharge periodically by contacting Engineering Department (Water and Sanitary) from YCDC.</li> </ul>
<ul style="list-style-type: none"> <li>• Soil contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Hazardous waste should be stored in assigned areas with secondary containment (a container or physical structure that surrounds the primary container and serves to hold any liquids that may leak from the primary container).</li> <li>• Locked the storage area to prevent unauthorized individuals from entering.</li> <li>• Workers who handle hazardous waste should be trained to avoid personal injury, prevent spills and release and to make sure these wastes are disposed of safety.</li> <li>• Hazardous waste will be handed over to agencies authorized by YCDC monthly.</li> </ul>
<ul style="list-style-type: none"> <li>• Noise pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Use of international modernized machines which generate low noise levels.</li> <li>• Provide adequate ear protection (ear plus or muffs) to workers working in the excessive noise areas (exceed 85 decibels)</li> <li>• Use of noise enclosure for diesel generator.</li> <li>• Proper maintenance of generator and engineered noise controls (sound absorption material)</li> </ul>

<ul style="list-style-type: none"> <li>• Waste Disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Wastes are removed from on-site at regular intervals to prevent release to the environment.</li> <li>• Final disposal of Non-hazardous waste to YCDC or Shwe Pyi Thar industrial estate allocated dumping sites.</li> </ul>
<ul style="list-style-type: none"> <li>• Hazardous Waste</li> </ul>	<ul style="list-style-type: none"> <li>• Factory must determine the types and amount of hazardous wastes resulting from production and business activities.</li> <li>• Hazardous waste must be contained to prevent it from blowing away and from leaching into surface or groundwater.</li> <li>• Keeping hazardous waste container with clearly marked Hazardous Waste.</li> </ul>
<ul style="list-style-type: none"> <li>• Occupational health and safety (accidents, injuries)</li> </ul>	<ul style="list-style-type: none"> <li>• Providing own clinic and a doctor/nurse.</li> <li>• Sent to private clinic or social security clinic near by the factory's transport arrangement if required.</li> <li>• Nearest hospital location maps and phone numbers in the factory.</li> </ul>
<ul style="list-style-type: none"> <li>• Social-economic condition</li> </ul>	<ul style="list-style-type: none"> <li>• Maximize the use of local labor</li> <li>• Maximize public participation about project related activities</li> </ul>

## **6. STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE**

Public consultation and information disclosure ensures that communities and stakeholders are part and parcel of the proposed developments and in so doing assure the sustainable use of resources.

Public consultations form a useful component for gathering, understanding and establishing likely impacts of projects determining community and individual preferences and selecting alternatives. Win Win Vermicelli Industry Co., Ltd provides an opportunity to all the stakeholders and communities in the surrounding area to raise issues and concerns pertaining to the factory. The engagement activities using varied techniques are as follows:

- a) Neighboring community/stakeholders can directly inform their township/ward to the Win Win Vermicelli Industry Co., Ltd Office.
- b) They can give their suggestions to the factory through the township/ward administration office or industrial zone office.

The using techniques for aforementioned description, Green EHSS have organized meetings Win Win Vermicelli Industry Co., Ltd. The objectives of the meeting were to collect up-to-date and precise information on the project activities. The outcome of the meeting will help in the assessment of the anticipated impacts.

Win Win Vermicelli Industry Co., Ltd is situated in Shwe Pyi Thar Industrial Zone (2). Green EHSS has conducted stakeholder engagement with local residents near Shwe Pyi Thar Industrial Zone to inform the local administration on the project, to collect the views and to obtain the input into the impact and mitigation measures to be included in the EMPs.

### 6.1 Engagement Techniques

Win Win Vermicelli Industry Co., Ltd has implemented a comprehensive range of engagement activities using varied techniques to ensure that the project effectively involves stakeholders. The using techniques for aforementioned discussions, meetings and survey are showed in following table.

**Table 6.1 Engagement Methods and Techniques**

Engagement Technique	Description
Company Address Factory Address	Win Win Vermicelli Industry Co., Ltd provides company location and factory location in Yangon. This is relevant in easily way of accessibility for all kinds of stakeholders.
Hot Line Number	Win Win Vermicelli Industry Co., Ltd operates a hot line number which is available during business hours. Phone 09-420027111
Pamphlet	Win Win Vermicelli Industry Co., Ltd will produce pamphlet available in community meetings for general information related with plant activities, environmental management, safety , community development and public involvement.
Booklet	Win Win Vermicelli Industry Co., Ltd will produce booklets to provide the community with project related activities including machine used, product value and their services. Booklets are available in community meetings for the provision of information with pictures and photographs.
Face to Face Meeting	Win Win Vermicelli Industry Co., Ltd does not engage directly with a range of stakeholders as required. In particular, Win Win Vermicelli Industry Co., Ltd has an ongoing engagement with local authority persons, and community organizations.
Questionnaires and Surveys	Win Win Vermicelli Industry Co., Ltd house hold survey in the vicinity of the factory location to evaluate the effectiveness of engagement mechanisms and gain an understanding of community perception interests and issues.
Public Meeting	Win Win Vermicelli Industry Co., Ltd will conduct public meeting to generate more in depth information around issues and concerns raised by stakeholders. These are giving stakeholders on opportunity to directly obtain information and ask questions concerned with the project

## **6.2 Responses and Additional Comments by Respondent**

Consultation with communities affected by the project as well as the focus groups with local government and ward leaders highlighted the most important issues. Several of these issues directly related to the plant activities and facilities during operation.

The results of public consultation and socio-economic survey show that the respondents were positive on the project for the operation of Win Win Vermicelli Industry Co., Ltd.

Community level consultation revealed that there were no complain from the surrounding area on Win Win Vermicelli Industry Co., Ltd.

The consultation and household survey revealed that unemployment and the poverty that accompanies. It is the key concern amongst communities in the vicinity of the project site. Over 60% of respondents have revealed that priority for employment opportunity is to be given to local residents. They also advised to maintain the environment and to support the community and social development process.

## **7. ENVIRONMENTAL MANAGEMENT PLAN**

According to the outcomes from the Environmental and Social Impact Analysis, Environmental Management Plans are addressed to mitigate the potential impacts. The EMP generally takes account of the following crucial management plans.

- 1) Air Emissions Management
- 2) Noise Pollution Management
- 3) Water Management
- 4) Solid Waste Management
- 5) Natural Environmental Management
- 6) Social Environmental Management
- 7) Occupational Health and Safety Management
- 8) Emergency Response Plan
- 9) Environmental Monitoring and Reporting
- 10) Corporate Social Responsible (CSR) Plan
- 11) Budget Plan
- 12) Grievance Redress Mechanism

### **7.1 Objective of Environmental Management Plan**

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

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

**Commitment and Policy** - top management commits to environmental improvement and establishes the organization's environmental policy. The policy is the foundation of the EMS.

**Planning** - An organization first identifies environmental aspects of its operations. Environmental aspects are those items such as air pollutants or hazardous waste that can have negative impacts on people and the environmental. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. For example, an organization may choose worker health and safety, environmental compliance and cost as its criteria. Once significant environmental aspects are determined an organization sets objectives and targets. An objective is an overall environmental goal (eg. minimize use of chemical X). A target is a detailed, quantified requirement that arises from the objectives (eg- reduce use of chemical X by 25% by September 1998). The final part of the planning stage is devising an action plan for meeting the targets. This includes designating responsibilities establishing a schedule and outlining clearly defined steps to meet the targets.

**Implementation** - An organization follows through with the action plan using the necessary resources (human, financial etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures and setting up internal and external communication lines.

**Evaluation** - a company monitors its operations to evaluate whether targets are being met. Of not, the company takes corrective action.

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

### **7.2 Environmental Policy**

Win Win Vermicelli Industry Co., Ltd) describe its environmental policy as follows:

Win Win Vermicelli Industry Co., Ltd shall be responsible for the protection as well as perseveration of environment in and around the area of the project site.;

- Win Win Vermicelli Industry Co., Ltd shall be able to control pollution of air, water and not to cause environment degradation and
- Win Win Vermicelli Industry Co., Ltd) will comply with any applicable environmental protection laws and regulations of the Republic of the Union of Myanmar.

**7.3 Health Policy**

Win Win Vermicelli Industry Co., Ltd always comply with all health and safety legislation.

Win Win Vermicelli Industry Co., Ltd will establish and implement the Occupational, Health and Safety Management.

Win Win Vermicelli Industry Co., Ltd help the workers by providing them with a workplace health services and medical care and workplace safety.

Win Win Vermicelli Industry Co., Ltd aims for continual improvement of its health and safety management system.

The FIRST AID KITS and emergency medical boxes are supplied sufficiently in all work sites for minor cuts or ailment. Win Win Vermicelli Industry Co., Ltd will send the injured employee to the nearest Private Clinic/ Hospital with factory transportation at no cost. Some employees who hold social security cards, on their request or consent are sent to SOCIAL SECURITY CLINIC nearby the factory’s transport arrangement. The Factory arranges plenty of safety drinking water, at no cost, to all workers at all time.

**7.4 Description of Responsibilities for Implementation**

Win Win Vermicelli Industry Co., Ltd is responsibility for implementation environmental monitoring plan for the operation phase of the project. Emergency Response Team (ERT), Environmental Management Team (EMT) and management plan and monitoring plan of the proposed project.

I. Emergency Response Team (ERT)

ERT shall comprise:

- a) U Myo Min Naing (Assistant Manager)
- b) Daw Aye Thuzar (Supervisor)
- c) U Win Soe (Supervisor)
- d) Daw Phyu Phyu Thin Khaing (Office Staff)
- e) Daw Swe Swe Win (QC)
- f) U Than Naing Oo (Machine Leader)

The ERT should be on call in case of safety problem that occurs during off-hours/ or Security shall contact the Township Fire Department immediately.

The team members shall have knowledge of or can be trained in responding to emergencies such as emergency plan, firefighting, precautions.

Responsibilities of ERT

Incident Controller	<ul style="list-style-type: none"> <li>• Commands and control the ERT to response to an emergency.</li> <li>• Communicates with authorities eg. Police/ Township Fire Department in the event of an emergency.</li> <li>• Ensure emergency plan are reviewed regularly and ERT are appropriately trained and equipped to carry out their assigned task.</li> <li>• Crowd control and monitor overall headcount at the Assembly Area.</li> <li>• Initiate drill exercises and post exercise review with ERT on an annual basis.</li> </ul>
Officer-in-charge at Assembly Area	<ul style="list-style-type: none"> <li>• Conduct head count of all staff, consultants and workers</li> <li>• Consolidate the headcount list from wardens</li> </ul>

	<ul style="list-style-type: none"> <li>• Report evacuation status such as any missing person to the Incident Controller</li> </ul>
Fire Fighters	<ul style="list-style-type: none"> <li>• To be trained in firefighting and assist in firefighting at no personal risk.</li> </ul>
Wardens	<ul style="list-style-type: none"> <li>• Area combing, to ensure all staff and workers leave the workplace promptly during an evacuation</li> <li>• Direct staff and workers to the Assembly Area</li> <li>• Conduct headcount for their workers at the assembly Area.</li> </ul>
First Aiders	<ul style="list-style-type: none"> <li>• Successfully completed first aid training. To render first aid to any injured during any emergency.</li> <li>• Standby at the Assembly area with first aid kit during a mass evacuation.</li> </ul>

II. Environmental Management Team (EMT)

EMT Shall comprise:

- a) U Myo Min Naing (Assistant Manager)
- b) Daw Aye Thuzar (Supervisor)
- c) U Win Soe (Supervisor)
- d) Daw Phyu Phyu Thin Khaing (Office Staff)
- e) Daw Swe Swe Win (QC)
- f) U Than Naing Oo (Machine Leader)

The responsibilities of EMT are to implement the pollution control (water quality, air quality and noise impact, etc) mitigation measure and monitoring program.

III. Report Supported Team (RST)

RST shall comprise:

- a) U Myo Min Naing (Assistant Manager)
- b) Daw Aye Thuzar (Supervisor)
- c) U Win Soe (Supervisor)
- d) Daw Phyu Phyu Thin Khaing (Office Staff)
- e) Daw Swe Swe Win (QC)
- f) U Than Naing Oo (Machine Leader)

The responsibilities of RST are to record of the monitoring results in files, to develop the monitoring report with related documents and to report submission to local Environmental Conservation Department (ECD), through the Win Win Vermicelli Industry Co., Ltd.

**7.5 Environmental Impact and Mitigation Measures**

After evaluating the environment impacts of Win Win Vermicelli Industry Co., Ltd, Green EHSS has identified environmental risks and prepared mitigation measures to protect the environmental and comply with Myanmar environmental legislation. Environmental impacts and mitigation measures are divided into two phases, operation phase and decommissioning phase. Construction phase of the plant is completed.

**7.5.1 Air Emission Management**

Potential environmental impact and mitigation measures for air emission management are shown in Table 7.1.

**Table 7.1 Environmental Impact and Mitigation Measures (Air Pollution) during Operation Phase**

Environmental Impact	Mitigation Measures
<b>Dust</b>	

<ul style="list-style-type: none"> <li>Dust from loading and unloading raw materials</li> <li>Dust from floor cleaning and housekeeping in factory operation</li> </ul>	<ul style="list-style-type: none"> <li>Installation of sufficient exhaust fan ventilation units.</li> <li>Regular change the ventilation filters.</li> <li>Heating, ventilation and air condition systems must be cleaned and maintained regularly.</li> <li>Spraying water on the floor before sweeping will avoid dust remaining air bone. More effective protective methods of controlling dust include using a vacuum cleaner or a wet mop.</li> <li>Provide personal protective equipment at the work place such as dust masks of respirators and caps if necessary.</li> </ul>
<b>Exhaust Emission (Greenhouse Gas)</b>	
<ul style="list-style-type: none"> <li>Vehicle Movement</li> </ul>	<ul style="list-style-type: none"> <li>Use of vehicles having efficient engines and exhaust system.</li> <li>Implementing a regular vehicle maintenance and repair program.</li> </ul>
<ul style="list-style-type: none"> <li>Air Emission generated from diesel generators</li> <li>Air emission generated from diesel generators</li> </ul>	<ul style="list-style-type: none"> <li>Installation of filters for generator and remove any PM</li> <li>Proper ventilation of equipment and machines.</li> <li>Use of masking agents and efficient ventilation system in factory.</li> </ul>
<ul style="list-style-type: none"> <li>Using air conditioner in office building</li> <li>Cooking activities from dormitory</li> </ul>	<ul style="list-style-type: none"> <li>Putting indoor potted plants for air refreshment of office.</li> <li>Increasing roadside plantations make localized air pollution reduced due to the blocking effect of foliage and through photosynthesis.</li> </ul>
<ul style="list-style-type: none"> <li>Use of solvents</li> </ul>	<ul style="list-style-type: none"> <li>Volatile liquids (solvents, thinner, flux and varnish) must be stored in a covered container and kept cool to prevent evaporation into the environment.</li> <li>Maintain adequate ventilation and hygiene to reduce the generation of odor.</li> <li>Prohibition of smoking in any working area.</li> </ul>

### **Decommissioning Phase**

Negative impacts on ambient air quality such as dust particles emissions could be expected due to demolition works during the decommission phase of the factory after the lifespan of the project. This nuisance will be temporary in nature and is not expected to affect the surrounding environment since the factory is located within an industrial zone.

#### **7.5.2 Noise Pollution Management**

Permanent hearing loss may be caused by a number of things including disease, aging, sudden loud noise or long-term exposure to loud noise. Factory must identify workers who work increase with noise levels that are higher than 85 decibels. These workers must wear hearing protection and be trained on the proper use of hearing protection and the health and safety risks of not wearing hearing protection. Noise output on new equipment should be evaluated and engineered controls used to reduce noise. Factory should conduct noise hazard evaluations each year to identify any areas where noise levels exceed 85 decibels. Where noise levels are higher than 85 decibels, factories should use rubber padding to reduce machine vibration install sound barriers and sound insulation. Noise levels should not exceed a 140 db peak sound pressure at any time and factory should install noise curtains, sound absorbing and enclosures. Potential environmental impacts and mitigation measures for noise management are shown in Table 7.2.

**Table 7.2 Environmental Impact and Mitigation Measures (Noise) during Operation**

Environmental Impacts	Mitigation Measures
<b>Noise</b>	
<ul style="list-style-type: none"> <li>Noise generated from diesel generators</li> </ul>	<ul style="list-style-type: none"> <li>Use of noise enclosure for diesel generator.</li> <li>Proper maintenance of generator and engineered noise controls (sound absorption material)</li> <li>Provide adequate ear protection (ear plus or muffs) to workers working in the excessive noise areas (exceed 85 decibels)</li> </ul>
<ul style="list-style-type: none"> <li>Cutting machine, sewing machine</li> </ul>	<ul style="list-style-type: none"> <li>Regular maintenance of the machines to reduce noise emission.</li> <li>Proper maintenance of exhaust fan</li> </ul>
<ul style="list-style-type: none"> <li>Running exhaust fan</li> </ul>	<ul style="list-style-type: none"> <li>Use of international modernized machines which generate low noise levels.</li> </ul>
<ul style="list-style-type: none"> <li>Noise generated from pumps, motors and compressor.</li> </ul>	<ul style="list-style-type: none"> <li>All preventive measures such as regular operation and maintenance of pumps, motors and compressor should be carried out.</li> <li>Provide adequate ear protection (ear plugs of muffs) to workers working in the excessive noise areas (exceed 85 decibels)</li> </ul>

**Decommissioning Phase**

After the lifespan of the project, decommissioning the factory can also affect noise level. Temporary noise barriers and occupational preventive measure should be applied in this phase. Workers employing in high noise areas should be worked on shifts and hearing protective wear such as earplugs, earmuffs, etc. should be provided. Sensitization of truck drivers to switch off vehicle engines while loading materials avoid running of vehicle engines or hooting especially.

**7.5.3 Water Management**

There is no discharging of process wastewater. The drainage system is periodically cleared so as to ensure adequate storm water flow. The domestic sewage and storm water will be discharged to the municipal sewage channel existing in front of the factory and only sanitary wastewater to the ground tank in the factory compound.

Potential environmental impact and mitigation measures for ground water, and waste water management are shown in Table 7.3.

**Table 7.3 Environmental Impact and Mitigation Measures (Water) during Operation Phase**

Environmental Impacts	Mitigation Measures
<b>Ground Water</b>	
<ul style="list-style-type: none"> <li>Ground water depletion</li> </ul>	<ul style="list-style-type: none"> <li>Water consumption could not affect to the ground water as a major ingredient</li> </ul>
<ul style="list-style-type: none"> <li>Water use of employees and staff</li> </ul>	<ul style="list-style-type: none"> <li>All factory staff should turn on water taps only when heeded and should not allow water to run continuously</li> <li>Any leakage should be promptly reported to engineering department as soon as possible</li> <li>The engineering department staff should maintain all water piped taps, storage tanks and water consumption equipment</li> </ul>
<b>Waste Water</b>	
<ul style="list-style-type: none"> <li>Domestic waste water</li> </ul>	<ul style="list-style-type: none"> <li>Regular cleaning and checking.</li> </ul>
<ul style="list-style-type: none"> <li>Surface water contamination by oil/fuel leakage from vehicles and diesel generator</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the factory compound with well spread with concrete for traffic</li> <li>Immediate clean for leakage and spillage.</li> <li>Use oil spill clean-up materials.</li> </ul>

<ul style="list-style-type: none"> <li>Sanitation Wastewater</li> </ul>	<ul style="list-style-type: none"> <li>All sewers should be disposed of through septic tanks.</li> <li>Discharge periodically by contacting Engineering Department (Water and Sanitary) from YCDC.</li> </ul>
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**Decommissioning Phase**

Surface water and ground water contamination may result from various activities during decommission phase. These activities can include wastewater generated from workers and staff and oil and grease leakage from machines and vehicles. Sedimentation/ siltation of drainage or waterway may also result from unconfined stockpiles of soil and other materials. These activities shall be reduced by avoiding earth work in rainy season and discharging wastewater into existing sewage line. Suitable facilities or portable toilets must be provided to prevent discharging sanitary waste to the ground.

**7.5.4 Solid Waste Management**

Systematic management of solid waste is of importance as mismanagement of the waste will lead critical occupational hazard including fire hazard. Project proponent should segregate the wastes into reusable wastes, hazardous wastes and domestic wastes.

Win Win Vermicelli Industry Co., Ltd will establish and implement comprehensive waste management plan to ensure segregation, handling, storage and disposal of hazardous and nonhazardous waste in safe and environmental friendly manner. Store wastes are separately and be sure they are properly labeled to make it easier to reuse or recycle them. The factory applies 3R management.

- Reduce:** Reduce waste and increase yield with careful layout procedures. Increasing yield from raw materials and decreasing the number of rejected parts will reduce the amount of textile waste generated at the factory. Reduce waste by keeping raw materials protected from the elements. Win Win Vermicelli Industry Co., Ltd will pay careful attention during planning, storing raw materials. Keep tools sharp and in good operating order to reduce reject parts. Keep cutting machinery in good operating order.
- Reuse:** The goal is to reduce disposal needs. Company has a plan to install the water reusing system for boiler to practicing the energy and water conservation.
- Recycle:** Keep textile wastes clean and segregated by type to enhance recycling opportunities. The garment factory procedures solid wastes mainly comprised of linen cuts. These wastes are valuable for recycle in places such as stuffing for pillow and doll. Company installs the garbage area for recycle waste. The ash from burnt wood by boiler will be recycled as fertilizer for trees and vegetation inside the factory and in the public space. Some of them are sent to the gardener to use as ingredient for fertilizer.

Systematic management of solid waste is of importance as mismanagement of the waste will lead critical occupation hazard including fire hazard. Waste generation from the whole production process is as follows.

- (a) Receiving Process - Packing Waste
- (b) Packing - Packing Waste

There is no hazardous waste caused by the production activities of the factory. While garment factories do not create large quantities of hazardous waste, it is important that any amount of hazardous waste be management properly to avoid contaminating the environment. Hazardous wastes that are disposed of improperly can pollute the air, land, groundwater and waterways, harming the environment and threatening community health. The purpose of solid waste management is to describe how factory may properly manage hazardous wastes and non-hazardous waste. Potential environmental impact

and mitigation measures for solid waste management are shown in table 7.4

**Table 7.4 Environmental Impact and Mitigation Measures (Solid Waste) during Operation Phase**

Environmental Impacts	Mitigation Measures
<b>Non-Hazardous Waste</b>	
<ul style="list-style-type: none"> <li>Textile waste</li> </ul>	<ul style="list-style-type: none"> <li>Cleaning continuous and regularly.</li> </ul>

<ul style="list-style-type: none"> <li>• Pieces from cutting.</li> <li>• Packing materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of adequate containers to avoid loss to the floor.</li> <li>• Apply 3Rs management (Reduce, Reuse and Recycle)</li> <li>• Reduce waste by keeping raw materials protected from the elements.</li> <li>• Pay careful attention during planning, storing raw material, cutting, sewing and ironing to reduce rework and rejected parts.</li> <li>• Keep tools sharp and in good operating order to reduce reject parts</li> <li>• Careful layout and good work practices to reduce the waste quantity.</li> <li>• Properly collected at as dedicated storage area and suitable disposed of YCDC.</li> </ul>
<ul style="list-style-type: none"> <li>• Office wastes such as paper scraps, used copier cartridges, paper boxes and plastic bags.</li> <li>• Domestic wastes such as food waste, plastic bags, plastic water bottles, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Reuse waste if applicable.</li> <li>• Waste should be disposed in bins and segregated by types of waste.</li> <li>• Sufficient waste bins will be provided within the factory premises.</li> </ul>
<ul style="list-style-type: none"> <li>• Waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Wastes are removed from on-site at regular intervals to prevent release to the environment.</li> <li>• Final disposal of Non-hazardous waste to YCDC or Shwe Pyi Thar industrial estate allocated dumping sites.</li> </ul>
<b>Hazardous-Waste</b>	
<ul style="list-style-type: none"> <li>• Bleaching materials, solvent based paint, flammable solvents.</li> <li>• Small amount of machinery maintenance materials such as oily rags, used oil filters and used oils as well as spill cleanup materials</li> <li>• Electric tubes used cartridges</li> <li>• Waste of electric and electronic equipment and etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Factory must determine the types and amount of hazardous wastes resulting from production and business activities.</li> <li>• Hazardous waste must be contained to prevent it from blowing away and from leaching into surface or groundwater.</li> <li>• Keeping hazardous waste container with clearly marked Hazardous Waste.</li> <li>• Hazardous waste should be stored in assigned areas with secondary containment (a container or physical structure that surrounds the primary container and serves to hold any liquids that may leak from the primary container).</li> <li>• Assigned hazardous waste storage areas should be located indoors, if possible (outdoor areas should be completely enclosed such as a shed).</li> <li>• A signboard is put outside the storage area marked (Hazardous Waste Storage Area or Danger)</li> <li>• Locked the storage area to prevent unauthorized individuals from entering.</li> </ul>

	<ul style="list-style-type: none"> <li>Workers who handle hazardous waste should be trained to avoid personal injury, prevent spills and release and to make sure these wastes are disposed of safely.</li> <li>Hazardous waste will be handed over to agencies authorized by YCDC monthly.</li> <li>Spent oils and other hazardous things directly discharge into the water body of public drainage system is prohibited.</li> </ul>
<ul style="list-style-type: none"> <li>Soil pollution by hazardous</li> </ul>	<ul style="list-style-type: none"> <li>Factory make take steps to reduce hazardous waste (by using non-hazardous materials such as citrus based solvents and non-toxic cleaners).</li> <li>Never use waste oil or other contaminants on dirt roads as dust suppressant or weed killer.</li> </ul>

**Decommissioning Phase**

Contamination and degradation of soil can be caused during the decommissioning phase. All unused or surplus building materials can be sold to other who needs it. Solid waste can be also used in the land level adjustments in the landfill area. Organic waste and construction debris should be properly collected at a dedicated storage area and suitably disposed of at YCDC.

**7.6 Natural Environmental Impact and Mitigation Measures**

Small trees are planted in the factory compound and they will help keep the factory cool. They make the natural environ improved for fauna and flora. Trees, bushes, grass and flowers help to reduce the harmful effects of the sun’s radiation and hot winds. They also form a natural “Filter” preventing dust from penetrating inside the factory. Win Win Vermicelli Industry Co., Ltd will keep the enterprise premises green by planting trees and flowers. Potential environmental management is shown in Table 7.5.

**Table 7.5 Environmental Impact and Mitigation Measures (Natural Environment) during Operation Phase**

Environmental Impact	Mitigation Measures
<b>Flora and Fauna</b>	
<ul style="list-style-type: none"> <li>Loss of fauna and flora species</li> </ul>	<ul style="list-style-type: none"> <li>Keep the enterprise premises green by planting trees and flowers</li> <li>Maintenance of trees, vegetation, lawn inside the factory and in the public space such as road and other spaces.</li> </ul>

**7.7 Social Environmental Impact and Mitigation Measures**

Potential environmental impact and mitigation measures for social environmental management are shown in Table 7.6.

**Table 7.6 Environmental Impact and Mitigation Measures (Social Environment) during Operation Phase**

Environmental Impacts	Mitigation Measures
<b>Population Influx</b>	
<ul style="list-style-type: none"> <li>Increase pressure on existing social infrastructures and services including health, food, shelter, water and recreational facilities.</li> </ul>	<ul style="list-style-type: none"> <li>Use of local labor force.</li> <li>Providing own health care facilities such as a doctor/nurse and own clinic.</li> <li>Provision of ferry service for workers from remote area.</li> </ul>
<b>Beneficial Impacts</b>	
<ul style="list-style-type: none"> <li>Employment opportunity to local people</li> </ul>	<ul style="list-style-type: none"> <li>Maximize the use of local labour</li> <li>Maximize public participation about project related activities</li> </ul>

**Decommissioning Phase**

Loss of jobs of the employees may occur during decommissioning phase and it may reduce by taking responsibility on gradual reducing or transferring of work force.

### 7.8 Occupational Health and Safety Management

Primary OHS issues related to Win Win Vermicelli Industry Co., Ltd are: overweight lifting at receiving raw materials and transporting products; hazard for injury from cutting machines and sewing needles; injure by heat at ironing section; ergonomic injury from prolong standing or sitting; and noise impact for workers at boiler section.

Win Win Vermicelli Industry Co., Ltd has developed occupational health and safety plan to promote a safe working environment at the factory.

**Table 7.7 Occupational Health and Safety Plan**

Environmental Impacts	Mitigation Measures
<b><u>Physical Injuries</u></b>	
<ul style="list-style-type: none"> <li>Accidents</li> </ul>	<ul style="list-style-type: none"> <li>Keep stairs, aisles and exits clear.</li> <li>Safety signboards.</li> <li>Provide adequate passageways for efficient and safe movement of materials.</li> <li>The first aid kits and emergency medical boxes are supplied sufficiently.</li> <li>Providing own clinic and a doctor/nurse.</li> <li>Sent to private clinic or social security clinic near by the factory's transport arrangement if required.</li> <li>Nearest hospital location maps and phone numbers in the factory.</li> </ul>
<ul style="list-style-type: none"> <li>Overweight lifting</li> </ul>	<ul style="list-style-type: none"> <li>Using necessary lifting and carrying aid and machinery.</li> </ul>
<ul style="list-style-type: none"> <li>Cut fingers in the cutting room</li> </ul>	<ul style="list-style-type: none"> <li>Using metal hand gloves for cutting machine operators</li> </ul>
<ul style="list-style-type: none"> <li>Ergonomic injury from prolong standing or sitting</li> </ul>	<ul style="list-style-type: none"> <li>Providing necessary seats at appropriate places.</li> </ul>
<b><u>Light</u></b>	
<ul style="list-style-type: none"> <li>Activities of the workers in the operation sector are dependent on the good quality light.</li> </ul>	<ul style="list-style-type: none"> <li>Provide good quality light source in the workplace.</li> <li>Lights are positioned in the correct place.</li> <li>Switch of the light when not in use.</li> <li>Adequate lighting near any potential hazards such as steps, ramps, etc and outside the factory for security at night.</li> </ul>
<b><u>Temperature</u></b>	
<ul style="list-style-type: none"> <li>Heat exposure</li> </ul>	<ul style="list-style-type: none"> <li>Use of local exhaust ventilation systems in hot spots such as the ironing section to directly remove the heat.</li> </ul>
<ul style="list-style-type: none"> <li>Dry room</li> </ul>	<ul style="list-style-type: none"> <li>Reduce working period in the drying room.</li> <li>Providing sufficient drinking water near to the drying room.</li> <li>To educate workers to report to supervisor immediately when they feel heat exhaustion like dizziness, tiredness and sweating.</li> </ul>
<b><u>Health</u></b>	
<ul style="list-style-type: none"> <li>Drinking</li> <li>Sanitation</li> <li>Risks infectious disease such as AIDS/HIV</li> </ul>	<ul style="list-style-type: none"> <li>Providing purified drinking water for all workers.</li> <li>The toilets are provided with enough water and deodorants.</li> <li>Prevention of spreading out</li> <li>Training of workers.</li> </ul>

<b>Working conditions</b>	
<ul style="list-style-type: none"> <li>• Traffic safety</li> <li>• Safety measure</li> </ul>	<ul style="list-style-type: none"> <li>• Improve the driving skills and requiring licensing of drivers.</li> <li>• Fire extinguisher signs and check list.</li> <li>• Clear evacuation escape route, signs.</li> <li>• Providing appropriate supervision to the workers.</li> <li>• Teach workers to troubleshoot common machine problems.</li> </ul>

**Decommissioning Phase**

During decommissioning phase, health and safety impacts can result from working at height and electric shock hazards. Site fencing and safety signatures should be done in this phase. Personal protective equipment (PPE) such as safety harness for working at height, safety gloves, helmet, goggles, ear muffs, etc. should be provided.

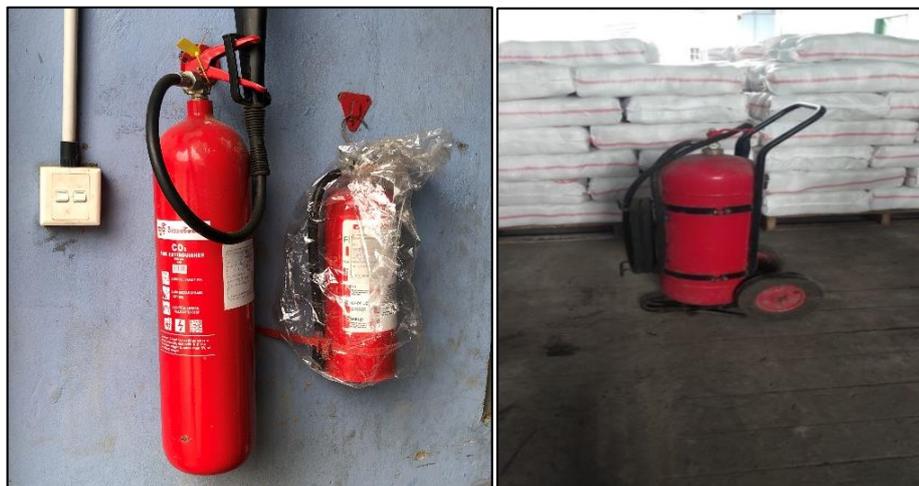
**7.9 Emergency Response Plan**

Win Win Vermicelli Industry Co., Ltd has planned, designed and constructed with fixed firefighting installations systematically. Win Win Vermicelli Industry Co., Ltd has prepared an emergency response plan in order to prevent consequences of natural disasters such as fire, floods and earthquakes and man-made errors (e.g. electricity shock, fire hazards). Emergency response plan describes the requirements for planning and preparing to protect workers in the event of an emergency.

Win Win Vermicelli Industry Co., Ltd installs the Firefighting System and Equipment as follows:

**Firefighting System and Equipment**

- 1) Water for firefighting is stored in a concrete tank of 1528 gallons capacity in the compound.
- 2) Sand for firefighting is also stored in a concrete tank.
- 3) Installation of 12 fire extinguishers.
- 4) Fire alarm system is installed in the building.
- 5) Installation of fire detectors and audio system in the factory.
- 6) Exit and evacuation indicating signs are fixed in whole area.
- 7) Musters in the factory compound with clear marking.
- 8) Display access to emergency services.
- 9) "NO SMOKING" signs shall be conspicuously displayed at strategic locations in the factory.





**Figure 7-1 Photos of Fire Prevention**

**Requirements**

- Factories must have procedures to prepare for possible emergencies such as fire, extinguishers, hurricanes, and chemical spills.
- Factories must have an emergency evacuation plan and evacuation routes must be posted in each work area.
- Factories must hold emergency evacuation drills often enough that workers know the drill procedure and consider it routine.
- Factories must have a fire prevention plan.

**7.9.1 Fire Prevention Plans**

A small spark of fire may result into loss of properties and the damage by fire may produce high economic losses. This type of losses can be avoided by preventing and controlling the fire instantly for which Emergency Response Team is established.

ERT shall comprise:

- a) U Myo Min Naing (Assistant Manager)
- b) Daw Aye Thuzar (Supervisor)
- c) U Win Soe (Supervisor)
- d) Daw Phyu Phyu Thin Khaing (Office Staff)
- e) Daw Swe Swe Win (QC)
- f) U Than Naing Oo (Machine Leader)

The team members shall have knowledge of or can be trained in responding to emergencies such as emergency plan, firefighting, precautions.

The ERT should be on call in case of safety problem that occurs during off-hours/ or Security shall contact the Township Fire Department immediately.

**Responsibilities of ERT**

Incident Controller	<ul style="list-style-type: none"> <li>• Commands and control the ERT to response to an emergency.</li> <li>• Communicates with authorities eg. Police/ Township Fire Department in the event of an emergency.</li> <li>• Ensure emergency plan are reviewed regularly and ERT are appropriately trained and equipped to carry out their assigned task.</li> <li>• Crowd control and monitor overall headcount at the Assembly Area.</li> <li>• Initiate drill exercises and post exercise review with ERT on an annual basis.</li> </ul>
Officer-in-charge at Assembly Area	<ul style="list-style-type: none"> <li>• Conduct head count of all staff, consultants and workers.</li> <li>• Consolidate and headcount list from wardens.</li> <li>• Report evacuation status such as any missing person to the Incident Controller</li> </ul>

Fire Fighters	<ul style="list-style-type: none"> <li>To be trained in firefighting, and assist in firefighting at no personal risk.</li> </ul>
Wardens	<ul style="list-style-type: none"> <li>Area combing, to ensure all staff and workers leave the workplace promptly during an evacuation.</li> <li>Direct staff and workers to the Assembly Area.</li> <li>Conduct headcount for their workers at the Assembly Area.</li> </ul>
Fire Aiders	<ul style="list-style-type: none"> <li>Successfully completed first aid training, To render first aid to any injured during any emergency.</li> <li>Standby at the Assembly Area with first aid kit during a mass evacuation.</li> </ul>

### **Hazard Assessment**

- Factories should consider all the types of emergencies that may occur at their location (eg. Fire, chemical spill, earthquake, typhoon, etc) and include them in emergency preparedness procedures.
- Fire and explosion hazards can exist in almost any work area. Potential hazards include:
  - Improper operation or maintenance of gas-fired equipment
  - Improper storage or use of flammable liquids.
  - Smoking in prohibited areas
  - Accumulation of trash
  - Hot work (welding, soldering, any use of open flame or torch) operations without proper controls.

### **Hazard Controls**

- Factories should have rules and procedures to make sure that exits are kept clear, are properly and clearly marked, and allow workers to quickly and safety leave the factory in an emergency.
- Fire extinguishers should match the potential fire hazard and should be located within 15 m (50ft) of flammable liquids and 23 m (75ft) of every worker.
- Fire extinguishers should have maintenance tags attached to them to indicate the date they were last checked and serviced. Ensure that workers how to use fire extinguishers in the immediate area.

### **Rules to Follow**

- Electrical lines must be checked not to leave without switching off when working hours is over or when there is blackout.
- All the fuel and diesel are to be kept and stored, away from fire prone facilities and equipped with specific fire extinguishers for emergency use.
- Flammable by-products or wastes are to be kept at a specific site.
- Smoking is strictly restricted except in a specific smoking area defined.
- Matches must not be used near the machines.
- Establish a firm rule that any repair or maintenance work on powered machines should only be down when the power is turned off and the switch is locked in the off position.
- Be certain that the electrical power can be shut off immediately in case of emergency.

### **Emergency Contact list**

Emergency Contact list consisting contact nos. of authorities, hospital, clinic, ERT personnel shall be prepared and displayed at the factory. The list shall be reviewed at least once a year or as and when there is change in personnel or change in contact number.

The contact no. for local authorities below shall be included in the list:

- Township Fire Department – fires, explosions, ambulance
- Police – local emergencies, life threatening situation
- Nearest Hospital – medical emergencies

- Local clinic or on-site doctor/nurse – medical emergencies
- Ambulance Number – medical emergencies

### **Drills**

Factories should have emergency evacuation procedures that require all workers and managers to participate in drills. During a drill, workers and managers should leave the building, go to an assigned location (assembly area) and remain there until a signal is given to return to the factory. The focus should be on orderly evacuation, rather than on speed. Awareness talk for protection will be held and workers will be sent to trainings administered by Fire Bridge. The following exercise shall be conducted at least once a year for the ERT or otherwise stated:

- Fire Fighting
- Evacuation Drill for all personnel at the factory

### **Evacuation Maps**

Up-to-date evacuation maps will be prepared and posted in numerous site locations. These maps shall show the exists, fire extinguishers, first aid box and designated assembly area.

### **Fire Extinguisher**

A portable fire extinguisher is a “first aid” device and is very effective when used while the fire is small. The use of a fire extinguisher that matches the class of fire, by a person who is well trained, can save both lives and property. Portable fire extinguishers should be installed in workplaces regardless of other firefighting measures. The successful performance of a fire extinguisher in a fire situation largely depends on its proper selection, inspection, maintenance and distribution.

### **Classification of fires and Selection of Extinguishers**

- Extinguishers should be selected according to the potential fire hazard, the construction and occupancy of facilities, the hazard to be protected and other factors pertinent to the situation.
- Use water from nearby tap water if the fire is caused by burning of wood, paper, plastics, textile and trash.
- Dry Powder extinguisher (blue) can be used for most types of fire such as those involving burning of wood, paper, plastics, textile, trash, chemical, flammable liquid and electrical fires.
- Carbon dioxide extinguisher (black) is only suitable for flammable liquids and electrical fires only. It is not suitable for use in indoor/enclosed environment.

### **Location and Marking of Extinguishers**

Extinguishers should be conspicuously located and readily accessible for immediate use in the event of fire. They should be located along normal paths of travel and egress. Extinguishers should be clearly visible. In locations where visual obstruction cannot be completely avoided, directional arrows will be provided to indicate the location of extinguishers and the arrows will be marked with the extinguisher classification.

If extinguishers intended for different classes of fire are located together, they should be conspicuously marked to ensure that the proper class extinguisher selection is made at the time of a fire. Extinguisher classification markings should be located on the front of the shell above or below the extinguishers nameplate. Markings should be of a size and form to be legible from a distance of 1 meter (about 3 feet).

### **Condition**

Portable extinguishers should be maintained in a fully charged and operable condition. They should be kept in their assigned locations at all times when not being use. When extinguishers are removed for maintenance or testing a fully charged and operable replacement unit should be provided.

### **Monitoring and Distribution of Extinguishers**

Extinguishers should be on hangers, brackets and in cabinets or on shelves. Extinguishers mounted in cabinets or wall recesses or set on shelves should be placed so that the extinguisher operating instructions face outward. The location of such extinguishers will be made clear by marking the cabinet or wall recess in a contrasting color which will distinguish it from the normal décor.

Extinguishers should be distributed in such a way that the amount of time needed to travel to their location and back to the fire does not allow the fire to get out of control. The travel distance for Class A and Class D extinguishers should not exceed 23 meters (75 feet). The maximum travel distance for Class B extinguishers is 15 meter (50 feet) because flammable liquid fires can get out of control

faster than Class A fires. There is no maximum travel distance specified patterns for Class C extinguishers but they should be distributed on the basis of appropriate patterns for Class A and B hazards.

### **Fire Safety Inspections & Housekeeping**

- Observe worksite safety and housekeeping issues and should specifically address proper storage of chemicals and supplies unobstructed access to fire extinguishers and emergency evacuation routes.
- Determine if an emergency evacuation plan is present in work areas and if personnel are familiar with the plan.
- Conduct monthly fire safety inspection of the facility. That includes valve inspections flow test of the riser's audible and visual alarm activation, emergency lighting, general order and housekeeping.
- Checking that combustible materials are removed daily, that flammable liquids are stored safely that spill kits are intact at specific locations and that electrical equipment is in good repair

### **Outside Assembly Points**

- Outside assembly points will be marked and all site personnel instructed where to assemble in the event of an emergency.
- An assembly area must be assigned outside the factory so that evacuated workers can be accounted for in an emergency.

### **First Aider and First Aid Facilities**

Trained first aider(s) shall be appointed and for each shift.

### **In the event of Fire & Explosion (Fire Emergency Procedures)**

#### **a) If you discover a fire**

- Activate the nearest fire alarm.
- Otherwise, he shall evacuate and alert all personnel in the area and notify the IC/Dy IC/Supervisor.
- The person who discover can attempt to extinguish any incipient fire with the available firefighting equipment and without personnel risk.

#### **b) Fight the fire ONLY if:**

- The fire department has been notified of the fire and
- The fire is small and confined to its area of origin and
- You have a way out and can fight the fire with your back to the exit and
- You have the paper extinguisher, in good working order and have been trained and know how to use it.
- If you are not sure of your ability or the fire extinguishers' capacity to contain the fire leave the area.

#### **c) If you hear a fire alarm:**

- Evacuate the area and close doors as you leave.
- Leave the building and move away from exits and out of the way of emergency operations.
- Assemble in an assigned area outside the building.
- Supervisors and coordinators should account for all workers in their area to determine that all personnel have evacuated.
- All workers should remain outside until given the signal or announcement that it is safe to re-enter.

#### **d) If you hear a fire alarm:**

- Learn at least two escape routes and emergency exits from your area.
- Learn to activate a fire alarm.
- Learn to recognize alarm sounds.
- Take an active part in fire evacuation drills.

#### **e) Evacuation**

- When the alarms sounds, all personnel not assigned to emergency duties will immediately proceed to the nearest SAFE exit. Leave the building and move directly to the nearest assembly area.
- Do not stop to pick up personnel items.
- All personnel should refrain from smoking during the evacuation.
- All personnel should be at least sixty meters (60mm) or two hundred feet (200 ft) away from the building.
- Be familiar with exit routes, assembly areas and evacuation maps.
- Report to assembly area coordinator if evacuation from other than your normally assigned location also report to assembly area coordinator if co-worker is missing.
- Treat all alarms as if there is an emergency situation. Factory will evacuate for all alarms.

**f) Power Failure**

- In the event of a power failure remain in your work area. Wait for instruction from your coordinator, supervisor or shift leader.
- Stop and park all moving equipment immediately for the duration of the power failure.

**7.9.2 Management for Electrical Safety**

Accidental contact with electric current may result in electric shocks, contact burns and even death if proper protective measures are not taken. Wiring and electrical systems such as sockets, panels, motors, fuse boxes and transformers that are not section is to help reduce threats to workers, equipment and building from electrical shock or electrical fires.

**Requirements**

- Factories must contain wiring and electrical systems in safe condition.
- All workers who work with high-tension, live electricity must be trained on its hazards and the control measures that must be taken. Written records must be kept of this training.
- All electrical equipment must be properly grounded.
- Permanent and stationary equipment must have hard-wired electrical connections only.

**Hazard Assessment**

- Perform regular inspections of equipment and electrical installations to make sure they are in good working condition and do not present electric shock or fire hazards.
- Identify each piece of equipment manufacture to obtain appropriate electrical or mechanical hazards to maintenance workers. Contact the equipment manufacture to obtain appropriate electrical safety information if necessary.
- Prepare a written procedure for de-energizing and locking and tagging each machine out before performing any maintenance on it.

**Hazard Control**

- Grounding is an electrical connection to earth. A ground wire carries electrical current to earth when there is a leak in a circuit. Use building ground for all 120V AC outlets, motor grounds, etc. Never use the neutral circuit wire as the electrical ground.
- A ground Fault Circuit Interrupter is an electrical breaker that protects against an accidental short or overload of an electrical circuit. This device trips, cutting off electrical current at the slightest indication of an electrical short. Ground Fault Circuit Interrupters should be used in area where there is moisture or humidity is high (for example outlets close to water hose line, water faucets, etc)
- Regularly test and maintain electrical panels, tighten electrical connections and test electrical motors at full load (maximum electrical current or amperage) to identify loose connections that may create a fire hazard.
- Use adequate wire size and connectors according to current load for temporary electrical connections.
- Undersized wire or loose connectors are most common causes for wire overheating that may lead to fire hazards.

- Temporary installations should be kept only for a length of time specified by the work. Label and identify electrical panels as to the type of voltage (480V/220V; 240V/ 120V). Label each circuit breaker.
- Electrical panels should always be closed and locked. Key for electrical panels should be kept in a centralized area and made available only to authorized personnel.
- Make sure there is easy access ((approximately 1 meter or 3 feet) to electrical panels and transformers. Do not allow electrical panels or transformers to be blocked by equipment or stored materials and keep flammable or combustible materials away.
- To reduce the risk of electrical shock, cap or otherwise close any openings left in electrical enclosures (electrical panels, boxes, etc.) from removed electric piping, circuit breakers, etc.)
- Before using portable cord and plug connected equipment and extension cords on any shift inspect them for defects such as loose parts, deformed and missing pins or damage to the outer jacket or insulation. Do not allow the use of damaged or defective equipment or cords. Such items should be repaired (if possible) or discarded.
- Avoid hanging electric extension cords from the ceiling if possible. If these are to be used, make sure to have a strain-relief mesh or similar device to prevent strain on the outlet or damage to the extension cord.

### 7.10 Summary of Environmental and Social Management Plan

**Table 7.8 Environmental and Social Management Plan for Operation Phase**

Environmental & Social Aspect	Impact	Actions on Prevention	Time Frame	Responsible Person
<b>Natural Environment</b>				
Global warming potential	Emission of gaseous substance	<ul style="list-style-type: none"> <li>• Proper ventilation of equipment and machines.</li> <li>• Use of vehicles having efficient engines and exhaust system.</li> <li>• Implementing a regular vehicle maintenance and repair program.</li> <li>• Admixture must be stored in a covered container and kept cool to prevent evaporation into the environment.</li> </ul>	The whole operation period	EMT
	Dust Nuisance	<ul style="list-style-type: none"> <li>• The entire plant compound traversed by vehicles should be paved with a hard, impervious material.</li> <li>• More comprehensive cleaning should be carried out as</li> </ul>	The whole operation period	EMT

		<p>often as necessary.</p> <ul style="list-style-type: none"> <li>• Use dust control (spraying water) on the road.</li> <li>• Silos should be equipped with a high level sensor alarm and an automatic delivery shutdown switch to prevent overfilling.</li> <li>• Provide PPE against dust (i.e Mask)</li> </ul>		
Acoustic Impact	Noise at territory and beyond the bounds of the enterprise	<ul style="list-style-type: none"> <li>• Proper maintenance of generator and installation of engineered noise controls (sound absorption material if necessary).</li> <li>• Ensuring an adequate buffer is kept between the plant and neighbors (buffer distances &gt; 100 meters)</li> <li>• All preventive measures such as regular operation and maintenance of pumps, motors and compressor should be carried out.</li> </ul>	The whole operation period	EMT
<b>Water Environment</b>				
Water Pollution	Storm water Drainage System	<ul style="list-style-type: none"> <li>• Develop proper drainage systems for storm water and domestic waste water.</li> </ul>	The whole operation period	EMT
	Sanitation waste water	<ul style="list-style-type: none"> <li>• Discharge periodically by contacting Engineering Department (Water and</li> </ul>	The whole operation period	EMT

		Sanitation) from YCDC		
<b>Solid Waste</b>				
Concrete waste	Formation and allocation of waste	<ul style="list-style-type: none"> <li>Careful matching of orders with production.</li> <li>Reuse returned concrete for other purposes where practical.</li> <li>Use good housekeeping practices to clean up spills of cement and concrete as soon as possible.</li> </ul>	The whole operation period	EMT
Domestic Waste	Littering/polluting with solid waste	<ul style="list-style-type: none"> <li>Segregate the wastes into reusable wastes, hazardous wastes and domestic wastes.</li> <li>Awareness campaign for workers education on the waste segregated system.</li> <li>Improve notice sign and awareness display board (non-smoking, no dumping signs).</li> <li>Reuse waste if applicable.</li> <li>Wastes are removed from on-site at regular intervals to prevent release to the environment.</li> </ul>	The whole operation period	EMT
Hazardous waste	Pollution of air, land, ground water and waterways	<ul style="list-style-type: none"> <li>Use good housekeeping practices to clean up spills of cement and concrete as soon as possible.</li> </ul>	The whole operation period	EMT

		<ul style="list-style-type: none"> <li>• Hazardous waste must be contained to prevent it from blowing away and from leaching into surface or ground water.</li> <li>• Take adequate precautions to ensure that diesel fuel, oil, grease and other transportable materials do not enter surface and ground water courses.</li> <li>• Suitable spill response equipment (such as spill trays and spill kits) should be available to catch the fluid, contain and</li> <li>• collect small spills.</li> <li>• Installation of fire extinguisher near storage of hazardous waste.</li> </ul>		
<b>Chemical</b>				
Handling storage and use of chemicals	Pollution of air, land, ground water and waterways	<ul style="list-style-type: none"> <li>• Purchase the least toxic or hazardous product available</li> <li>• Keep containers tightly closed when not in use.</li> <li>• Marked prominently as “Chemical Storage Area”</li> <li>• Obtaining material safety data sheet (MSDS)</li> <li>• Display warning</li> </ul>	The whole operation period	EMT

		<p>signage at storage area.</p> <ul style="list-style-type: none"> <li>• Installation of fire extinguisher at storage area.</li> </ul>		
<b>Ecological Resources</b>				
Change in terrestrial	Impacts on biodiversity	<ul style="list-style-type: none"> <li>• Keep the enterprise premises green by planting trees and flowers.</li> <li>• In order to avoid the loss of ecological valuable, plant species should be practiced conservation methods as long term conservation.</li> </ul>	The whole operation period	EMT
<b>Social Environment</b>				
Social Sector	Population pressure	<ul style="list-style-type: none"> <li>• Use of Labor Force.</li> <li>• Provision of ferry service for workers from remote area.</li> </ul>	The whole operation period	EMT
Socio-Economic	Employment opportunity to local people	<ul style="list-style-type: none"> <li>• Informing of local population on existing vacancies.</li> <li>• Maximum possible involvement of local labor force in view of qualifying requirements.</li> </ul>	The whole operation period	EMT
	Enhancement of technical skill	<ul style="list-style-type: none"> <li>• Providing skill enhancement training.</li> <li>• Additional knowledge in waste management, material handling and general application of environmental, health and social precautionary measures.</li> </ul>	The whole operation period	EMT

		<ul style="list-style-type: none"> <li>Local people involved in the project will find easier to find jobs in similar nature of projects as a skilled labour.</li> </ul>		
<b>Health and Safety</b>				
Awareness on HIV/AIDS and STD	Spread to the community	<ul style="list-style-type: none"> <li>All workers will be adequately trained in basic sanitation and health care issues (e.g how to avoid transmission of sexually transmitted diseases such as HIV/AIDS).</li> </ul>	The whole operation period	EMT
Occupation Health and Safety	Dangerous and unhealthy working conditions	<ul style="list-style-type: none"> <li>Provision of personnel with primary healthcare.</li> <li>Placing at the factory of information and warning signs and fences.</li> <li>Conformity of working places to OT requirements</li> <li>Application of personal protective equipment.</li> <li>Ensure labor law and factory law is strictly followed.</li> </ul>	The whole operation period	EMT
	Dust	<ul style="list-style-type: none"> <li>Rinse eyes with water if they come into contact with cement dust and consult a physician.</li> <li>Implement PPE usage for eye protection.</li> <li>Use soap and water to wash off dust to avoid skin damage.</li> </ul>	The whole operation period	EMT

		<ul style="list-style-type: none"> <li>Wear a dust mask to minimize inhalation of cement dust.</li> </ul>		
	Exposure to cement/concrete	<ul style="list-style-type: none"> <li>Wash contaminated skin areas with cold, running water as soon as possible.</li> <li>Divers should be trained to avoid direct contact with concrete during and removal of hardened concrete process and correct operation of truck mixers including maintenance and cleaning.</li> </ul>	The whole operation period	EMT
	Poor Ergonomic	<ul style="list-style-type: none"> <li>Use hand trucks or forklifts when possible.</li> <li>Truck drivers should be informed about ergonomic risk factors.</li> </ul>	The whole operation period	EMT
	Slips, Trips and Falls	<ul style="list-style-type: none"> <li>Do not walk or work under overhead loads</li> <li>Stack and store materials properly to limit the risks of falling objects.</li> <li>Keep floor clear to avoid slipping and tripping hazards.</li> </ul>	The whole operation period	EMT
	Vibration and Radiation	<ul style="list-style-type: none"> <li>Arrange implementation of frequent (hourly) rest breaks for drivers exposed to extensive their previous whole body vibration.</li> </ul>	The whole operation period	EMT

		<ul style="list-style-type: none"> <li>Regulate the truck drivers' daily work schedule considering their previous shifts.</li> </ul>		
	Confined Spaces	<ul style="list-style-type: none"> <li>Guard against heat stress when cleaning truck mixer drums.</li> <li>Ventilation should be used during mixer drum cleaning.</li> <li>Wear appropriate protective equipment to avoid silica exposure when removing concrete residues from inside truck mixer drums.</li> </ul>	The whole operation period	EMT
	Vehicle Safety	<ul style="list-style-type: none"> <li>Be sure that trucks and other vehicles are in good working order, including audible backup warning signals, before operating them.</li> <li>Avoid overloading hoists, cranes and forklifts.</li> <li>Sufficient parking areas with traffic signage should be established.</li> </ul>	The whole operation period	EMT
	Electricity	<ul style="list-style-type: none"> <li>Electrical installation and all equipment are inspected according to a planned schedule and staff report any concerns to shift manager who will take</li> </ul>	The whole operation period	EMT

		appropriate action.		
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**Table 7.9 Environmental and Social Management Plan for Decommissioning Phase**

<b>Environmental &amp; Social Aspect</b>	<b>Impact</b>	<b>Actions on Prevention</b>	<b>Time Frame</b>	<b>Responsible Person</b>
<b>Natural Environment</b>				
Air/Dust	Chronic respiratory disease and eye complication	<ul style="list-style-type: none"> <li>• All vehicle used are inspected and done regular maintenance.</li> <li>• Restriction of transport speed on roads.</li> <li>• Installation of temporary cover.</li> <li>• Set up dust barriers at strategic locations: Dust nets will be provided around the demolition area.</li> <li>• Practice dust management techniques, including watering down dust.</li> <li>• Provide PPE against dust (i.e Mask)</li> </ul>	Through-out decommissioning phase	Contractor Site Engineer Technician
Noise	Long/short term noise nuisance and hearing loss	<ul style="list-style-type: none"> <li>• Schedule noisy activities during day time period.</li> <li>• Ensure machinery is well maintained to reduce noise generating.</li> <li>• Switching off installation and equipment when they are not used.</li> <li>• Minimization of work during evening/night time.</li> <li>• Provide PPE such as noise defenders, ear plugs and war muffs to the</li> </ul>	Through-out decommissioning phase	Contractor Site Engineer Technician

		workers in high noise area.		
<b>Water Environment</b>				
Water Pollution	Contamination of surface and under ground water resources	<ul style="list-style-type: none"> <li>• Ensure sewage system is functional during demolition to prevent pollution of nearby underground and surface water sources.</li> <li>• Proper demolition of the sewage system to prevent pollution by contents into the environment and ground water.</li> </ul>	Through-out decommissioning phase	Contractor Site Engineer Technician
<b>Waste</b>				
Solid Waste	Pollution of water, air and soil	<ul style="list-style-type: none"> <li>• Enforce segregation of waste at the source to encourage reuse and recycling.</li> <li>• To store waste temporary in containers in case of large dimension it is possible to store wastes with water proof cover.</li> <li>• Disposal of solid waste in compliance with local government policy.</li> <li>• Usable infrastructures will be hand over to the township authorities for future community use.</li> </ul>	Through-out decommissioning phase	Contractor Site Engineer Technician
<b>Social Environment</b>				
Interaction with public	Safety	<ul style="list-style-type: none"> <li>• Informing of public on demolition process</li> </ul>	Through-out decommissioning phase	Contractor Site Engineer

			ssioning phasa	Technician
<b>Health and Safety</b>				
Occupational Health and Safety	Incidents and accidents leading to serious injury or fatalities	<ul style="list-style-type: none"> <li>• Placing at the site of information and warning signs and fences.</li> <li>• Ensure provision of appropriate PPE for staff such as                             <ul style="list-style-type: none"> <li>○ Ear muffs for ear protection,</li> <li>○ Helmets for head protection,</li> <li>○ Dust masks for dust protection for all project works,</li> <li>○ Goggles with good visibility for eye protection,</li> <li>○ Overalls and dust coats to protect the skin,</li> <li>○ Safety shoes for protection of the feet,</li> <li>○ Gloves of different types according to specific works in relation to puncture resistance; sharps resistance: cut resistance; flexibility; abrasion resistance; grip.</li> </ul> </li> </ul>	Through-out decommissioning phasa	Contractor Site Engineer Technician
Emergency	Fires and explosions at the site	<ul style="list-style-type: none"> <li>• Storage of inflammable and explosive substance and materials at</li> </ul>		

		<p>closed warehouses or fenced sites.</p> <ul style="list-style-type: none"> <li>• Regular territory clearing.</li> <li>• Availability of necessary means for five prevention and provision of operative access to them.</li> </ul>		
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### 7.11 Environmental Monitoring Plan

A chemical or process industry in general produces solid, liquid and gaseous wastes which are discharged to the environment. The waste product may contain pollutants which may harm environment. It is the responsibility of the industries to prevent or minimize the discharges of waste products by adopting suitable control measures in the factory. The effectiveness of such measures is ascertained by systematic monitoring of discharges at factory level and at receiving level.

Environmental monitoring is a very important aspect of environmental management during construction, operation and decommissioning stages of the project to safeguard the environment.

The scope of the Environmental Monitoring Plan shall include;

- To identify and resolve environmental issues and other functions that may arise during the construction and operational phases;
- To implement water quality, air quality and noise impact monitoring plan during the operational phase;
- To check and quantify the environmental performance and recommend and implement remedial actions;
- To conduct regular reviews of monitored data as the basis for assessing compliance with defined criteria and to ensure that necessary mitigation measures are identified, designed and implemented; and
- To assess and interpret all environmental monitoring data to ascertain whether environmental control measures and practices are functioning in accordance to specifications.

The objective of environmental monitoring is to systematically collect environmental data and support information needed for evaluation of the environmental performance. The frequency and methods of data collection must ensure that the data obtained are reliable and meaningful, i.e. they will adequately reflect the project environmental performance. A proposed environmental monitoring program must be practical, relevant and cost effective.

The project proponent will also be responsible for the implementation of monitoring, summarization monitoring results, and submission of monitoring report to the Ministry of Natural Resources and Environmental Conservation (NONREC) periodically through the local Environmental Conservation Department (ECD).

#### 7.11.1 Environmental Monitoring Plan for Operation Phase and Decommission Phase

The EMP cell members responsible may conduct daily, weekly or monthly general inspections of the project area and facilities. The objectives are to identify non-compliances to EMP. Table 7.10 is provided the environmental monitoring schedule for Win Win Vermicelli Industry Co., Ltd. The factory submits monitoring report to the Ministry not less frequently than every six months as provided in a schedule in the EMP.

**Table 7.10 Environmental Monitoring Schedule for Win Win Vermicelli Industry Co., Ltd**

Environmental issues	Parameter	Recommended monitoring frequency	Area to be monitored	Responsible Section
Air quality	Stack & ambient air emission (CO <sub>2</sub> ,	Biannually in operation phase	Within the factory area	Responsible officer of Win Win Vermicelli

	CO, SO <sub>2</sub> , NO <sub>x</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> )			Industry Co., Ltd
Water quality	-Effluent wastewater -Wastewater quality (pH, DO, BOD, COD, TDS, Temp)	-Daily in-house check -Biannually check by third party	Final discharge point of factory drainage	Responsible officer of Win Win Vermicelli Industry Co., Ltd
Noise	Noise level in decibel	Biannually	Operation area	Responsible officer of Win Win Vermicelli Industry Co., Ltd
Waste management	-Garbage collection cleaning - Maintenance	-Daily -Daily	-Temporary storage sites of proposed factory -Record disposed frequency	Responsible officer of Win Win Vermicelli Industry Co., Ltd
Energy consumption	Liters of Diesel/fossil fuel for the generator	-Monthly monitoring of energy use -Daily monitoring of fuel use	Generator house and fuel storage area	Responsible officer of Win Win Vermicelli Industry Co., Ltd
Water consumption	-All water taps shut off when not use -Power to unused equipment shut off at the distribution panel	-Daily -Daily	Water distribution area	Responsible officer of Win Win Vermicelli Industry Co., Ltd
Emergency response equipment	-Extinguisher's position -Water hydrants -Firemen switch testing -Servicing fire extinguishers -Review records of accident -OHS training	-Daily -Daily -Monthly -Quarterly -Quarterly -Biannually		Responsible officer of Win Win Vermicelli Industry Co., Ltd
<b>Decommissioning Phase</b>				
Air quality	PM <sub>2.5</sub> ,PM <sub>10</sub>	One time during this phase	One point in the production area	Win Win Vermicelli Industry Co., Ltd
Water quality	pH, DO, BOD, COD, TDS, Temp, Oil and Grease,	One time during this phase	Final discharge point of factory drainage	Win Win Vermicelli Industry Co., Ltd

	Chlorine, Arsenic			
Noise	Noise level in decibel (dBA)	One time during this phase	One point in the demolishing area	Win Win Vermicelli Industry Co., Ltd
Rehabilitation	Recovering and revegetation		All decommissioning area	Win Win Vermicelli Industry Co., Ltd

**Table 7.11 Environmental Monitoring Schedule for Win Win Vermicelli Industry Co., Ltd**

No	Item	Frequency/ Times	Cost (USD)
1	Air quality	Twice per year	1000 per year
2	Water quality	Once per year	100 per year
3	Noise	Twice per year	300 per year
4	Waste Management	Four times per month	100 per month
5	Emergency response equipment	Once per year	500 per year
<b>Decommissioning Phase</b>			
1	Air quality	One time during this phase	500
2	Water quality	One time during this phase	300
3	Noise	One time during this phase	100

## 7.12 Corporate Social Responsibility (CSR) Plan

The CSR activities have the objective to uplift quality of life and gain favorable relations from all communities in the operation area. The CSR program for Win Win Vermicelli Industry Co., Ltd textile printing factory consists of three main sectors. Health, Education and Community Development Sector. CSR activities are conducted in compliance with MIC's guideline for implementation of CSR program.

Win Win Vermicelli Industry Co., Ltd will contribute 2% of our Net Profit to social welfare activities what will help society and country of Myanmar. Our social welfare activities shall include training of our employees such as providing necessary healthcare such as medical checkup and giving proper medical knowledge about deceases and its prevention. Part of our CSR activity such as donations will also contribute to public school around our factory table 7.12.

**Table 7.12 CSR Plan at Win Win Vermicelli Industry Co., Ltd**

No	Particle	Contribution
1	Public School	0.5%
2	Non- profit training	1
3	Employees healthcare	0.5%

### 7.12.1 Public School

We will contribute 0.5% of our net profit to the public school near the factory to be a part of creating the better community. We will also work together with the school to understand more about the needs and we will also ensure that our contributions will be used in the most effective and efficient way for the society.

### 7.12.2 Non-Profit Training

We will contribute 1% of our net profit for the trainings of our employees. Our trainings include job-related trainings, Language trainings and safety trainings. The main objectives of our trainings are that we want our garment with their work but also measures and occupational health employees to be not only become more productive and more qualified.

### 7.12.3 Healthcare

One of our main concerns is the well-being of our employees. We will contribute 0.5% of our net profit for the healthcare which includes medical checkup for the employees and providing health education to our workers.

### 7.13 Budget Plan for Environmental Management and Monitoring

This section describes the budget plans for the environmental management and environmental monitoring by the project proponent. On the other hand, Win Win Vermicelli Industry Co., Ltd will take necessary environmental mitigation measures and its expenses for the environmental management not only at the construction and operation phases but also at the closing phase in accordance with their responsibility for the studies of recommendation.

The following table shows the expenditures for the implementation of environmental management plan for operation phase annually. Estimation cost for EMP implementation is presented in Table 7.13.

**Table 7.13 Cost Estimation for EMP Implementation**

No	Item	Frequency/Times	Cost (USD)
<b>Mitigation plan</b>			
1	Maintenance of air ventilation system	Once per year	200 per year
2	Grass plantation within the area of factory compound	Once per three month	100 per three month
3	Solid waste disposal	Four times per month	100 per month
4	Purchase of personal protective equipment (PPE)	Twice per year	200 per half a year
5	Medical checkup and health insurances	Once per year	200 per year
<b>Emergency preparedness</b>			
1	Fire extinguisher	Once per year	200 per year
2	Fire alarm system		
3	First aid kits		
<b>Monitoring Plan</b>			
1	Air quality	Twice per year	1000 per year
2	Water quality	Once per year	100 per year
3	Noise	Twice per year	300 per year
4	Emergency response equipment	Once per year	500 per year

### 7.14 Grievance Redress Mechanism (GRM)

People who live near the project area or stakeholders can complain about the problems and impacts that they suffer, they can complain through Grievance Committee which includes the responsible persons of Win Win Vermicelli Industry Co., Ltd representative from Shwe Pyi Thar Industrial Zone (2) and representative from general administration department (Shwe Pyi Thar Township). Small issues will be solved at the Grievance Committee stage and other unsolved problems will be submitted to higher responsible authorities and finally the responsible person decided by the court in legal terms.

### 7.15 Reporting Monitoring Results

Results of air quality and noise level monitoring, and analysis of water quality will be recorded in files to check and audit. Monitoring will be carried out strictly as required by the related national regulations and the monitoring results of required parameters should be reported to local authorities and local ECD.

**Report Supported Team** is responsible for recording of the monitoring results in files, developing the monitoring report with related documents and to report submission to local Environmental Conservation Department (ECD).

## **8. EMPLOYEE WELFARE PALN**

Win Win Vermicelli Industry Co., Ltd is always proactive to provide a peace and harmony workplace for all of its employees. Employee Welfare Plan of Win Win Vermicelli Industry Co., Ltd is as follows.

### **Staff Transportation**

Win Win Vermicelli Industry Co., Ltd has a plan of staff transportation. It provides ferry for coming to factory and going to home. It is free cost to whom they take the ferry of factory.

### **Rest breaks**

Win Win Vermicelli Industry Co., Ltd Factory provides a longer break for lunch for 30 minutes.

### **Dining area**

A large eating place with sufficient tables and chairs is arranged for all employees to rest and relax in time of need. The workers can eat their own packed lunch. It is situated away from the workstation to avoid any contact with dirt, dust or dangerous substances used during the work process.

### **Drinking water**

Drinking water is essential for all workers. A water purifier is installed and the factory arranges plenty of safe drinking water, at no cost, to all workers at all time.

### **Health facilities**

Win Win Vermicelli Industry Co., Ltd helps the workers by providing them with a workplace medical facility, such as a small clinic where treatment can be given for occupational injuries. A qualified nurse is hired by the company so that in emergency cases employees could be promptly free of change.

The FIRST AID KITS and emergency medical boxes are supplied sufficiently in all work sites for minor cuts or ailment. The names and location of responsible person for first aid are put on a notice board and everyone knows the procedures for obtaining medical assistance.

Win Win Vermicelli Industry Co., Ltd will send the injured employee to the nearest Private Clinic/ Hospital with factory transportation at no cost. Some employees who hold social security cards, on their request or consent, are sent to SOCIAL SECURITY CLINIC nearby the factory's transport arrangement.

In addition, Win Win Vermicelli Industry Co., Ltd arranges for the employees to have a chance of medical check-ups by medical officers from government worker hospital.

### **Ready for Emergency**

Win Win Vermicelli Industry Co., Ltd Factory establish the Emergency Response Team and proper preventive measures are installed for all employees

### **Sanitary facilities**

Appropriate sanitation facilities are installed in the factory and regular disinfection work carried out. Toilets are provided separately; 6 for men and 34 for women. The toilets are provided with enough water and deodorants. If necessary, some kind of antiseptic liquid will be sprayed.

### **Social Activities**

The factory usually organizes Water Festival celebration triennially.

### **Other supported facilities**

The factory provides parking place for bicycle and motorcycle for all workers.

### **Overtime fees**

It is given on hourly basis at the rate following the existing Labor law of the country.

### **Bonus**

Annual leave bonus is paid. Besides annual leave bonus, efficiency bonuses are paid based on their performance.

## **9. CONCLUSION**

Environmental Management Plan (EMP) has been prepared for Win Win Vermicelli Industry Co., Ltd is located at No (27), U Tayote Street, Shwe Pyi Thar Industrial Zone (2), Shwe Pyi Thar Township,. The main objective of the study is focused specially on the required environmental management measures or creating environmentally friendly workplace. An EMP has been carried out for the factory according to the according to the requirement of the proponent as it has been made for garment manufacturing factory.

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

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

The effective implementation of the mitigation measures proposed will ensure towards good environmental management within the proposed garment factory is going to generate local employment opportunities and enhance capabilities and working skills of employees. Consequently, their socio-economic standard is expected to be improved and undertaking corporate social responsibilities (CSR) as recommended. The study further concluded that positive impacts will be of immense benefit to the local community and national development as well.

**Appendix (A) Photos of factory**



**Appendix (B) Photo Records of Air Monitoring at The Factory**



Appendix (C) Photos Records of Welfare



**Appendix (D) Photos Record of CSR activities**

